BEFORE THE DISTRICT OF COLUMBIA PUBLIC SERVICE COMMISSION

In the Matter of the Investigation into the Potomac Electric Power Company's Residential Air Conditioner Direct Load Control Program	)))	Formal Case No. 1086
In the Matter of the Investigation into the Potomac Electric Power Company's District of Columbia Dynamic Pricing Program Proposal	)))	Formal Case No. 1109

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

January 13, 2014

I. Introduction

The staff of the Federal Trade Commission (FTC) welcomes this opportunity to submit a reply comment on the public notice (Notice) by the District of Columbia Public Service Commission (DC PSC) regarding a proposed program of dynamic (variable) pricing of electricity for residential customers in the form of a "Peak Energy Savings Credit."[2] Several significant technical developments – including advanced-technology meters, often called "smart meters" – have made it timely to consider what contributions electricity pricing incentives at the retail level can make to the achievement of substantial power system efficiencies and improvements in the reliability of the electric system. Achievement of these efficiencies can create benefits for all electricity customers. It is particularly appropriate to provide incentives (in the form of bill savings) to customers who trim their electricity consumption from the grid when

[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] 60:51 D.C. Register 016380-85 (Nov. 29, 2013), *available at* http://www.dcpsc.org/pdf_files/hottopics/PublicNotice_FC1086_and_FC1109.pdf and http://www.dcregs.dc.gov/Gateway/NoticeHome.aspx?noticeid=4654271.

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it is stressed by unusually high demand, and who thereby help utilities and grid operators to meet the challenge of continuously balancing supply and demand on the electric system.

The DC PSC is considering a proposal from Potomac Electric Power Company (Pepco) to offer incentives like those noted above. As a general matter, customers who respond to incentives to trim demand for electricity from the grid during peak demand periods can save money and can reduce the costs and improve the reliability of the electric system. Lowering the costs and improving the reliability of the electric system work to the benefit of all electricity customers (not only those who respond to these incentives). Pepco's proposed approach – to offer credits for cutting electricity consumption during peak (critical) demand periods – has the added feature of not penalizing customers who do not respond to the incentives.

The comment submitted by the National Energy Marketers Association (NEM) in this matter raised concerns about the competitive neutrality of consumer education programs proposed by Pepco.[3] We agree that such neutrality should be a priority in designing consumer education programs about retail electric dynamic pricing and about the alternatives that marketers offer to customers. NEM's comment also discussed equal access to meter data for Pepco and marketers. We agree that marketers offering alternative dynamic pricing options to retail customers need access to such data at least sufficient to operate their alternative pricing options, although we also urge the DC PSC to ensure that appropriate safeguards are in place for the privacy of customer information.

In the remainder of this reply comment, we elaborate on the timeliness of the Pepco proposal, discuss some of the tradeoffs inherent in the proposed approach, and elaborate our views concerning NEM's initial comment to the DC PSC. We encourage the DC PSC to adopt the Pepco proposal as a constructive initial step toward improving the efficiency of the electric system in a way that can benefit many customers but also leave the existing pricing structure in place for customers who do not (or cannot) respond to the efficiency incentives. We recommend that the DC PSC periodically review the effects of the proposed approach with a focus on the accuracy of the price signals being conveyed, consumer participation in and satisfaction with the program, and methods to enhance consumer participation and satisfaction over time.

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

[3] Comments of the National Energy Marketers Association (Dec. 19, 2013), *available at* http://dcpsc.org/edocket/docketsheets_pdf_FS.asp?caseno=FC1086&docketno=57&flag=D&show_result=Y.

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, the Department of Energy (DOE), and the Federal Energy Regulatory Commission (FERC).[6] In particular, we have filed a number of advocacy comments concerning demand response (DR), dynamic pricing, and their interactions with retail competition.[7] The FTC's competition advocacy program also

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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), *accessible at* http://www.ftc.gov/news-events/events-calendar/2007/04/energy-markets-21st-century-competition-policy-perspective. FTC merger cases involving electric power markets have included *DTE Energy/MCN Energy* (2001) (consent order), *accessible at* http://www.ftc.gov/enforcement/cases-and-proceedings/cases/2001/05/dte-energy-company-and-mcn-energy-group-inc; and *PacifiCorp/Peabody Holding* (1998) (consent agreement), *available at* http://www.ftc.gov/sites/default/files/documents/cases/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/policy/advocacy/advocacy-filings?combine=&field_matter_number_value=&field_advocacy_document_terms_tid=5290&field_date_value%5Bmin%5D%5Bdate%5D=2013-10&field_date_value%5Bmax%5D%5Bdate%5D=&=Apply.

[7] For example, the FTC staff discussed electricity dynamic pricing, DR, and competition issues in its Comment 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

has issued two staff reports on electric power industry restructuring issues at the wholesale and retail levels.[8] In addition, the FTC staff (along with staff from FERC, the Department of Justice, the Department of Agriculture, and DOE) contributed to the work of the Electric Energy Market Competition Task Force, which issued a *Report to Congress* in the spring of 2007.[9]

Relating to the Creation of a Competitive Market for Electric Supply Service, PSC Regulation Docket No. 49 (Nov. 13, 2013), *available at* http://www.ftc.gov/sites/default/files/documents/advocacy_documents/ftc-staff-comment-public-service-commission-state-delaware-concerning-its-proposal-revised-its-rules/131114delawareretailelectric.pdf; 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/sites/default/files/documents/advocacy_documents/ftc-staff-comment-public-utility-commission-texas-concerning-rulemaking-regarding-demand-response/1303texaspuccomment.pdf; Comment Before the New York State Public Service Commission in the Proceeding To Assess Certain Aspects of the 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/sites/default/files/documents/advocacy_documents/ftc-staff-comment-state-new-york-public-service-commission-ny-psc-concerning-ny-pscs-review/130125nypsccomment.pdf; Comment Before the Federal Energy Regulatory Commission in Matter of Demand Response Compensation in Wholesale Energy Markets, Docket No. RM10-17-000 (Oct. 13, 2010), *available at* http://www.ftc.gov/sites/default/files/documents/advocacy_documents/ftc-comment-federal-energy-regulatory-commission-concerning-demand-response-compensation-organized.rm10-17-000/1010wholesaleenegrymarkets.pdf; Comment Before the Federal Energy Regulatory Commission in the Matter of Discussion Draft of Possible Elements of a National Action Plan on Demand Response, Docket No. AD09-10-000 (Dec. 11, 2009), *available at* http://www.ftc.gov/sites/default/files/documents/advocacy_documents/federal-trade-commission-comment-federal-energy-regulatory-commission-concerning-possible-elements/v100002ferc.pdf.

[8] 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/competition-consumer-protection-perspectives-electric-power-regulatory-reform-focus-retail; FTC Staff Report, *Competition and Consumer Protection Perspective on Electric Power Regulatory Reform* (July 2000), *available at* http://www.ftc.gov/reports/competition-consumer-protection-perspectives-electric-power-regulatory-reform (containing edited compendium of excerpts from previous comments that the FTC and its staff provided to various state and federal agencies).

[9] 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 Retail Dynamic Pricing To Benefit Customers through Lower Costs, Increased Innovation, and Expanded Variety of Services

One of the most significant technological developments in the electricity industry over the past 25 years has been the wide deployment of smart meters that measure and report power use in small time intervals and also can communicate price and power system status information to customers.[10] Dynamic pricing – offered either by utilities or by retail electricity marketers – can present many benefits to power customers, including enabling them to better match their preferences for bill savings and increasing power system reliability. For example, under dynamic pricing, 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.

When technological developments and economically appropriate dynamic pricing incentives are adopted, 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.[11] Customer responses to higher power prices or equivalent credits for reducing power use can be automated through equipment that cuts back or delays power use at pre-set price points or credit levels.[12]

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[10] Other important developments in the industry have included (1) a trend toward smaller, highly efficient generation units; (2) the increased use of wind, solar, biofuel, and geothermal renewable energy sources for generation (some at the utility level and some on the customer's side of the meter); (3) the automation of dispatch of generators and of transmission and distribution operations; (4) advances in energy storage technology.

[11] For a bibliography of papers on 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, 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.

[12] Robert Letzler, "Using Incentive Preserving Rebates to Increase Acceptance of Critical Peak Electricity Pricing," Univ. of Cal. Energy Inst. Working Paper 162R (rev'd May 31, 2010), *available at* http://www.ucei.berkeley.edu/PDF/csemwp162r.pdf; *see also* Baltimore Gas & Elec., "MADRI: All About Peak-Time Rebates" (Feb. 2, 2012) (presentation to the Mid-Atlantic Distributed Resources Initiative Working Group), *available at* http://sites.energetics.com/MADRI/pdfs/Hindes_MADRI_Feb_2_2012.pdf.

Alternatively, customers can manually adjust their air conditioners or other heavy power uses when meters (or other communication sources) alert them either that prices are going up or that they can earn credits for reducing power consumption.

Customer responses to retail price signals that accurately reflect wholesale market conditions reduce system costs, support reliability, and provide environmental benefits.[13] For example, a DR program that entails reduction of 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 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.

Some recent developments appear to underscore the importance of gaining customer assistance in balancing the power system. Electric vehicles (EVs) illustrate this point well.[14] Recharging EVs off peak (overnight) helps flatten load profiles (reduce peaks and fill troughs in consumption), so that the fixed costs of more fully utilized generation and distribution assets are spread over more power volume, at a lower per-kilowatt unit rate. Conversely, recharging EVs during peak demand periods 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. These harmful effects could occur either on a local distribution line or over a larger area. Consequently, all consumers benefit if EV owners respond to incentives to avoid recharging their EVs during peak demand periods, even if that is not always convenient for EV owners. Both EV owners and electricity customers in general could obtain even more benefits if EV owners schedule their vehicle charging to coincide with abundant supply and uncongested transmission conditions. For example, an EV owner could set the recharging equipment to draw power only (or primarily) when the price net of credits is below a specified level.

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[13] *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.

[14] *See, 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.

Flat-rate electricity pricing at the retail level – in the face of volatile generation and transmission prices at the wholesale level – in effect results in large subsidies for customers consuming power in peak demand periods and large penalties for customers consuming power in demand troughs. Without price signals that reflect the cost of consumption to the power system, retail electric power customers frequently make consumption decisions that result in inefficiencies in the power system, to the detriment of all electricity consumers. Pepco's proposal can be an important step toward helping customers make informed consumption decisions and reducing inefficiencies caused by flat-rate pricing of electricity.

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.[15] When a 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 shedding load or allowing a voltage sag in order to prevent a larger blackout.[16]

[15] 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 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.

[16] For example, wind DG units generally produce power most abundantly during off-peak, windier 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.

IV. Tradeoffs in Designing Dynamic Pricing Systems

Economists who study differences in retail electricity pricing regimes evaluate how closely dynamic retail prices reflect the current wholesale market price. They also evaluate the impact of dynamic prices on customers' consumption patterns and on their incentives to invest in devices that will allow them in the future to respond more effectively to changes in power prices. In these evaluations, real-time prices and various other forms of dynamic pricing have been found to offer benefits to customers in the form of lower average power bills if the customers are willing to experience greater potential fluctuations in short-term prices.

The Brattle Group discussed the risk/return tradeoffs associated with several dynamic pricing alternatives in its independent presentation to a technical conference of the Ohio Public Utilities Commission.[17] 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's review included nine rate designs.[18] The appendix to this comment (which is page 10 of the Brattle paper cited in note 17, *supra*) reproduces this graphic representation of these alternative forms of dynamic pricing, showing the tradeoffs between potential benefits from lower power bills and risks from greater price volatility.

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[17] Ahmad Faruqui, "Dynamic Pricing for Residential and Small C&I Customers" 9-13 (Mar. 28, 2012), *available at* 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.

[18] 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.
> **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.

The Pepco proposal falls within the Peak Time Rebate category in Brattle's analysis. As the appended graph shows, Peak Time Rebates have the remarkable characteristic of providing potential benefits for customers who cut power use in the designated periods, but not increasing the risks for other customers (in the form of increased price volatility).[19] For this reason, the Pepco proposal is an attractive alternative among the various forms of dynamic pricing regimes and represents a clear improvement over flat-rate pricing. We also commend Pepco's intentions (stated in the Notice) to educate customers about the Peak Energy Savings Credit system[20] and to avoid double counting of demand curtailments from customers who take retail service from marketers using other forms of dynamic pricing incentives.[21]

With respect to consumer education about dynamic prices, it is important for preservation of competition that consumer education programs authorized by the DC PSC be competitively neutral. Thus, we urge the DC PSC to guard against authorizing consumer education programs that focus exclusively on the virtues of Pepco's own dynamic pricing offers and that may provide consumers with incomplete or misleading information about offers from competing marketers. With respect to demand curtailments, it is also important for preservation of competition that marketers have sufficient access to the data from smart meters to operate their alternative dynamic pricing offers. Relative to Pepco, marketers should not be competitively handicapped by discriminatory access to the smart meter data needed to operate their alternative dynamic pricing offers.

At the same time, however, we urge the DC PSC to ensure that appropriate safeguards are in place with respect to the personal information that smart meters generate about customers and make available to marketers. Such information can be highly sensitive, including potentially indicating when customers are at or away from home and when they are awake. All entities that receive such personal information should protect it appropriately. We also encourage the DC PSC to ensure that Pepco informs its customers that it is using their data for purposes of dynamic pricing.

We encourage the DC PSC to revisit over time whether technology and customer sophistication have increased enough to consider moving toward a dynamic pricing system in

[19] We note that the peak energy savings credit is subject to change based on the value (in the PJM wholesale market) of the reduced consumption that the dynamic pricing system induces.

[20] This topic is covered in Paragraphs 9 and 10 of the DC PSC's Notice.

[21] This topic is covered in Paragraph 3 of the Notice. Without a mechanism to avoid double counting, marketers might sell retail demand responses in the PJM wholesale electricity market, while retail electricity customers receive the Pepco credit for the same DR.

which Pepco's retail power customers receive price signals that even more closely resemble actual wholesale prices in real time. As indicated by the appended Brattle graph, real-time pricing provides the most accurate price signals and applies them in all periods. Intermediate steps between the Pepco proposal and real-time pricing include (1) adjusting the level of the credits to fit the specific circumstances of each critical event and (2) adding classes of events that are less critical, but as to which increased DR could improve system costs, efficiency, and reliability and could lower customers' bills.

V. Conclusion

The FTC staff appreciates the opportunity to submit this reply 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