

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke)
Energy Ohio, Inc. to Adjust Rider DR-IM)
and Rider AU for 2011 SmartGrid Costs) Case No. 12-1811-GE-RDR

DIRECT TESTIMONY OF

TIMOTHY J. DUFF

ON BEHALF OF

DUKE ENERGY OHIO, INC.

June 20, 2012

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I. INTRODUCTION

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Timothy J. Duff. My business address is 526 South Church Street,
3 Charlotte, North Carolina 28202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am General Manager, Retail Customer and Regulatory Strategy, Customer
6 Strategy & Innovation for Duke Energy Business Services, LLC.

7 **Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL
8 QUALIFICATIONS.**

9 A. I graduated from Michigan State University with a Bachelor of Arts in Political
10 Economics and a Bachelor of Arts in Business Administration, and received a
11 Master of Business Administration from the Stephen M. Ross School of Business
12 at the University of Michigan. I started my career with Ford Motor Company and
13 worked in a variety of roles within the Company's financial organization. After
14 five years with Ford Motor Company, I began work with Cinergy in 2001,
15 providing business and financial support to plant operating staff. Eighteen
16 months later I joined Cinergy's Rates Department, where I provided revenue
17 requirement analytics and general rate support for the company's transfer of three
18 generating plants. After my time in the Rates Department, I spent a short period
19 of time in the Environmental Strategy Department, and then I joined Cinergy's
20 Regulatory and Legislative Strategy Department. After Cinergy merged with
21 Duke Energy in 2006, I worked for four years as Managing Director, Federal
22 Regulatory Policy. In this role, I was primarily responsible for developing and

1 advocating Duke Energy’s policy positions with the Federal Energy Regulatory
2 Commission. I assumed my current position in 2010.

3 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC**
4 **UTILITIES COMMISSION OF OHIO?**

5 A. Yes, I have testified previously before the Public Utilities Commission of Ohio
6 (Commission) in matters related to Duke Energy Ohio, Inc.’s (Duke Energy Ohio)
7 energy efficiency portfolio and the associated recovery mechanism, a decoupling
8 pilot, and in the Company’s SmartGrid Rider cases. I have also provided
9 testimony in cases before the Indiana Utilities Regulatory Commission, the North
10 Carolina Public Utilities Commission, and the Kentucky Public Service
11 Commission.

12 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
13 **PROCEEDING?**

14 A. The purpose of my testimony is to discuss the dynamic pricing pilot programs that
15 Duke Energy Ohio is conducting and Duke Energy Ohio’s work with the Duke
16 Energy Ohio SmartGrid Collaborative (Collaborative).

II. DUKE ENERGY OHIO SMARTGRID COLLABORATIVE

17 **Q. PLEASE DISCUSS THE WORK OF THE DUKE ENERGY OHIO**
18 **SMARTGRID COLLABORATIVE.**

19 A. Shortly after the Commission approved Duke Energy Ohio’s deployment of
20 SmartGrid in 2008, the Company convened a meeting open to all interested
21 parties, to discuss the Company’s plans for its implementation of SmartGrid. The
22 Office of the Ohio Consumers’ Counsel, Ohio Partners for Affordable Energy, the

1 Staff of the Public Utilities Commission of Ohio (Staff) and others participate on
2 a regular basis. These regular monthly meetings of the Smart Grid Collaborative
3 (Collaborative) provide Duke Energy Ohio with a valuable opportunity to create
4 transparency around the status of the deployment and engage the various parties
5 in open and free flowing discussions. Duke Energy Ohio uses these discussions
6 to better understand the various views of the Parties and, in many cases, to modify
7 or enhance the Company's plans. Duke Energy Ohio's initial filing and
8 subsequent revision and refiling of its recently approved Critical Peak Pricing
9 (CPP) pilot exemplifies the Company's interest in accomodating input from the
10 Collaborative. The Collaborative members were concerned that the intial version
11 had too many hours of the day in the summer period that would place customers
12 on a rate that was higher than the existing rates. Duke Energy Ohio worked to
13 redesign the rate to address this concern. As a result, the process of proposing
14 technology-enabled pilot tariffs to the Commission for its consideration is
15 streamlined and the proposed tariffs are, to the extent noted in the respective
16 dockets, generally supported by interveners. This enables the Company to move
17 quickly to work with its customers during appropriate seasonal periods to pilot
18 technology-enabled tariff offerings and gain valuable insight into the customer
19 experience. Duke Energy Ohio appreciates the work of the Staff and the Parties
20 for their contribution and dedication to the work of the Collaborative, and the
21 Company hopes to continue with these meetings throughout its deployment of
22 SmartGrid.

1 **Q. PLEASE EXPLAIN THE ROLL THAT TIME DIFFERENTIATED RATES**
2 **WILL PLAY IN THE PROVIDING BENEFITS TO CUSTOMERS.**

3 A. Although the Company's financial justification for its deployment has not
4 recognized any of the potential customer benefits that could be realized from
5 time-differentiated rates, continuing down a deliberate path of developing time-
6 differentiated rate pilots is appropriate. Through Duke Energy Ohio's pilot
7 programs in 2010 and 2011 the Company and the Collaborative have been able to
8 learn a tremendous amount about customer acquisition, attractiveness of different
9 rate designs and potential impacts associated with the rate designs. Building upon
10 all of these initial learnings, the Company plans to continue to work with the
11 Collaborative to develop rate pilots during the remainder of its deployment, to
12 better understand customers' requirements and receptiveness to time-
13 differentiated rates and demonstrate the customer benefits that can be realized
14 from having the opportunity to be served under time differentiate rates.

15 **Q. PLEASE DISCUSS DUKE ENERGY OHIO'S APPROACH TO NEW**
16 **TARIFFS.**

17 A. Just as with the actual physical deployment of SmartGrid, Duke Energy Ohio has
18 taken a very deliberate and calculated approach to rolling out a portfolio of time-
19 differentiated rates. One example of this deliberate approach was Duke Energy
20 Ohio's decision not to offer time-differentiated rates during the first year of
21 deployment. Customers in states such as Texas and California mistakenly
22 perceived that rate changes were caused by faulty meters rather than by rate

1 increases. As a result, Duke Energy Ohio opted to give customers some
2 experience with the new meters prior to moving forward with new rates. This
3 plan has been successful as evidenced by the fact that Duke Energy Ohio has
4 received very few complaints associated with the accuracy of the new meters to
5 date.

6 **Q. PLEASE EXPLAIN DUKE ENERGY OHIO'S PILOT RATE PROGRAMS.**

7 A. In early 2010, after working with the Collaborative, Duke Energy Ohio developed
8 a time-differentiated rate for customers with new SmartGrid meters. Duke
9 Energy Ohio's application for rate Time Differentiated Advanced Metering (Rate
10 TD-AM), outlined a two hundred and fifty customer pilot program that would
11 offer customers the voluntary opportunity to be served on time-of-day rates. On
12 March 3, 2010, the Commission approved the pilot and permitted Duke Energy
13 Ohio to begin customer acquisition for the pilot.

14 During this time, while working through the concerns associated with the
15 requested waivers with the Duke Energy SmartGrid Collaborative, the Company
16 began development of another time-differentiated rate. This second pilot tariff is
17 a Peak Time Rebate (PTR) that is also an opt-in, voluntary offering but this tariff
18 was made available to five hundred customers. This pilot tariff was approved by
19 the Commission on June 23, 2010.

20 After launching its first two pilots, Duke Energy Ohio worked with the
21 Collaborative to develop a third pilot involving a rate design with a critical peak
22 price structure. This proposed rate combines the elements of the rates TD-AM
23 and PTR - it has everyday time-of-use parameters as well as an event-based price

1 similar to the peak time rebate offering. The company sought approval for this
2 pilot to include two hundred and fifty customers in July of 2010. For a number of
3 reasons, including concerns of some Collaborative members and the timing of the
4 tariff filing, which would likely cause participants to miss the critical peak events,
5 Duke Energy Ohio seized this opportunity to look at the results of the other pilots
6 and consider the concerns about the tariff, which lead to the Company's decision
7 to modify the design and refile the tariff at a later date.

8 **Q. WHAT HAVE BEEN DUKE ENERGY OHIO'S EXPERIENCE AND**
9 **LESSONS LEARNED WITH RESPECT TO THESE DYNAMIC PRICING**
10 **PILOT PROGRAMS?**

11 A. The customer acquisition results for Duke Energy Ohio's first two pilots, while
12 somewhat disappointing as compared to the targeted participation, did provide the
13 Company and the Collaborative with important insights regarding customer
14 preference and the ability to test the underlying technology associated with
15 serving customers on time-differentiated rates. For the TD-AM pilot, the
16 Company solicited over sixty-three hundred customers through multiple channels
17 including email, community meetings, direct mail and outbound calling. Despite
18 these efforts, only twenty eligible customers volunteered for the pilot. For the
19 Company's Rate PTR pilot, twenty-eight hundred customers were solicited and
20 thirty-six volunteered and were eligible to participate. While the low acquisition
21 rate for TD-AM was not a complete surprise, Duke Energy Ohio was surprised
22 with the low PTR results (1.2%), as it was essentially a no-lose proposition for
23 participants.

1 **Q. PLEASE DISCUSS SOME OF THE REASONS WHY THE ACQUISITION**
2 **RATE WAS LOW AND DISCUSS WHY CUSTOMERS CHOSE NOT TO**
3 **PARTICIPATE.**

4 A. It is important to note that over half of the interested customers responding to
5 solicitations were disqualified. The most common reason for this was that the
6 customer was served by a Competitive Retail Generation Supplier (CRES) rather
7 than by Duke Energy Ohio. Given that the time-differentiated rates being piloted
8 are generation rates, a customer not receiving its generation service from Duke
9 Energy Ohio would not be eligible for the pilot, as the Company cannot
10 obligate the CRES to provide service on a time differentiated basis. Also, in some
11 focus groups with both pilot participants and others that were solicited but did not
12 join, Duke Energy Ohio learned that the majority of customers wanted three
13 things out of the rate offerings. First, customers wanted the opportunity to achieve
14 meaningful savings, which appears to translate into the ability to save
15 approximately five to twenty dollars per month. Second, customers wanted a rate
16 structure that had a shorter peak period during which they would need to curtail
17 their usage, as the seven hour peak windows in TD-AM and PTR were considered
18 too long and therefore disruptive to their lifestyle. Finally, customers did not like
19 rates that added a lot of complexity and different pricing periods and seasons, as
20 features such as shoulder periods make it more difficult to determine appropriate
21 behaviors.

22

23

1 **Q. WHAT WAS THE NEXT TARIFF DESIGN AND PILOT OFFERING?**

2 A. After obtaining valuable information about customer response from its previous
3 pilots, Duke Energy Ohio focused on rolling out a second wave of time-
4 differentiated pilots that incorporated some of its customer experience. In the fall
5 of 2010, Duke Energy Ohio began working on rate Time of Day Lite (TD-Lite),
6 which is a time-of-use rate with only three seasons, a shorter peak period (five
7 hours) and a much higher peak versus off-peak differential. These features made
8 the rate simpler, less disruptive and offered the opportunity for customers
9 modifying their behavior appropriately to see a more substantial bill savings. In
10 addition to the rate enhancements, a segment of this pilot group of customers
11 received a Home Energy Management Device (HEM). An HEM is an electronic
12 device that engages customers around their energy usage and allows them to
13 control and program when devices such as air conditioners and pool pumps run
14 and consume energy. After first consulting with the Collaborative, Duke Energy
15 Ohio filed its application with the Commission for approval of the TD-Lite and
16 HEM pilot for one hundred and fifty customers on October 25, 2010. The
17 Commission approved the application on January 27, 2011, and Duke Energy
18 Ohio began customer acquisition in early March 2011. A much higher acquisition
19 rate was achieved.

20 **Q. PLEASE DISCUSS THE OTHER RATE PILOTS THAT WERE**
21 **DEVELOPED AND OFFERED TO CUSTOMERS AS PART OF ITS**
22 **SECOND GENERATION OF PILOTS IN 2011.**

1 A. As discussed earlier, although the Rate Time of Day Critical Peak Pricing (TD-
2 CPP) pilot was pending the Commission's approval, Duke Energy Ohio decided
3 that it would revamp the critical peak price tariff to address the concerns raised by
4 the Collaborative regarding the original design of the rate. The Company
5 modified the number of seasons (three seasons) and the length of the peak period
6 (four hours) in the tariff.

7 Finally, Duke Energy Ohio developed a second iteration of its Peak Time
8 Rebate offering (PTR 2.0). This rate will featured a shorter, less intrusive five
9 hour peak period, but still featured a \$0.28 per kWh credit component. The other
10 interesting aspect of this pilot is that it featured a bifurcated acquisition strategy
11 with two hundred customers being offered the rate on an opt-out basis and two
12 hundred customers being acquired through an opt-in program. This bifurcated
13 acquisition strategy was designed to allow Duke Energy Ohio and the
14 Collaborative to learn about the impact that different acquisition approaches may
15 have on two distinct aspects of the pilot. First, the opt-out acquisition approach
16 provided additional understanding about how to most effectively attract and
17 acquire customers to participate in time-differentiated pricing offers. Secondly,
18 this bifurcated acquisition provided information with respect to whether or not the
19 level of behavioral modification taken by customers that affirmatively select to
20 participate in the pilot is higher or lower than those who are placed into the rate
21 by the Company.

22 **Q. PLEASE DISCUSS THE TIME DIFFERENTIATED RATE PILOTS THE**
23 **COMPANY WILL BE OFFERING CUSTOMERS IN 2012.**

1 A. In 2012, Duke Energy Ohio and the Collaborative desired to take another step
2 toward developing time-differentiated rates that could potentially, at some point
3 in the future, become included in the Company's standard service rates. After
4 working with the Collaborative, the Company received approval to test two pilot
5 rate designs. The first pilot the Company is offering is a time-of-use rate structure
6 rate Time of Day, 2012 (TD 2012). The rate structure is similar to the one offered
7 in 2011, however the company offered customers three variations of the rate that
8 reflect different ratios of peak to off-peak pricing. Essentially, the pilot allowed
9 customers to affirmatively select among three rates within the structure, so that
10 they could pick a rate that aligns with their personal risk/reward preferences. The
11 acquisition for TD 2012 proved to be the most successful to date, as it was able to
12 enroll over two hundred customers among the three rates. Through this pilot,
13 Duke Energy Ohio will gain an understanding of customer risk tolerance, as well
14 as better insight into the impact that risk tolerance has on the behavior changes
15 motivated by the rate.

16 The second pilot the Company will be running in 2012 is another iteration of a
17 peak time rebate pilot. Peak Time Rebate 2012 (PTR 2012). The pilot was
18 offered to customers on Duke Energy Ohio's standard residential rate. The
19 purpose of this pilot is to validate some of the preliminary insights that were
20 gained in 2010 and 2011. The pilot continues to offer customers the opportunity
21 to receive a rebate of \$0.28 for every kWh of reduction that they take make in
22 comparison to their baseline usage during a peak period of two o'clock to seven
23 o'clock in the afternoon and evening. One additional change to the pilot design

1 is the expansion of the number of events that may be called from ten to fifteen,
2 which will allow for an assessment regarding what impact the number of events
3 has on customer acquisition and satisfaction with the program. The Company
4 again employed a bifurcated acquisition for this peak time rebate pilot. Duke
5 Energy Ohio was successful in acquiring nearly five hundred new customers and
6 converted over three hundred of its previous pilot participants to participate in
7 PTR 2012.

8 Acquiring over 1000 customers across the two 2012 time-differentiated pilots
9 represents a significant milestone and is a positive sign. First, it clearly signifies
10 that the Company, along with the Collaborative, has improved its understanding of
11 how to more effectively market the rates and acquire customers. Second, the
12 increased participation in the pilots is a sign that the rate structures are becoming
13 more appealing to customers. Finally, more customers may be becoming aware
14 and comfortable with the concept of time-differentiated rates.

15 **Q. PLEASE DISCUSS THE OVERALL LESSONS LEARNED TO DATE AND**
16 **THE ADVISABILITY OF CONTINUING WITH THESE PILOT**
17 **PROGRAMS.**

18 A. As described earlier, Duke Energy Ohio, in conjunction with its Collaborative,
19 has taken a very thoughtful and measured approach to developing and rolling out
20 different time-differentiated rates. This approach has been extremely helpful in
21 allowing Duke Energy Ohio to test its SmartGrid systems and the underlying
22 systems necessary for supporting time-differentiated pricing. Additionally, Duke
23 Energy Ohio and the Collaborative have gained valuable knowledge about the

1 critical and desirable features of different time differentiated rate designs. Duke
2 Energy Ohio believes that it is advisable to continue the managed approach to
3 rolling out and testing different pilot rate designs, acquisition strategies, and
4 supporting technologies during the remainder of its SmartGrid deployment. This
5 will allow the Company, the Collaborative and the Commission to have a more
6 thorough understanding of impacts and desirability of time-differentiated pricing
7 prior to making any decisions regarding full-scale rate offerings.

8 **Q. IS THE COMPANY UNDERTAKING ANY OTHER ACTIVITIES TO**
9 **POTENTIALLY FURTHER FACILTATE THE AVAILABILITY OF**
10 **TIME-DIFFERENTIATED RATES TO CUSTOMERS?**

11 A. Yes, the Company is undertaking the following activities to enhance the
12 availability of time-differentiated rates to customers:

- 13 ○ Duke Energy Ohio is planning to conduct an educational workshop for all
14 interested parties and specifically interested CRES providers wherein the
15 Company will provide and share its experiences related to the Company's
16 piloting of time-differentiated rates. The Company is also committed to
17 conduct workshops for CRES providers and interested parties twice a
18 year during the course of SmartGrid deployment so long as there is
19 interest in doing so.
- 20 ○ The Company is progressing toward its commitment to provide CRES
21 providers the necessary billing system functionality to offer CRES
22 customers, time-differentiated rates consistent with its existing supplier
23 tariff by January 1, 2013.

- 1 ○ The Company will be working with the Collaborative during the course
2 of 2012 to develop a deployment plan for a general public awareness and
3 education campaign designed to increase customer awareness and inform
4 customers about the justification for time differentiated rates and the
5 value that they can potentially bring to customers.

III. CONCLUSION

6 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

7 **A. Yes.**