

DELMARVA POWER & LIGHT COMPANY

ORIGINAL

**In the Matter of the Investigation by the
Delaware Public Service Commission
Concerning the Company's Proposal to Establish
a New Residential Air Conditioning Cycling Program**

PSC Docket No. 11-330

Application and Testimony

Before the
Delaware Public Service Commission

July 28, 2011

CK # 54244/55-136
#50.00 7/29/11

PSC DOCKET

Jockey Room/RB
Solo
Courtney
Pam
Janis
Malika
Susan
Denna
Alisa



A PHI Company

NO. 11 - 330 --

RECEIVED

2011 JUL 29 AM 10 52

DELAWARE P.S.C.

92DC42
500 N. Wakefield Drive
Newark, DE 19702

P.O. Box 6066
Newark, DE 19714-6066

302.429.3786 – Telephone
302.429.3801 – Facsimile

todd.goodman@pepcoholdings.com

Todd L. Goodman
Associate General Counsel

July 28, 2011

VIA EMAIL AND OVERNIGHT DELIVERY

Ms. Alisa C. Bentley, Secretary
Delaware Public Service Commission
861 Silver Lake Boulevard
Cannon Building, Suite 100
Dover, DE 19904

**RE: In the Matter of the Investigation by the Delaware Public Service Commission
Concerning the Company's Proposal to Establish a New Residential Air Conditioning
Cycling Program**

Dear Ms. Bentley:

Enclosed for filing are the original and 10 copies of Delmarva Power & Light Company's Application to Establish a New Residential Air Conditioning Cycling Program Through The Residential Direct Load Control Rider "R-DLC". Please contact me at (302) 429-3786 with any questions relating to the above referenced matter.

Respectfully Submitted,

Todd L. Goodman

cc: Janis Dillard – Email and Overnight Mail
Susan Neidig – Email and Overnight Mail
Regina Iorii – E-mail & Overnight Mail
Michael Sheehy – E-mail and Overnight Mail

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE**

**IN THE MATTER OF THE INVESTIGATION)
BY THE DELAWARE PUBLIC SERVICE)
COMMISSION CONCERNING THE COMPANY'S) PSC Docket No. 11-_____
PROPOSAL TO ESTABLISH A NEW)
RESIDENTIAL AIR CONDITIONING CYCLING)
PROGRAM)**

**DELMARVA POWER & LIGHT COMPANY'S
APPLICATION TO ESTABLISH A NEW
RESIDENTIAL AIR CONDITIONING CYCLING PROGRAM THROUGH
THE RESIDENTIAL DIRECT LOAD CONTROL RIDER "R-DLC"**

Delmarva Power & Light Company ("Delmarva" or the "Company") hereby files this application ("Application") with the Public Service Commission of the State of Delaware (the "Commission") seeking approval of the Company's proposed Rider "R-DLC" Residential Direct Load Control Rider pursuant to 26 Del. C. §§ 201, 1008, 1500 and other applicable authorities.

In support of this Application, Delmarva submits the following:

Applicant

1. Delmarva is a Delaware corporation with its principal place of business located at 401 Eagle Run Road, Newark, Delaware 19702. Delmarva is a wholly owned subsidiary of Pepco Holdings, Inc. ("PHI"), a Delaware corporation.

Need For Residential Direct Load Control Rider "R-DLC"

2. The Delaware Commission approved Delmarva's deployment of an AMI System and the establishment of a regulatory asset for the AMI system as well as the demand response equipment pursuant to Commission Order No. 7420, issued on September 16, 2008, in Docket No. 07-28. Specifically the order stated:

“The Commission approves the diffusion of the advanced metering technology into the electric and natural gas distribution system networks and the Commission permits Delmarva to establish a regulatory asset to cover recovery of and on the appropriate operating costs associated with the deployment of Advanced Metering Infrastructure and demand response equipment.”

Also, on November 21, 2008 in Docket No. 08-391 the Commission issued Order No. 7485 which recommended:

“. . . that the Commission direct Delmarva, the Public Advocate, Staff and any other interested parties to convene at a collaborative workshop to determine the viability of implementing any reasonable demand-side management or demand response programs in the near term.”

3. As directed in the order the Company met with representatives from Commission Staff and the Division of the Public Advocate on November 20, 2008, on June 24, 2009 and on October 29, 2009 to discuss AMI and the implementation of demand response in the near term. Several possible programs, including dynamic pricing and DLC were discussed as well as possible implementation schedules. The concepts discussed during that process are the basis of the Company’s proposal presented in this Application and accompanying testimony.

4. The Company’s proposed DLC program, in addition to its Advanced Meter Infrastructure (“AMI”) enabled dynamic pricing program, if approved by the Commission, will help customers across the state take greater control over their electricity usage by providing a simple automated method by which customers can reduce consumption during certain peak

periods. These actions can have a beneficial impact on the high energy prices that Delaware consumers face due to periodic capacity constraints. Dynamic pricing will reward customers for taking steps to reduce their energy consumption during critical peak periods and the proposed DLC program will serve as a mechanism for customers to automatically reduce energy use during critical peak events.

5. Additionally, the savings impacts of these programs will help both Delmarva and the State reach the energy reduction goals set forth in Delaware's Energy Conservation & Efficiency Act of 2009¹. As such, Delmarva seeks, through this application and supporting materials, authority to establish a residential air conditioning cycling program through the Residential Direct Load Control Rider "R-DLC".

Summary of Application

6. By this Application, Delmarva is seeking Commission approval of the Company's proposed Rider "R-DLC" Residential Direct Load Control Rider.

7. As explained by Company Witness Sunderhauf, the Company is seeking to establish a new voluntary Residential Direct Load Control Rider R-DLC, which is a Rider to Schedules "R" and "R-TOU-ND." Over time, Rider R-DLC will replace the Company's legacy Energy For Tomorrow Program. The proposed residential direct load control program is designed to reduce residential central air conditioner compressor and central electric heat pump compressor load during summer periods of high electricity demand when wholesale market electric energy prices are high and available electricity supply is constrained. Demand reductions available from the program will be used to participate with the PJM capacity and energy markets as demand response resources.

¹ This legislation requires each "Affected Electric Energy Provider" to achieve energy and peak demand savings that is equivalent to 2% of the provider's 2007 electricity consumption and to achieve non-coincident provider peak demands to 2% of the provider's 2007 peak demand by 2011, increasing to 15% by 2015.

Minimum Filing Requirements (MFR)

10. The Company's Application includes the Commission's Minimum Filing Requirements (MFR) (Order No. 5410 – PSC Reg. Docket No. 4). Delmarva requests that in the initial order opening this proceeding, the Commission waive all sections of the MFR for base rate increases, with the exception of Part I. C. regarding the filing of testimony and supporting exhibits to be filed coincident with the application.

Notice

11. Notice of this filing will be given through notices published in The News Journal and the Delaware State News. A proposed form of public notice and Commission order is attached to this Application.

Witnesses

12. The proposed Rider R-DLC described in this Application is supported by the direct testimony and schedules of the following witnesses for the Company, each of which is attached and made a part hereof:

- i. Gary Stockbridge – Policy and Program Overview
- ii. Charles L. Driggs – Implementation, Timing and Technology
- iii. Stephen L. Sunderhauf – Structure and Benefits of Residential Direct Load Control

Communications

13. All communications and notices with respect to this proceeding should be made to the following individuals:

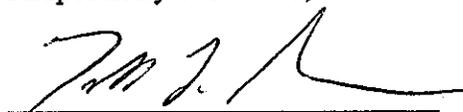
<p>Heather G. Hall Diana C. DeAngelis</p> <p>(by U.S. Mail) Delmarva Power Regulatory Affairs P.O. Box 9239 Newark, DE 19714-9239</p> <p>(by courier) Delmarva Power Regulatory Affairs 401 Eagle Run Road Newark, DE 19702</p> <p>e-mail addresses: heather.hall@pepcoholdings.com diana.deangelis@pepcoholdings.com</p>	<p>Todd L. Goodman</p> <p>((by U.S. Mail) Delmarva Power Regulatory Affairs P.O. Box 9239 Newark, DE 19714-9239</p> <p>(by courier) Delmarva Power Regulatory Affairs 401 Eagle Run Road Newark, DE 19702</p> <p>Counsel for Delmarva Power</p> <p>e-mail addresses: todd.goodman@pepcoholdings.com</p>
--	---

WHEREFORE, Delmarva respectfully requests that the Commission:

- A. grant the proposed Rider "R-DLC" as filed by Delmarva effective June 1, 2012;
- B. order that a notice of hearing be published.

Respectfully submitted,

By:



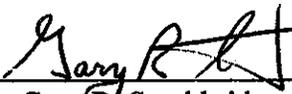
Todd L. Goodman
Counsel for
Delmarva Power & Light Company
800 King Street, 5th Fl
Wilmington, DE 19801
todd.goodman@pepcoholdings.com

July 28, 2011

STATE OF DELAWARE)
)
COUNTY OF NEW CASTLE)

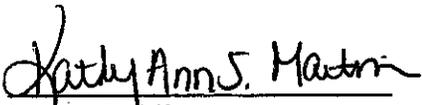
SS.

On this day July 27, 2011, personally came before me, the subscriber, a Notary Public in and for the state and county aforesaid Gary R. Stockbridge, Vice President, an officer of Delmarva Power & Light Company, a corporation existing under the laws of the State of Delaware, party to this Application, known to me personally to be such, and acknowledged this Application to be his act and deed and the act and deed of such corporation, that the signature of such Vice President is in his own proper handwriting, and that the facts set forth in this Application are true and correct to the best of his knowledge and belief.



Gary R. Stockbridge
Vice President

SWORN TO AND SUBSCRIBED before me this July 27, 2011.



Kathy Ann S. Martin
Notary Public

My Commission expires: FEBRUARY 1, 2015

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE**

**IN THE MATTER OF THE APPLICATION OF)
DELMARVA POWER & LIGHT COMPANY TO)
TO IMPLEMENT AN ADVANCED METERING) PSC Docket No. 11-_____
ENABLED DYNAMIC PRICING PLAN)**

PUBLIC NOTICE OF FILING

**TO: ALL ELECTRIC CUSTOMERS OF DELMARVA POWER & LIGHT
COMPANY**

On July __, 2011, Delmarva Power & Light Company filed an Application with the Delaware Public Service Commission ("Commission"). The Application requested approval of a proposed voluntary Residential Direct Load Control Rider R-DLC for all Delmarva residential distribution customers on Schedules "R" and "R-TOU-ND".

Any person or group wishing to participate formally as a party in this docket (PSC Docket No. 11-____), with the right to submit evidence and to be represented by counsel must, in accordance with Rule 11, petition the Commission for and be granted leave to intervene in the proceedings in this docket by the Hearing Examiner. To be timely, all such petitions must be filed with the Delaware Public Service Commission at 861 Silver Lake Boulevard, Suite 100, Cannon Building, Dover, Delaware 19904 on or before _____, 2011. Petitions received thereafter will not be considered except for good cause shown.

The Hearing Examiner will consider the Application, including any settlement that might be reached by the parties to the proceeding, in hearings to be held at the times and locations to be determined by the Hearing Examiner.

Copies of the Application, testimony and attachments will be available for public inspection at the Commission's Dover office at the above address, or, by appointment, in the Division of the Public Advocate located on the 4th Floor, Carvel State Office Building, 820 North French Street, Wilmington. Please call for an appointment at (302) 577-5077.

Individuals with disabilities who wish to participate in these proceedings or to review these filings may contact the Commission to discuss any auxiliary aids or services needed to facilitate such review or participation. Such contact may be in person, by writing, telephonically, by use of the Telecommunications Relay Service, or otherwise. The Commission Staff is available for questions concerning this Application and other documents. The Commission's toll-free telephone number within Delaware is 1-800-282-8574. The Commission can also be reached at (302) 739-4333 and that number should also be used for Text Telephone ("TT") calls. Inquiries can also be sent to the Commission by Internet e-mail to "[insert Staff name]@state.de.us."

1 **DELMARVA POWER & LIGHT COMPANY**
2 **TESTIMONY OF GARY R. STOCKBRIDGE**
3 **BEFORE THE DELAWARE PUBLIC SERVICE COMMISSION**
4 **CONCERNING THE COMPANY'S PROPOSAL TO ESTABLISH A NEW**
5 **RESIDENTIAL AIR CONDITIONING CYCLING PROGRAM**
6 **DOCKET NO. 11-_____**

7 **1. Q: Please state your name, position and business address.**

8 A: My name is Gary R. Stockbridge. I am President, Delmarva Power
9 Region for Pepco Holdings, Inc., ("PHI"), located at P.O. Box 9239, Newark, DE
10 19714. I am testifying in this proceeding on behalf of Delmarva Power & Light
11 Company ("Delmarva" or "the Company").

12 **2. Q: What are your responsibilities in your role as President, Delmarva Power**
13 **Region for PHI?**

14 A: I am responsible for governmental and other external relations in
15 Delmarva's Delaware and Maryland service territories, and Delmarva's
16 participation in the communities we serve. My responsibilities also include
17 establishing and maintaining strong ties with our States and local communities,
18 including corporate giving activities. I am a liaison and advocate on behalf of the
19 customers and communities that Delmarva serves, and am accountable for
20 ensuring the resolution of issues and concerns in the Delmarva region.

21 **3. Q: Could you please describe your educational and professional background**
22 **and experience?**

23 A: I hold a Bachelor of Science degree in Mechanical Engineering from
24 Drexel University (1984) and a Masters degree in Business from Drexel
25 University (2004). I have been working in the utility industry for over 27 years. I

1 began my career with the Philadelphia Electric Company (“PECO”) in 1982. At
2 PECO I worked in gas operations, marketing, and finance, in positions of
3 increasing responsibility. I left PECO holding the position of Vice President of
4 PECO’s unregulated affiliate “Horizon Energy,” responsible for selling natural
5 gas and electricity at retail in the restructured energy markets in the Mid-Atlantic
6 Region. I began my career with Delmarva in 1997, shortly before its merger with
7 Atlantic City Electric Company (“ACE”) to form Conectiv. At the newly
8 combined company, I was initially responsible for its competitive retail energy
9 business until 2000. I then moved into the regulated power delivery business as
10 Vice President of Customer Care, remaining in that position when Conectiv
11 merged with Potomac Electric Power Company (“Pepco”) to form PHI in 2002. I
12 became President of the Delmarva Region of PHI in 2005.

13 **4. Q: What is the purpose of your testimony?**

14 A: I am the policy witness and will provide support for the Company’s
15 Application to implement a direct load control (“DLC”) program and the reasons
16 why the Company proposes this plan. I will provide an overview of the
17 Company’s filing and will briefly summarize the testimony of other Company
18 Witnesses supporting the Application.

19 This testimony was prepared by me or under my direct supervision and
20 control. The source documents for my testimony are Company records, public
21 documents, and my personal knowledge and experience.

22 **5. Q: What Commission approvals is the Company requesting?**

23 A: Delmarva is seeking Commission approval of the Company’s proposed
24 Rider “R-DLC” Residential Direct Load Control Rider.

1 **6. Q: How will a DLC program help to mitigate the energy issues Delaware is**
2 **currently facing?**

3 **A:** The Company's proposed DLC program, in addition to its Advanced
4 Meter Infrastructure ("AMI") enabled dynamic pricing program, once approved,
5 will help customers across the state take greater control over their electricity
6 usage by providing a simple automated method by which customers can reduce
7 consumption during certain peak periods. These actions can have a beneficial
8 impact on the high energy prices that Delaware consumers face due to periodic
9 capacity constraints. Dynamic pricing will reward customers for taking steps to
10 reduce their energy consumption during critical peak periods and the proposed
11 DLC program will serve as a valuable tool to customers to automatically reduce
12 energy use during critical peak events.

13 Additionally, the savings impacts of these programs will help the
14 Company towards reaching the state energy reduction goals called for in
15 Delaware's Energy Conservation & Efficiency Act of 2009¹.

16 **7. Q: Has this Commission previously investigated the concept of direct load**
17 **control?**

18 **A:** The Delaware Commission approved Delmarva's deployment of an AMI
19 System and the establishment of a regulatory asset for the AMI system as well as
20 the demand response equipment pursuant to Commission Order No. 7420, issued
21 on September 16, 2008, in Docket No. 07-28. Specifically the order stated:

¹ This legislation requires each "Affected Electric Energy Provider" to achieve energy and peak demand savings that is equivalent to 2% of the provider's 2007 electricity consumption and to achieve non-coincident provider peak demands to 2% of the provider's 2007 peak demand by 2011, increasing to 15% by 2015.

1 "The Commission approves the diffusion of the advanced
2 metering technology into the electric and natural gas
3 distribution system networks and the Commission permits
4 Delmarva to establish a regulatory asset to cover recovery
5 of and on the appropriate operating costs associated with
6 the deployment of Advanced Metering Infrastructure and
7 demand response equipment."
8

9 Also, on November 21, 2008 in Docket No. 08-391 the Commission issued Order
10 No. 7485 which recommended:

11 ". . . that the Commission direct Delmarva, the Public
12 Advocate, Staff and any other interested parties to convene
13 at a collaborative workshop to determine the viability of
14 implementing any reasonable demand-side management or
15 demand response programs in the near term."
16

17 As directed in the order the Company met with representatives from
18 Commission Staff and the Division of the Public Advocate on November 20,
19 2008, on June 24, 2009 and on October 29, 2009 to discuss AMI and the
20 implementation of demand response in the near term. Several possible programs,
21 including dynamic pricing and DLC were discussed as well as possible
22 implementation schedules.

23 **8. Q: Why is the Company proposing this program now?**

24 **A:** At this time, the deployment of residential electric AMI meters is nearly
25 complete. The optimal method of deploying a new direct load control program is
26 to do so after an AMI System has been deployed for all residential distribution
27 customers. The AMI system will provide the communications link to the DLC
28 equipment once those capabilities are enabled. This is expected to prevent the
29 need and expense of a duplicative communications system while simultaneously
30 helping to ensure adequate communication to DLC equipment.

1 **9. Q: What are the benefits of direct load control?**

2 A: Similar to dynamic pricing and eventually in coordination with dynamic
3 pricing, the DLC program provides incentives to customers and automates their
4 actions to reduce energy use during peak hours which saves money directly for
5 those customers and which reduces the average costs for all customers in the
6 region for electricity generation. Peak demand reduction reduces the number of
7 hours that expensive generation is required to operate, reduces the need for
8 ancillary services, and may defer the need for construction of additional peaking
9 plants and transmission facilities. In addition, some plants are only run if
10 absolutely necessary to meet peak demand because of the higher level of
11 emissions of carbon and other pollutants from such plants - reducing the number
12 of hours those plants need to run will benefit the environment.

13 While taking little to no action, customers who simply participate in the
14 DLC program may see lower bills. The DLC program is another path to
15 encourage customers to manage their energy use and provides another important
16 tool from Delmarva to reduce energy use and customer bills.

17 **10. Q: Has PHI received approval to implement similar DLC programs in its other**
18 **jurisdictions?**

19 A: PHI has received approval and is currently operating DLC programs in its
20 Maryland and New Jersey jurisdictions. The programs are somewhat similar to
21 what is being proposed in Delaware with slight variations in incentives,
22 curtailment options and communications technology. These jurisdictional
23 differences are due to the fact that the DLC programs were implemented either
24 before AMI was deployed in Maryland or without plans for AMI deployment in

1 New Jersey. In the District of Columbia, Pepco's proposed program has not been
2 approved yet but is designed to be deployed in an AMI environment, and
3 incentives and curtailment periods similar to what is being proposed in Delaware.

4 **11. Q: Please describe the Company's proposed timing of the implementation of**
5 **direct load control?**

6 A: Delmarva proposes to launch its DLC program in 2012 beginning with program
7 marketing in the 1st quarter and equipment installation beginning in the 2nd quarter
8 of 2012. The Company plans to complete device installation by year-end 2014.

9 **12. Q: How does the Company plan to market the program to its customers?**

10 A: There has been substantial discussion with Commission Staff and other
11 parties about the importance of customer education. The Company recognizes
12 that providing our customers with the tools and information necessary to actively
13 participate in its program offerings is essential to the success of these programs.
14 The Company has been developing a plan for comprehensive education and
15 customer engagement to support the successful implementation of AMI and the
16 proposed dynamic pricing program. As new programs are added, such as the
17 proposed DLC program, it is our intention to integrate that program's specific
18 customer education and marketing plan with the comprehensive plan to ensure
19 that the messaging is clear and concise.

20 **13. Q: Please describe elements of Company testimony that are presented in this**
21 **Application.**

22 A: There are two other Company Witnesses presenting testimony in support
23 of the Company's Application as follows:

1 – Mr. Stephen L. Sunderhauf, Manager, Program Design & Evaluation, will
2 provide testimony on the program design, the savings and benefits
3 attributable to the program and how they will be monetized in PJM, the
4 integration with dynamic pricing the benefits, and the proposed program
5 tariff.

6 – Mr. Charles L. Driggs, Manager, Demand Side Management, will present
7 information on the timing of implementation, the marketing approach, and
8 the technology.

9 **14. Q: Does this conclude your testimony?**

10 **A:** Yes, it does.

1 **3. Q: What is your educational and professional background and experience?**

2 A: My education includes a B.S. in Mechanical Engineering from Rochester
3 Institute of Technology, an MBA with a Finance concentration from Loyola
4 University of Baltimore, post-graduate work towards a PhD program in
5 Economics and Finance at the University of Delaware, and a variety of
6 professional seminars.

7 My professional background and experience involve:

- 8 • thirteen years in consulting for utility, industrial, and government / defense
9 clients, primarily relating to energy conversion, storage and end uses,
10 including efficiency improvement studies, demand side management
11 program design, modeling and cost effectiveness, renewable energy, and
12 other related work;
- 13 • over three years in the Delmarva corporate planning department, evaluating
14 opportunities for what is today called distributed generation, designing and
15 evaluating demand-side management programs including the still active
16 Energy For Tomorrow program, as well as participation in development of
17 overall energy resource strategy for the formerly integrated electric utility
18 business;
- 19 • four years as renewable energy power project development manager in the
20 former Delmarva Capital Investments subsidiary;
- 21 • fifteen years in the Delmarva Gas Delivery business in positions involving
22 responsibilities for system supply, gas transportation / supplier choice,
23 service reliability, system security and business continuity, revenue
24 forecasting and management, and rate case support; and

- 1 • three years in my present position, managing implementation of programs in
2 the District of Columbia, Maryland, and New Jersey involving direct load
3 control, energy efficiency improvement measures for commercial /
4 industrial and residential customers, and dynamic pricing trials.

5 In addition, I contributed to development of the Transmission &
6 Distribution section of the latest Delaware Energy Plan, and I am a registered
7 professional engineer in Delaware and Maryland.

8 **4. Q: Have you previously testified before the Delaware Public Service**
9 **Commission?**

10 **A:** Yes. I have provided written and verbal testimony on a variety of issues
11 before the Delaware Public Service Commission. My initial testimony was first
12 provided in the 1980's in cases dealing with the creation of Rate X and the
13 Challenge 2000 electric resource planning effort, an early form of integrated
14 resource plan. I have also provided testimony in regards to a gas retail choice
15 pilot program, several Gas Cost Recovery dockets, and two Gas Base Rate cases.

16 **5. Q: What is the purpose of your testimony?**

17 **A:** The purpose of my testimony is to support the Company's application for
18 implementation of Rider "R-DLC" the proposed Residential Direct Load Control
19 Rider. I will review the implementation activities for the program in Delaware.
20 My testimony will address four aspects of the implementation:

- 21 • Describe technology and communications technology;
22 • Discussion of implementation and timing;
23 • Transition from legacy EFT program to new DLC program; and
24 • General marketing plan.

1 The program in Delaware will be named Energy Wise Rewards which is
2 consistent with the DLC programs in the other territories.

3 **6. Q: Please describe the technology options that would be available to Delaware**
4 **customers if they participate in the program?**

5 A: The Company plans to offer customers an option of choosing an outdoor
6 switch or a programmable controllable thermostat. Switch participants will not
7 need to schedule their outdoor switch installation if the unit is accessible without
8 interference from obstacles, such as a locked fence or a dog. All thermostat
9 installations require the customer to schedule an installation appointment by
10 phone or website.

11 Participants choosing the programmable thermostat will receive a device
12 they can program the same as most commercially available programmable
13 thermostats. It also has a built-in communications module that can trigger air
14 conditioning compressor shutdown during a control period.

15 **7. Q: What other advantages do customers have by choosing a programmable**
16 **thermostat?**

17 A: The U.S. Department of Energy has stated that customers can save up to
18 10% of the heating and cooling costs by properly setting up a programmable
19 thermostat vs. using it as a "basic thermostat". The Company's educational
20 material will inform customers that this additional benefit is available for
21 customers who fully use the programmable feature.

22 Furthermore, the Company plans to offer customers the ability to remotely
23 modify their thermostat settings via an Internet web portal. This provides the
24 opportunity to change temperature settings using a customer friendly web

1 interface. This feature may not be available at program launch due to the
2 potential complexity to implement. There are some unknowns that need to be
3 reviewed and we want to include some contingency in the timeline to address any
4 of these issues. We do not foresee this delay extending into the second year of the
5 program, but that would be worse case depending upon availability of resources
6 and the difficulty of integrating it with the systems supporting our Delaware
7 operations.

8 **8. Q: How will the devices communicate through the Company's AMI network?**

9 **A:** Although the Company's plans are to communicate through the AMI
10 network using the ZigBee protocol, the Company may initially deploy devices
11 that communicate using a VHF radio protocol. The reliance of the VHF radio
12 protocol will be dependent on the ratification and availability of the ZigBee 2.0
13 protocol. The AMI communication system has been built to allow for interfacing
14 with the DLC control system at the AMI data communications controller, along
15 with the thermostats and switches at the metering nodes, via a low-bandwidth
16 communications protocol. Current expectations are for use of the ZigBee 2.0
17 protocol between meters, thermostats and switches, although other protocols
18 might be used at any time a conversion is justified. ZigBee 2.0 is currently in the
19 ratification stage, and the Company's vendor / installation contractor expects to be
20 able to ship hardware approximately six months after the protocol is finalized.

21 The communications system design, combined with the DLC control
22 system design, provides other capabilities that the Company is exploring for use.
23 The DLC control system is being sized to

24 a) not only operate load control devices, but also

1 b) to offer messaging through the DLC programmable thermostat display or
2 possibly an in-home display device that could show a variety of notifications
3 and other similar information, and

4 c) to offer control capabilities for managing electric vehicle charger loads or
5 other compatible devices during on-peak conditions.

6 **9. Q: Do you have a planned launch date for the new Delaware direct load control**
7 **program?**

8 **A:** The Company is working on the basis of launching the program in early
9 2012. The exact timing of the launch is subject to a number of variables:

- 10 • Final confirmation of equipment and installation pricing from the selected
11 contractor;
- 12 • Lead time and rate of delivery of equipment to be installed at residences;
- 13 • Availability and operational readiness of field office for our contractor;
- 14 • Availability of trained and fully equipped installation technicians and support
15 personnel for the work required; and
- 16 • Modification of enrollment systems to allow Delaware customer participation.

17 Coordination efforts with Witness Sunderhauf and his team, and DLC
18 program activities already underway in other jurisdictions have served to narrow
19 the uncertainty of some of the above variables. One particular variable that will
20 significantly reduce the lead time for program launch would be to use the
21 company that was competitively selected for our DLC programs. This contractor
22 / equipment vendor is currently engaged under a master contract as a result of the
23 competitive bid solicitation. This contractor has significant experience at

1 providing program management and installing DLC equipment in this region and
2 has approximately 40 other utility clients across the United States.

3 **10. Q: What are the Company's plans towards continued use of the EFT program**
4 **in Delaware?**

5 A: The Company's desire, with implementation of the Energy Wise Rewards
6 DLC program in Delaware, is to convert all remaining residential EFT air
7 conditioning participants to the EWR program on an opt-out basis. The EFT
8 participant will be able to choose between thermostats and switches the same as
9 any other enrollee. Since EFT switches were installed inside the homes of some
10 program participants, appointments will be necessary for those customers.

11 Table CLD-1 shows the known number of participants in the EFT
12 program. Based upon the enrollment rate the Maryland program has seen for
13 voluntary enrollment of former DLC participants in the Pepco service area, opt-in
14 enrollment would likely see no more than fifty percent of these residential
15 customers participating in EWR, whereas the opt out approach is anticipated to
16 yield a higher participation rate.

17
18 Table CLD-1

19
20 **Delaware EFT Customers**
21 **as of mid-March, 2011**

22	Tariff Rate	Number of
23		Participants
24	Res / RS	24,858
25	Res Spc Ht / RH	16,254
26	Other Res / RTD, RTE	49
27		
28	All Residential	41,161
29		
30		
31		
32		

1 **11. Q: How would Energy For Tomorrow customers, or any other customers, find**
2 **more information about the program?**

3 A: The Company has not finalized the educational plans and efforts for
4 obtaining participants and providing information to the customers. We currently
5 have an established marketing plan in the Maryland territories that offers a
6 program-specific call center and websites for the Energy Wise Rewards program.
7 These channels could be modified to support the EWR program in Delaware
8 before the program accepts enrollments. The websites are territory specific, and
9 the Delaware version will become an additional choice added to the Delmarva
10 website.

11 The website offers a section on "Frequently Asked Questions" and a
12 telephone number for the program call center to obtain further information or
13 assistance. The website also offers the ability for the customer to enroll online.

14 **12. Q: What approaches do you plan to use to educate customers in Delaware?**

15 A: As Witness Stockbridge mentioned earlier, we recognize that providing
16 our customers with the tools and information necessary to participate is essential
17 to the program success. A comprehensive education plan is in development to
18 support the implementation of AMI and the proposed dynamic pricing program.
19 The plan is to integrate the DLC marketing and customer education plan into the
20 comprehensive plan. We want and need the messaging for our customers to be
21 clear and concise. The marketing plan for this proposed program is not yet firmly
22 established, and will not be until we have a clearly defined set of targets for load
23 reductions, participation, and timing, and the program rules are clearly
24 established.

1 The company's initial strategy is to use a combination of geographic
2 marketing and customer type (EFT customers and non-EFT customers). Our
3 vendor has experience using several marketing channels and we would pursue a
4 similar mix of channels in Delaware.

5 The strategy utilized in other jurisdictions that could be applied for
6 Delaware is to begin with mass mailings to all eligible residents and continue with
7 that approach until the marginal cost of additional enrollments cease to be
8 attractive. At that point, we could refine our channels to include marketing to
9 targeted customer segments. The intent is to manage the opposing variables of
10 overall installation cost per kW of load reduction, and load reduction per point.
11 Other channels could be explored and developed if results are promising; one
12 particular channel in this category is social media, which shows significant
13 promise based upon results achieved by others in marketing energy efficiency
14 programs across the country.

15 **13. Q: Would these programs be operated by the Company, or by your**
16 **implementation contractor?**

17 **A:** The implementation contractor would be responsible for all marketing
18 activities, with direction and oversight by Company personnel. The
19 implementation contractor will also be responsible for all enrollment, call center,
20 and installation related activities.

21 Initiation of program "events" would be under the control of Company
22 personnel, although our contractor may provide the actual control signals upon a
23 validated request by authorized Company personnel. Scheduling of any event
24 would involve following already-established procedures performed by authorized,

1 trained personnel. This is important, as we must ensure that there are no errors
2 affecting residents in areas that need not participate, and no opportunity for
3 anyone lacking authorization to schedule a denial of any air conditioning comfort
4 for reasons unrelated to maintaining customer service reliability or energy cost
5 control. System access is protected with firewalls and other anti-hacker
6 protections, training is required to obtain usage authorization, and the user must
7 satisfy system authorization to be able to schedule an event or operate the system
8 for any purpose.

9 The control system currently resides in the contractor's facilities, but our
10 plan is to move the system onto a Company hosted server once we determine our
11 operating needs and our system requirements. Currently, the contractor maintains
12 and upgrades the system and software as improvements are identified or needed.

13 **14. Q: Does this conclude your testimony?**

14 **A: Yes, it does.**

1 **DELMARVA POWER & LIGHT COMPANY**
2 **TESTIMONY OF STEPHEN L. SUNDERHAUF**
3 **BEFORE THE DELAWARE PUBLIC SERVICE COMMISSION**
4 **CONCERNING THE COMPANY'S PROPOSAL TO ESTABLISH A NEW**
5 **RESIDENTIAL AIR CONDITIONING CYCLING PROGRAM**
6 **DOCKET NO. 11- _____**

7
8 **1. Q: Please state your name, position and address.**

9 A: My name is Stephen L. Sunderhauf. I am the Manager of Program Design
10 and Evaluation for Pepco Holdings, Inc. ("PHI"). I am testifying in this
11 proceeding on behalf of Delmarva Power & Light Company ("Delmarva" or the
12 "Company"). My business address is Edison Place, 701 9th St., N.W.,
13 Washington, D.C. 20068-0001.

14 **2. Q: What are your responsibilities in your role as Manager of Program Design**
15 **and Evaluation for PHI?**

16 A: My current responsibilities include the oversight of program design,
17 evaluation, and regulatory issues related to energy efficiency, conservation,
18 demand response and renewable energy sources on behalf of the Potomac Electric
19 Power Company, Atlantic City Electric Company, and Delmarva.

20 **3. Q: Please describe your educational and professional background.**

21 A: I have 29 years of professional experience within the U.S. electric utility
22 industry, including more than 4 years at the Pacific Gas & Electric Company and
23 more than 25 years at PHI, where I have served in a variety of capacities and am
24 currently the Manager of the Program Design and Evaluation Department. I

1 earned a B.A. degree in economics from Bucknell University, an M.S. degree in
2 management from Carnegie-Mellon University, and a J.D. degree from the
3 George Washington University Law School. I am a member of the Maryland Bar
4 and the Association of Energy Services Professionals.

5 **4. Q: What is the purpose of your testimony?**

6 A: The purpose of my testimony is to describe the following items: 1) the key
7 paramaters of the Company's proposed residential direct load control program
8 ("DLC"); 2) the expected market penetration of the program; 3) the resulting peak
9 electricity demand reductions; 4) the cost-effectiveness of the program; 5) the
10 integration of the program with AMI-enabled dynamic pricing; 6) the use of the
11 program in the PJM demand response market to derive a supporting revenue
12 stream; and 7) the recommended Delmarva R-DLC tariff.

13 **5. Q: Please provide an overview of Delmarva's proposed residential direct load**
14 **control program.**

15 A: Delmarva proposes to establish a new voluntary residential air conditioner
16 Direct Load Control program ("R-DLC") that, over time, will replace the
17 Company's legacy Energy For Tomorrow ("EFT") Program. The new program
18 will rely upon the use of new smart thermostats and new outdoor cycling
19 switches. The proposed residential direct load control program is designed to
20 reduce residential central air conditioner compressor and central electric heat
21 pump compressor load during summer periods of high electricity demand when
22 wholesale market electric energy prices are high and available electricity supply is
23 constrained. Demand reductions available from the program will be used to

1 participate with the PJM capacity and energy markets as demand response
2 resources.

3 **6. Q: What participation choices will Delmarva customers have?**

4 A: Under the program, Delmarva proposes to offer all Delmarva residential
5 distribution customers with central air conditioners or central heat pumps the
6 choice of the installation of an outdoor cycling switch or an indoor smart
7 programmable thermostat.¹ This choice of direct load control equipment is
8 intended to encourage maximum customer participation by accommodating
9 different customer preferences as well as permitting the Company to
10 accommodate the participation of customers with differing equipment and wiring.
11 Customers will also have the choice of one of three cycling strategies: 50 percent,
12 75 percent, or 100 percent. Under the 50 percent option compressor load would
13 be cycled off up to 15 minutes of each half hour; under the 75 percent option,
14 compressor load would be cycled off up to 22.5 minutes; and, under the 100
15 percent option, compressor load would be cycled off completely during each half
16 hour.

17 **7. Q: What compensation will participants in the new program receive?**

18 A: Program participants will receive the following financial incentives for
19 their participation in the program: 1) a one time bill credit after direct load control
20 equipment installation occurs of \$40 for 50 percent cycling, \$60 for 75 percent
21 cycling, and \$80 for 100 percent cycling; 2) an annual bill credit of the same
22 amount until AMI enabled dynamic pricing is available; 3) after AMI dynamic

¹ Program participation must be authorized by the owner of the property. Existing customer equipment must be compatible with direct load control equipment.

1 pricing is available on a widespread basis, the bill credit will be based upon the
2 available dynamic pricing rate; 4) bill savings that will result from achieved
3 energy reductions; and 5) the mitigation of higher wholesale market electricity
4 costs.

5 **8. Q: When will load reduction events be invoked by the Company?**

6 A: Load reduction cycling events will be invoked for one or more of the
7 following reasons: 1) PJM System emergency, 2) local distribution constraints, 3)
8 during periods of high wholesale energy costs, and/or 4) for test purposes.

9 **9. Q: When will the new program be available for customers?**

10 A: If approved by the Commission by November 1, 2011, Delmarva will
11 begin marketing the program to its eligible Delaware residential customers
12 beginning the first quarter of 2012. Equipment installations will begin during the
13 second quarter of 2012. Delmarva estimates that 50,000 customers will join the
14 program and receive cycling equipment by year-end 2014. Customers will be
15 permitted to join the program after year-end 2014, but active program marketing
16 to new participants is expected to conclude at year-end 2014.

17 **10. Q: What are the advantages of the new generation cycling technology?**

18 A: The new equipment is expected, over the long-run, to be controlled
19 through the deployed Advanced Metering Infrastructure using the installed Home
20 Area Network using a Zigbee protocol. The use of the AMI System capability
21 will help to ensure adequate communications to installed cycling equipment,
22 provide two-way communications to verify the operation of cycling equipment,
23 and avoid the cost of establishing a duplicative communications path. Individual

1 cycling units will be uniquely addressable so that changes to customer preferences
2 for alternative load reduction cycling strategies can be made without a costly field
3 visit by utility or contractor personnel. The new cycling equipment also helps to
4 maximize achieved electric demand reductions through the use of “adaptive
5 algorithm” software that enables the cycling devices to measure pre-cycling
6 compressor load and reduce that compressor load by a selected percentage. Mr.
7 Driggs discusses the selected cycling technology in greater detail within his
8 testimony.

9 **11. Q: How does the proposed direct load control program compare with the new**
10 **program currently offered by Delmarva in Maryland?**

11 A: Delmarva currently offers a similar residential direct load control program
12 in Maryland, titled the Energy Wise RewardsTM Program. The Company began
13 marketing this program to customers during the summer of 2009. As of March
14 31, 2011, 14,525 participants were enrolled in the program, providing 17.4 MW
15 of peak demand reduction.

16 **12. Q: What is the operational status of Delmarva’s Energy For Tomorrow (“EFT”)**
17 **Program?**

18 A: Delmarva continues to operate its legacy residential cycling program in
19 Delaware and Maryland. The legacy program entails the use of previous
20 generation outdoor central air conditioner and central electric heat pump cycling
21 switches and electric water heater cycling switches. As of March 31, 2011, the
22 Delaware Delmarva program includes 41,161 participants. The total estimated
23 peak electricity demand reduction is approximately 18 MW. Program participants

1 receive Delmarva bill credits for the cycling of air conditioners of \$5 per month
2 during the period of June through September and bill credits for the cycling of
3 water heaters of \$3 per month for the same months. After widespread
4 implementation of residential dynamic pricing occurs, the Company will work to
5 integrate the EFT credits with the provision of dynamic pricing rebates. The
6 Company will submit a revised tariff for Commission approval prior to making
7 this change.

8 **13. Q: Will the new residential direct load control program replace the Energy For**
9 **Tomorrow Program?**

10 A: Yes, the new residential direct load control program will replace the
11 existing program effective year-end 2014. Existing EFT participants will have the
12 option to participate in the new program and receive the choice of a smart
13 thermostat or an outdoor cycling switch. This will permit the Company to replace
14 the aging cycling equipment with next generation equipment. Mr. Driggs
15 discusses this conversion in greater detail within his testimony.

16 **14. Q: What are the estimated savings attributable to the proposed DLC program?**

17 A: Delmarva's projected program participation rate, resulting peak demand
18 and resulting peak hour energy savings are contained in Table 1. The Company
19 projects that 30 percent of participants will elect to receive an outdoor cycling
20 switch and 70 percent of participants will elect to receive a smart thermostat.
21 Fifty percent of participants are projected to select the 50 percent cycling option,
22 30 percent of participants are projected to select the 75 percent cycling option,
23 and 20 percent of participants are projected to select the 100 percent cycling

option. Three percent of participating customers are estimated to have two central electric cooling systems. Achieved load reduction projections are based upon Delmarva's 2010 load impact evaluation of the new Energy Wise Rewards Program in Maryland. Estimated energy reductions are based upon energy savings that occur during annual cycling events. No incremental energy savings have been assumed for the use of programmable thermostats.

Table 1
Delmarva Residential Direct Load Control Projected Year-end
Participants, Measures and Savings

Year	Customers	Total Thermostats	Total Switches	Peak Demand Reductions (kW)	Peak Energy Reductions (kWh)
2012	12,900	8,858	4,429	7,892	378,807
2013	33,333	22,889	11,444	28,284	1,357,627
2014	50,000	34,333	17,167	35,197	1,689,450
2015	50,000	34,333	17,167	61,177	2,936,489

15. Q: What are the projected costs for the program?

A: The projected costs for the program are contained in Table 2 below. Column (A) of Table 2 contains the installed number of devices. Column (B) contains the estimated costs for switches and thermostats in each year. Column (C) reflects the anticipated annual marketing expenses.² The estimated payments for contracted services performed by the vendor, such as installation management and scheduling, quality assurance, and any warranty issues, are found in Column (D). The estimated bill credits³ are shown in Column (E) and Column (F) shows

² Marketing activities may include direct mail, paid advertising, and/or other approaches deemed necessary to attain targeted participation levels.

³ Reflects installation billing credits for 2012, 2013, and 2014 and annual billing credits for 2012. Billing credits beginning in 2013 are assumed to be through AMI-enabled dynamic pricing. If a dynamic pricing rate is not available, annual bill credits shall be as stated.

1 projected yearly administrative costs. The Company's projected utility
 2 administrative expense includes dedicated personnel to respond to Delaware
 3 customer inquiries concerning demand response opportunities. Annual
 4 maintenance costs associated with installed switches and thermostats are shown in
 5 Column (G). Column (H) reflects measurement/verification and program
 6 evaluation costs and the annual totals for program costs are in Column (I).

7 **Table 2**

8 **Projected Program Costs**

Year	A Installed Devices	B Installed Cost of New Devices	C Marketing	D Contracted Support	E Participant Credits	F Program Administration	G Maintenance Services	H Evaluation	I Total Program Costs
2011	0	\$0	\$664,350	\$495,000	\$0	\$151,875	\$0	\$0	\$1,311,225
2012	13,287	\$2,964,981	\$1,328,700	\$860,000	\$896,873	\$202,500	\$59,297	\$50,000	\$6,162,231
2013	21,046	\$4,696,204	\$2,104,600	\$990,000	\$1,136,484	\$202,500	\$153,221	\$100,000	\$9,383,010
2014	17,167	\$3,830,644	\$1,716,700	\$658,000	\$927,018	\$202,500	\$229,834	\$50,000	\$7,814,697
2015	0	\$0	\$250,000	\$175,000	\$0	\$101,250	\$229,834	\$50,000	\$806,084
9 Total	51,500	\$11,491,710	\$8,084,350	\$3,178,000	\$2,990,375	\$860,825	\$672,187	\$250,000	\$25,477,248

10
 11 **16. Q: What are the projected benefits of the program?**

12 **A:** The quantified financial benefits of the program include capacity and
 13 energy benefits. Unquantified benefits include avoided/deferred transmission and
 14 distribution costs, improved/maintained electric system reliability, market
 15 capacity and energy price mitigation, and reductions in negative externalities
 16 related to the provision of electricity. Additionally, the program directly supports
 17 Delaware's statutory demand reduction goals. We also feel that the program will
 18 lead to enhanced customer satisfaction in that it will provide customers with an
 19 effective tool to help manage their energy consumption and bills.

1 **17. Q: Is the program cost-effective?**

2 **A:** Yes, the program is cost-effective under the Total Resource Cost Test.

3 Table 3 provides the results of the cost/benefit tests. The Company conducted the
4 Total Resource Cost Test. The Total Resource Cost Test compares the total costs
5 of the demand side program, including participant and utility costs, to the total
6 benefits derived from the program, excluding the effect of externalities.⁴

7 Delmarva has made the following assumptions in these calculations:

- 8 • Direct Load Control Equipment Life: 15 Years
- 9 • Avoided Capacity Costs: Based on RPM BRA Auction Results for Years
10 2012, 2013, and 2014; thereafter moving to the Net Cost of New Entry
11 beginning in year 2015
- 12 • Avoided Energy Costs: Assumed \$0.28 per kWh during cycling events
- 13 • Discount Rate for Total Resource Cost Test: 4.6 Percent⁵

14 The proposed direct load control program is cost-effective with a Total
15 Resource Cost benefit ratio of 2.1.

16 **Table 3**

17 **Projected Cost-Effectiveness⁶**

18

Costs	Benefits	Ratio
\$ 26.712	\$ 56.361	2.11

⁴ The Total Resource Cost Test is based upon the cost-effectiveness analysis established by the California Standard Practice Manual.

⁵ The discount rate is net of an assumed long-term inflation rate of 3 percent and is based upon the utility cost of capital contained in the latest Delmarva base rate distribution case or 7.61 percent.

⁶ Cost-Effectiveness dollars are in millions and represent the calculated net present value of costs and benefits.

1 **18. Q: If AMI enabled dynamic pricing is approved by the Commission, will cycling**
2 **events take place during critical peak periods?**

3 A: Yes, cycling events will take place during critical peak periods. In this
4 manner, residential customers who participate in the direct load control programs
5 will have a readily available demand reduction enabling tool to automatically
6 reduce their electricity use during critical peak events.

7 **19. Q: How will Delmarva monetize the demand reductions available from the**
8 **program in the PJM wholesale electricity market?**

9 A: Under existing PJM market rules, demand response may participate in the
10 PJM capacity and energy markets. Planned demand response reductions can be
11 bid into the PJM capacity through the Base Residual Auction, through the
12 incremental capacity auctions, or participate via a bilateral transaction. The
13 recent PJM RPM capacity market results for the Delmarva region within PJM are
14 presented in Table 4. Initially, due to uncertainty regarding the timing of program
15 build out, 75 percent of the forecasted demand reduction amount will be bid into
16 the forward RPM BRA capacity market and the remaining 25 percent will be bid
17 into the BRA interim auctions.

18 Table 4

19 Delmarva Regional Capacity Market
20 Planning Year RPM BRA
21 \$ / MW-Day

22	2011/2012	\$110.00
23	2012/2013	\$139.73
24	2013/2014	\$245.00
25	2014/2015	\$136.50

26

1 Load reduction amounts bid into the PJM capacity markets will be based
2 upon forecasted program impacts that are available as of June 1 of each PJM
3 planning year. Actual bid amounts will be less than forecast projections for a
4 given year to account for uncertainty regarding such variables as customer
5 participation levels and achieved equipment installation rates. Delmarva's
6 projections will be revised annually based upon reduction amounts actually
7 achieved over the prior program year and any planned program modifications.
8 Future statistical load reduction studies supported by AMI will be conducted in
9 compliance with PJM market requirements. The Company will be able to
10 participate in the BRA action for 2015/2016 only if Commission approval of the
11 residential direct load control program is received prior to April 2012.

12 Three variants to the PJM energy market currently exist – day ahead, real
13 time, and emergency. At this time, the Company anticipates deriving energy
14 related program revenue through the Delmarva real time Zonal LMP prices. PJM
15 is currently revising its market rules regarding the compensation of demand
16 response within the energy market. The value of achieved program energy
17 reductions is calculated as follows:

$$18 \quad \sum [(MWh \text{ Reduced}) * (\text{Hourly LMP})]$$

19 **20. Q: How does Delmarva propose to recover its program costs?**

20 **A:** For the residential DLC program, Delmarva proposes to recover program
21 costs through a regulatory asset.⁷ Costs incurred for DLC implementation will be
22 deferred in this regulatory asset and the Company will only receive cost recovery

⁷ The Commission established a regulatory deferral mechanism for the roll out of new direct load control technology in Order No. 7420 of Docket No. 07-28, issued on September 16, 2008.

1 when it is authorized by the Commission to do so through a distribution base rate
2 case. The regulatory asset balance will be included as part of the distribution rate
3 base and would be subsequently recovered through distribution rates.

4 **21. Q: Has the Company prepared a rate tariff for the program?**

5 A: Yes, Delmarva's proposed Rider "R-DLC" Residential Direct Load
6 Control Rider is attached as Exhibit 1.

7 **22. Q: Does this conclude your testimony?**

8 A: Yes.

Delmarva Power & Light Company

RIDER "R-DLC"
RESIDENTIAL DIRECT LOAD CONTROL RIDER

A. Availability

RESIDENTIAL CYCLING SERVICE - This rider is applied to and is a part of Schedules "R" and "R-TOU-ND" when a residential distribution customer volunteers for this demand response resource program subject to the provisions listed below.

B. General Provisions

1. The customer will allow the Company to install, own, and maintain either a smart thermostat(s) or radio controlled switch(es) and associated equipment on the customer's central air conditioner or central heat pump equipment for the purpose of the Company's cycling control over the operation of those appliances as described below.
2. Customer may select one of the following three demand response options:
 - RESIDENTIAL DLC-50% CYCLING - Whereby a participating residential customer's air conditioner compressor will be cycled off for up to 15 minutes of each half hour period.
 - RESIDENTIAL DLC-75% CYCLING - Whereby a participating residential customer's air conditioner compressor will be cycled off for up to 22.5 minutes of each half hour period.
 - RESIDENTIAL DLC-100% CYCLING - Whereby a participating residential customer's air conditioner compressor will be cycled off completely during each half hour period.
3. The Company may exercise cycling control whenever required for any of the following reasons:
 - 1) to test cycling equipment,
 - 2) in response to a PJM dispatcher request to activate the program,
 - 3) in response to local Delmarva supply constraints, or
 - 4) in response to regional energy market prices.

Participant override of cycling events will be limited to two events annually and are not permitted during PJM initiated cycling events.

4. Customers may only participate in one direct load control program at a time.

C. Contract Terms and Billing

1. The customer will receive the following applicable bill credits while participating in the program. The Annual Fixed Credit is paid proportionally during the June through October billing months prior to the availability of dynamic pricing. In exchange for the One Time Enrollment Installment Credit, participants will be required to remain enrolled in the program option for at least one year. The Enrollment Credit will be credited to the participant after the cycling equipment has been installed.

Demand Response Options Per Controlled Device

	DLC-50%	DLC-75%	DLC-100%
One Time Enrollment Installment Credit	\$40.00	\$60.00	\$80.00
Annual Fixed Credit	\$40.00	\$60.00	\$80.00

2. The Customer holds DPL harmless for any damages resulting from participation in the program.