DELMARVA POWER & LIGHT COMPANY

BEFORE THE
DELAWARE PUBLIC SERVICE COMMISSION
REBUTTAL TESTIMONY OF MICHAEL W. MAXWELL
DOCKET NO. 13-115

Q1. Please state your name and position.

A1. My name is Michael W. Maxwell. I am Vice President, Asset Management for Pepco Holdings, Inc. (PHI). I am testifying on behalf of Delmarva Power & Light Company (Delmarva or the Company).

Q2. What is the purpose of your Rebuttal Testimony?

A2. The purposes of my testimony are:

- To rebut the testimony of Commission Staff Witness Vavro on her position that there is neither a necessity nor a mandate for Delmarva's Reliability Enhancement Plan (REP) investment in Delaware.
- To rebut the testimony of Division of Public Advocate Witness Dismukes position that investments included in rate-making Adjustment 26 (reliability closings through 2013) are uncertain, not all are "used and useful" or "known and measurable," and are not supported by any cost-benefit or value of service studies.

Q3. PSC Witness Vavro discusses on page 7 lines 4 – 7 that REP projects are made to enhance reliability while other (non-REP) capital investments are made to maintain reliability at existing levels. Do you agree with this representation of REP and Non-REP projects?

A3. No. Witness Vavro's characterization of the implementation of the REP as a shift

from reliability investment focused on maintaining reliability to reliability investments aimed at improving reliability is incorrect.

Both before the REP was adopted and currently, Delmarva categorizes its capital investments into "customer driven," "reliability driven," and "load driven," which I refer to as "customer," "reliability" and "load." It's critical to understand that REP is not a new fourth category of capital investments; rather, it is a term used to identify the projects within the "reliability" and "load" categories that are designed to maintain and/or enhance reliability. In other words, Delmarva continues to categorize projects as "reliability" and "load" projects. Contrary to what Witness Vavro provides in her testimony, however, REP projects are <u>not</u> a new category of projects that did not previously exist and the projects identified as part of the REP are <u>not</u> intended only to enhance reliability.

Simply stated, REP projects include projects in Delmarva's traditional categories of "reliability" and "load" that maintain or enhance reliability. Specifically, these projects were designated as "REP" projects to identify them as a focused set of initiatives describing the reliability related work and to better communicate to our customers the focus that the Company has placed on their reliability. Accordingly, Witness Vavro's interpretation, which she describes as "important," that the REP is only compromised of programs which "enhance reliability," is mistaken, and neither correctly describes what the REP represents nor its complete purpose.

The objective of all of Delmarva's reliability work included in Adjustment 26 is to provide safe and reliable electric distribution service by: (1) replacing equipment, as appropriate, to mitigate unplanned outages; (2) upgrading equipment that has demonstrated an increased trend in failures; (3) putting in place infrastructure to serve forecasted peak

levels of electric load in advance of that load being recognized on the system; and, (4) timely restoration of service if an outage occurs.

Q4. When is a "load" project considered part of the REP and when would a "load" project not be considered part of the REP?

A4. Load projects are included in the REP when they are necessary to address projected distribution circuit, substation, and substation supply overload conditions before they become issues and result in customer outages. If these projects are not addressed before overloads develop, outages will result. By planning load projects to address problems before load-related outages arise, these load projects maintain and/or enhance reliability and, as such, are also described as part of the REP.

A load project would not be described as part of the REP if it is undertaken to serve the needs of a single customer or a large customer project that is being developed. For example, if a customer seeks to develop a large manufacturing facility or a large residential subdivision that would require new capital investment by Delmarva (such as a new substation) to serve that project's new load, that would be considered a "load" project that would not be part of the REP.

Q5. Witness Vavro claims on page 8 lines 13 – 14 "there was no clear mandate to necessitate spending for reliability enhancement programs in Delaware." Do you agree?

A5. I disagree. Delmarva has an obligation to provide its customers with reliable service. Delmarva plans its system to perform better than the Regulation Docket No. 50 (Docket 50) reliability standard because that is both what the Delaware standard requires, and that is what our customers expect.

The Docket 50 minimum standard established by the Commission in 2006 demonstrates that reliability was a critical concern for the Commission. Setting a minimum level of reliability performance sends the message that the system wide performance can be no worse than the minimum standard set in that Docket.

The Commission made it very clear, however, that the minimum performance contained in Docket 50 is not intended to serve as the "goal" or the "standard" for reliability or even a level of reliability that will be considered "adequate" or "proper." As the Docket 50 rules specifically state: "*Compliance with this regulation is a minimum standard. Compliance does not create a presumption of safe, adequate and proper service.*"[1] Moreover, the Docket 50 rules further specifically state that "*[e]ach EDC needs to exercise their professional judgment based on their systems and service territories.*"[2] Delmarva Power has exercised its professional judgment to conclude that merely meeting the minimum SAIDI performance standard set forth in Docket 50 would not be adequate or satisfactory to meet the needs and expectations of Delmarva's customers.

A reliable electric grid is essential to meeting the rapidly-evolving needs of an increasingly digital society. The digital/electronic nature of business, government, communication systems, healthcare and emergency services has developed to the point where the level of reliability that may have been acceptable less than a decade ago is no longer suited to meet customer needs and expectations. It is reasonable to expect that our customers will continue to become more reliant upon electronics and communications and as a result, reliability of the electrical grid will continue to be more important to customers. In today's

1 State of Delaware Electric Quality and Service Standards, Section 1.3.
2 Id.

1 society, when the power is out, computers do not work, communications systems fail, orders
2 do not get taken, stores close, wages are lost, and production shuts down.

3 At the same time that outages in general have become more problematic to customers
4 and the economy, the region has experienced storms of increasing strength and frequency.
5 As the U.S. Department of Energy has reported, eight of the largest ten hurricanes have
6 occurred over the past decade. In the last few years alone, Hurricane Isabel, Hurricane Sandy
7 and the 2012 Derecho have made it clear that the region is facing more frequent and powerful
8 storms that have the potential to impair essential components of the energy infrastructure and
9 cause enormous economic losses. As storms increase in frequency and intensity, the ability
10 to withstand storms and to restore electricity quickly when disruptions occur will become
11 even more important. While it is true that the 2012 Derecho and Hurricane Sandy largely
12 spared Delaware, the same was not true for neighboring states. Maryland and New Jersey
13 were battered by the Derecho and New Jersey and New York were devastated by Sandy. For
14 Delmarva Power to wait until Delaware is directly impacted the way our neighboring states
15 did before we act to modernize the electric system and make it more resilient would be
16 irresponsible.

17 **Q6. Have other organizations recognized the need to invest in greater reliability?**

18 A6. Yes. Delmarva Power is not alone in its recognition of the importance of developing
19 a more reliable electric grid for its customers. In its 2013 ***Report Card for America's***
20 ***Infrastructure***, the American Society of Civil Engineers gave the nation's electric grid a D+,
21 due to its antiquated condition. Just last month, in August 2013, the President's Council of
22 Economic Advisors and the U.S. Department of Energy issued a report from the Executive
23 Office of the President entitled, "***Economic Benefits of Increasing Electric Grid Resilience***

1 *to Weather Outages*." The Presidential Report concluded that power outages caused by
2 severe weather conditions cost the U.S. economy up to $75 Billion per year in lost wages,
3 spoiled inventory, delayed production, inconvenience and damage to the electric grid. The
4 Presidential Report concluded that investment in electric grid modernization and resilience
5 will save the economy billions of dollars and reduce the hardships experienced by millions of
6 Americans.

7 **Q7. Have Delmarva's customers indicated whether reliability is an important issue to**
8 **them?**

9 A7. Yes. Delmarva uses quarterly customer satisfaction surveys[3] to gauge customer
10 satisfaction and perceptions of the Company's services. Delmarva uses Market Strategies
11 International (MSI) to perform these surveys. These surveys have found that the most
12 important driver of customer satisfaction is reliability: "providing reliable electric service"
13 and "restoring outages when they occur." Further, JD Power surveys have documented
14 similar results to Delmarva's internal surveys.

15 It has been the experience at both Delmarva Power and at Delmarva's affiliated PHI
16 utilities that customer satisfaction is maintained by eliminating outages and, when outages do
17 occur, minimizing the impact by reducing the duration of the outage. The outage with the
18 shortest duration is the outage that does not occur which is why the focus of the REP is on
19 investing in the infrastructure. Were Delmarva to allow reliability performance to decline by
20 not maintaining appropriate levels of investment in reliability infrastructure, customer
21 satisfaction would be significantly damaged.

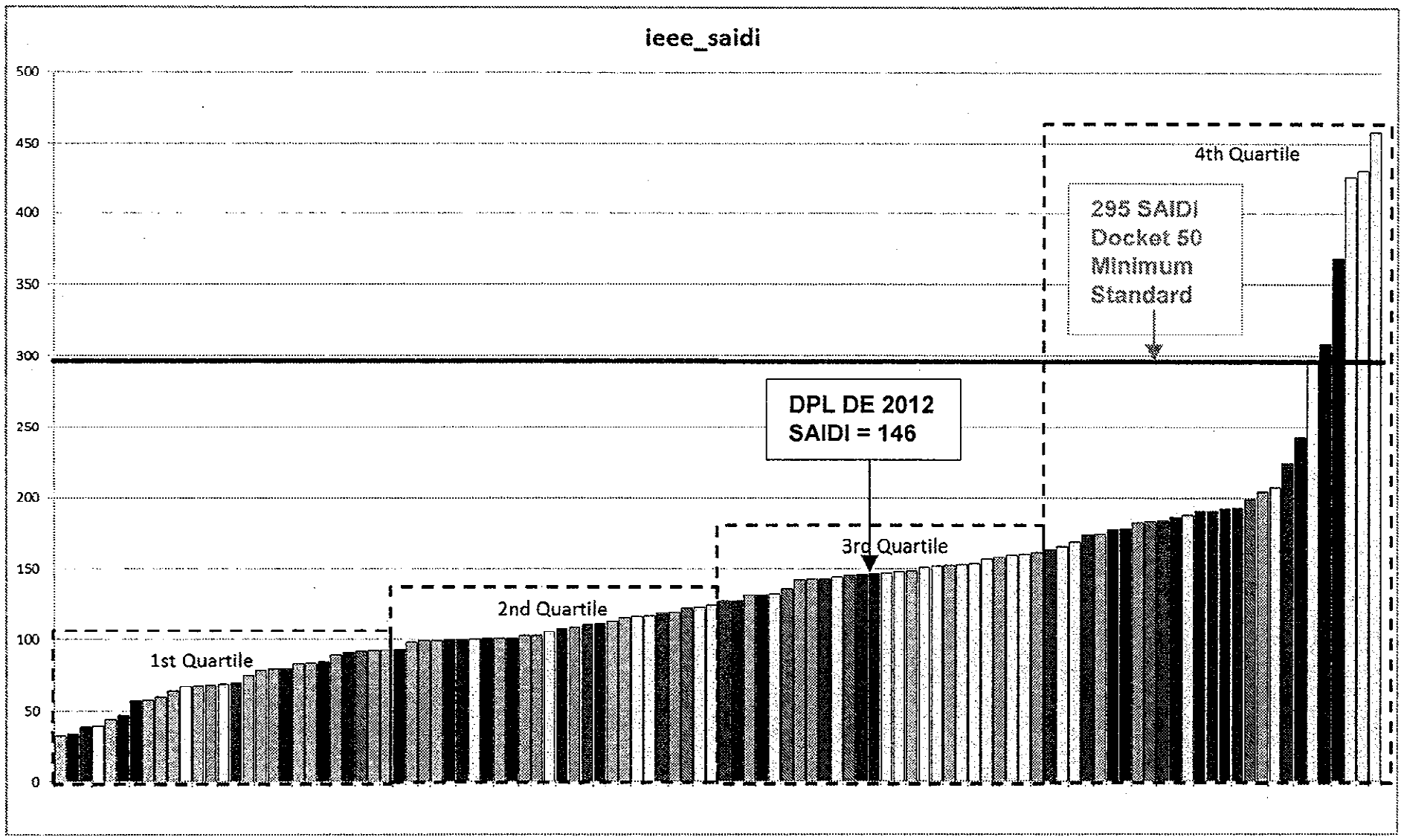
22 **Q8. Witness Vavro claims at page 12, line 14, that Delmarva's historical SAIDI was**

"comfortably below" the 295 maximum. Do you agree that maintaining a SAIDI that is merely "below" the maximum is the appropriate action to take?

A8. No. Reliability performance is variable and dependent upon many factors that can influence the system wide performance of the indices in a given year and therefore trying to maintain a SAIDI below a certain level actually requires investments in the infrastructure. If you fail to maintain and invest in the system, you will run the risk of increased failure and extended outages. Two of the ways in which a utility can determine whether or not the electric system is performing commensurate with our expectations are (1) by looking at the directional trend of the annual reliability indices over several years to see if the performance is improving and (2) comparing its annual performance against the performance of its peers. By way of example, I have incorporated into this testimony a chart depicting the results of the 2012 Institute of Electrical and Electronics Engineers (IEEE) Annual Reliability Survey, which is based on reliability data from 2011. As the Table 1 below demonstrates, a SAIDI of 295 (the Docket 50 minimum standard) is at the poorest performing end of the fourth quartile. In other words, a SAIDI of 295 minutes means that a utility was performing in the bottom of the worst (4th Quartile) performers. In fact, only five utilities out of the 106 participating in the IEEE survey would have failed to meet the Delaware Docket 50 minimum standard:

3 See Delmarva response to AG-REL-46, Schedule (MWM-R)-1.

Table 1: Delmarva's SAIDI Ranking on 2012 IEEE Annual Reliability Survey



Only Five Utilities Out of 106 Would Fail to Meet the
<u>Docket 50 Minimum SAIDI Requirement of 295 Minutes</u>

The Commission-established Docket 50 minimum standard of 295 minutes is not a level of performance that the Company should strive to merely be below, but rather one the Company should strive to be significantly below. As discussed above, Docket 50 established the "minimum" level of reliability acceptable – not the minimum level of service to which our customers are entitled. In fact, at some points of her testimony, it appears that Witness Vavro agrees that the Docket 50 rules constitute the poorest SAIDI allowed:

- On page 14, lines 4-6, she states that "Under the current standards, a SAIDI of 295 is an absolute maximum value above which point penalties may be imposed."
- On page 8, lines 1-3, she states that pursuant to Regulation Docket No. 50, "Delmarva Delaware is required to maintain a SAIDI of 295 minutes or less."

- On page 14, lines 6-7, Witness Vavro, referring to the SAIDI value of 295 minutes, states that "no one actually expects the Company to operate at that level."

Q9. Witness Vavro stated on page 12 lines 22-23 that "[she] saw no engineering necessity for the REP reliability-related capital projects to maintain SAIDI at its status quo level." Do you agree?

A9. No. As I stated earlier, the electric system is a mechanical system made up of equipment interconnected across the state of Delaware in an environment which experiences a range of weather, and that has been constructed and reconstructed over a century. It is a system that is continuing to evolve to accommodate modernization and the impacts of climate change. Further, in order to maintain reliability performance better than the minimum Docket 50 standard and to provide our customers with the level of reliability needed both today and in the future, Delmarva must proactively maintain reliability by simultaneously meeting the new challenges presented by penetration of distributed generation resources, aging infrastructure such as URD cable, load growth in areas where it is occurring, and mitigating the impact that weather and climate change has on its system. Maintaining reliability, therefore, takes continuous planning and investment in distribution infrastructure.

Q10. Please comment on the need for the REP.

A10. The REP has distinct activities that work together to provide safe, adequate and proper service for our customers and maintains the condition of the electric system infrastructure to support this requirement and meet future load growth. The components of the Company's plan, discussed on page 5 lines 6-9 of Witness Vavro's Direct Testimony, are based on sound engineering principles, long-standing utility practices and are designed to

maintain and enhance reliability on specific parts of the electric system. For example the following overview provides a brief explanation of a few of the components of the REP:

- Distribution Automation (DA) - DA is part of Delmarva's commitment to use proven state of the art technology to provide cost effective electric service reliability improvements through advancements in grid modernization and advanced technologies. Deployment of DA Automated Circuit Reclosers and Automated Circuit Switches helps reduce both the number of customers affected by outages and the length of outages for customers who are affected. Automated Circuit Reclosers isolate faulted sections of overhead lines by sensing and interrupting fault currents in the section of the feeder exposed to the fault and automatically restore service after the occurrence of a temporary fault. Rather than losing all customers on a feeder when a fault occurs, ACRs will limit the affected customers to only that specific section of feeder affected by the fault. Automated Circuit Switches used as part of a restoration scheme will isolate a faulted section of a feeder, transfer load between feeders, or separate sections of a feeder to isolate faults. For example, if a feeder serves 1500 customers, a fault on that feeder would normally result in 1500 outages. With the use of DA Automated Service Switches, however, outages on the feeder would be limited to only the customers served by the specific section of the feeder where the fault exists. Not only will significantly fewer customers be affected by an outage, but because the fault has been isolated by DA Automated Service Switches to a specific section of feeder, the fault can be detected and located more quickly,

meaning that service can be restored more quickly to those customers who are affected by the outage.

- Load Growth - Delmarva's load growth program is included in the REP because it is a reliability requirement to address distribution circuit, substation, and substation supply overloads before they become issues and result in customer outages.
- Priority Feeders - Delmarva is required to report individual feeder circuit reliability performance, as well as designate a group of the poorest-performing "Priority Feeders"[4] for corrective action. The Priority Feeder program is a Docket 50 requirement that obligates Delmarva to correct, at a minimum, its poorest performing feeders. Delmarva includes the Docket 50 Priority Feeders in the REP. Because Delmarva seeks to provide better reliability than the minimum required by Docket 50, however, Delmarva went beyond the Docket 50 minimum poorest performing "Priority Feeder" program and developed its Feeder Improvement Program. The Feeder Improvement Program involves a larger group of feeders that show decreasing system performance. While the feeders identified for improvement under the Feeder Improvement Program have not reached the level of performance that puts them into the Docket 50 mandatory worst performing Priority Feeder program, Delmarva believes that these feeders are not performing at the level of reliability reasonably expected by our customers. As a result, these feeders are identified for reliability work under

Delmarva's Feeder Improvement Program.

- Underground Residential Distribution Cable Replacement (URD) – The replacement of URD cables is driven by the increased failure rate of aging cables that were manufactured in the early 1970s and 1980s. These underground cables are beginning to fail at an increasing rate. These failures are a well-recognized industry challenge. Delmarva has traditionally replaced these cables after repeated failures at specific locations. Repeated failures, however, have proven highly frustrating to our customers. Accordingly, Delmarva has adopted an increased effort to identify and replace these aging underground cables before they fail and cause customer outages. The prevention of outages associated with aging equipment that has a proven failure history constitutes good engineering practice, good customer service, and good professional judgment.

The REP is based on sound engineering principles; the Commission should accept the program's costs in this proceeding on the grounds: (1) the specific language of the Docket 50 regulations that require utilities "*to exercise their professional judgment based on their systems and service territories.*"[5]; (2) Delmarva's obligation to provide safe and reliable service; (3) the evolving needs of an increasingly digital electronic society; and (4) the expectations of our customers as determined by our quarterly surveys.

Q11. At page 7, line 10 to page 8, line 16 of her testimony, Witness Vavro suggests that Delmarva adopted the REP because of Pepco's experience in Maryland, and "despite

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4 Priority feeders are the lowest 2% or 10 feeders, whichever is greater. Id at Section 10.3
5 Id.

the fact that, from a policy perspective, there was no clear mandate to necessitate spending for reliability programs in Delaware." Do you have any comment with respect to that testimony?

A11. It is true that Delmarva learned from Pepco's Maryland experience and is applying that knowledge across its sister companies. The fact that Delmarva is applying lessons learned from other jurisdictions should not be seen as a negative, but rather as one of the benefits of having the experience of a larger corporate group on which to draw.

Q12. Do you have any corrections to Witness Vavro's depiction of Delmarva's Distribution Plant Capital Additions, 2007-2012, shown on page 9 line 10?

A12. Yes. Witness Vavro makes an imprecise assumption in her footnote 9 on page 10 of her direct testimony which leads to an inaccurate depiction in the table on page 9, line 10. In that footnote, she makes the assumption that "all capital additions in 2007 to 2010, before the REP initiative began, are considered non-REP projects." This assumption is incorrect for one simple reason: many of the programs that were incorporated into the REP already existed before 2010, however, from 2007-10, those projects were under the Company's traditional "reliability" and "load" categories of distribution construction work. As described earlier in my testimony, the REP is not a new category of projects, REP is used to describe "reliability" and "load" projects that maintain reliability and those that enhance reliability. This incorrect assumption (in footnote 9 on page 10 of Witness Vavro's direct testimony), combined with her statement on page 7 lines 4-7, where she states that non-REP projects are made to "maintain" reliability, demonstrate her misinterpretation of the REP.

Delmarva has been performing these types of projects (now labeled as REP projects) for many years. The REP brings all of the reliability projects together. Where appropriate, to

prevent a decrease in reliability and to improve overall system performance to meet the evolving needs of our customers, investments in certain areas have been increased. The REP provides a way for the Company to discuss its reliability initiatives and to identify changes from year to year based on identified reliability issues that the Company is seeking to resolve.

Q13. Witness Vavro specifically claims at page 11 lines 17-19, that there is not enough information about REP load relief projects to judge if they were "truly meant to enhance versus maintain reliability." Do you agree?

A13. No. Delmarva provided its planning process (PSC-COS-6 Attachment C)[6], multiple years of planning studies (PSC-COS-6 A.zip,[7] PSC-COS-6 B.zip,[8] and PSC-COS-6 Attachment D[9]), and construction recommendations (AG-REL-21.zip)[10] that specifically address the load growth projects and engineering analysis providing the need for load growth construction investments. While Delaware as a whole is seeing low growth, Delmarva analyzes circuit capacity on an localized and individual circuit level, and has found that the Middletown-Odessa-Townsend area in New Castle County below the C&D Canal, the corridor between Dover and Harrington, and the coastal areas in Sussex County are all experiencing enough growth to be a concern to system reliability in the long term. These projects are needed to both prevent reliability from degrading in the long term, and enhance reliability as new equipment is placed in service.

Q14. Witness Vavro claims at page 16, lines 6-10 that "Staff has asked the Company on several occasions to provide" how much of Delmarva's 2011 and 2012 REP-Related

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6 See Schedule (MWM-R)-2.
7 See Schedule (MWM-R)-2 a.zip.
8 See Schedule MWM-R-2 b.zip.
9 See Schedule (MWM-R)-2.
10 See Schedule (MWM-R)-2 c.zip.

plant additions are in rate base, but has not been able to determine how much "from the material provided thus far." Can you respond to this claim?

A14. I disagree with Witness Vavro's characterization of Staff's initial request for the data was unclear, and counsel for Staff and Delmarva were able to clarify the request in a follow-up. Delmarva provided the data once the purpose of the request was clear.

Q15. Witness Vavro, at page 12, lines 14-18, testifies that Non-REP project work in 2011 and 2012 appears to have been necessary and that she "presume[s] these projects will be afforded traditional rate base treatment." Do you agree?

A15. Yes, Delmarva agrees with Witness Vavro that all Non-REP reliability work should receive traditional rate base treatment. REP work should receive the same rate base treatment. As explained above, Witness Vavro mistakenly testifies that REP work is only concerned with "enhancing" reliability performance – that is incorrect. REP work includes any work that affects reliability - meaning work that serves to maintain reliability and that which also serves to enhance reliability. The REP work is necessary to maintain reliability performance acceptably above the Docket 50 minimum and to satisfy the requirements of Delmarva's Delaware customers. As such, all REP work should receive traditional rate base treatment.

Q16. Witness Dismukes claims on page 20 lines 10 – 11 that REP versus non-REP projects "are moved between categories at management's discretion." Do you agree?

A16. No. As explained extensively above the projects that the Company determined are a part of the REP are necessary to design, plan and operate its system to maintain safe and reliable service to its customers.

Q17. DPA Witness Dismukes on page 6 line 20 to page 7 line 1 claims Delmarva "does not

appear to have experienced any difficulties" meeting the Commission's reliability standards. In your opinion, is meeting the standard consistently a sufficient criteria to judge the need for reliability investment?

A17. No. As I described extensively above, the Company should not be striving for the minimum reliability, but should be addressing known reliability concerns and maintaining and enhancing the system to provide safe and reliable service to existing and future customers.

Q18. Witness Dismukes claims on page 7 lines 7 – 12 that Delmarva has not been able to identify reliability indices that were impacted by reliability investments. Is this true?

A18. No. Witness Dismukes confuses Delmarva's ability to extract data about how each discrete reliability activity on individual feeders impact an individual feeder's reliability with Delmarva's data on how the available portfolio of reliability activities have improved system and individual feeder reliability. Despite his claim that Delmarva cannot identify reliability indices impacted, Witness Dismukes cites the Company's improving reliability performance in his own Schedule DED-2, as well as referring to data request PSC-REL-9, which stated, in part:

a. The company selects and designs all reliability projects to decrease the frequency and duration of outages on the selected feeders. The requested data surrounding the changes at an individual project level is not available.

b. In general all reliability projects are designed to impact the following items.

(1) Reliability during conditions measured in IEEE indexes (i.e., non-major events),

(2) Reliability during events excluded from IEEE (i.e., major events),

(3) The speed of restoration after major events, or

(4) Customer costs during an outage event.

Further, I provided the following table in my Direct Testimony which demonstrates the impact on reliability indices of Delmarva's efforts to enhance and maintain the system:

Reliability Performance	2010	2011	2012	% Change 2010-2012
SAIFI	1.47	1.41	1.14	22%
SAIDI	199	192	146	27%
Docket No. 50 SAIDI Performance Target	295	295	295	n/a

In addition, Delmarva provided all the data it regularly provides to the Commission, Staff and DPA as a part of its Docket 50 reporting requirements, as well as several other statistics used internally. Delmarva even provided data without Major Event Days (MEDs) excluded, as requested.[11]

Delmarva tracks reliability performance by feeder in addition to the system level performance. This is how the priority feeders are selected and is one method for selecting other reliability work. In addition to feeder level SAIDI and SAIFI, the Company tracks number of feeder lock outs, URD faults and repeat customer outages. All of these reliability indices are used to identify the portions of the system that are experiencing poorer reliability performance and are used to track improvement after reliability work is performed. The Company can and does identify reliability indices that were impacted by prior reliability investments, contrary to the claims of Witness Dismukes.

Q19. Witness Dismukes' testimony at page 8, line 19, through page 9, line 8, includes a

review of fourteen projects where he claims funds from 2012 projects were spent during the 2013 pro forma test period. Do you have any response to his comments?

A19. Variances in spending such as the ones identified in Witness Dismukes' schedule DED-6 are a normal and expected feature of utility construction work. For instance, WBS UDLNRM4C, associated with upgrades to URD cable in the Christiana District, spent less than originally budgeted in 2012 because fewer cable failures were observed in 2012 than were expected based on previous years' data. These variations do not represent funds deferred and spent in another year, but simply the variations one would expect when schedules and budgets are implemented over the course of any year.

Q20. Witness Dismukes claims at page 11, line 17, that Delmarva expressed that "its investments could not be subjected to cost benefit analysis." Is this true?

A20. Delmarva assures cost effectiveness through process rather than study. Raw outage data is converted into useful statistics, such as SAIFI and SAIDI, customers experiencing multiple outages and other specific system criteria that provides performance information on an individual feeder basis. This information is used in ranking and selecting feeders and identifying the portion of the feeder where outages are occurring and the equipment that is failing. These statistics are used to develop the REP and to design the work to be done on each feeder to improve reliability.

Delmarva uses this data to ensure that it is performing the appropriate reliability work. The work is performed in accordance with all current design standards. The feeder performance data provides the Company with the ability to rank each feeder by reliability performance. The Company selects feeders for additional on-site inspection, and then

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11 AG-REL-45, part a, see Schedule (MWM-R)-3.

establishes a proposed scope of work necessary to improve the performance of that specific feeder. After all site inspection work is completed, a detailed design using engineering design and material standards, cost estimates and project plans is created using the Company's Work Management Information System and Compatible Units Estimating system. For example, a detailed cost benefit analysis is not needed to know that the appropriate course of action to take when URD cables are failing is to replace the cable. The analysis that is needed is one that identifies where to replace the cable before a failure occurs. Similarly, Delmarva does not perform a cost-benefit analysis for every crossarm replacement. The Company has already determined what the least cost, most effective crossarm replacement would be for its pole configurations, and replaces all crossarms according to that determination.

Delmarva does not perform a cost-benefit or cost effectiveness analysis of every project because it would not be feasible to do so; Company engineers would be constantly caught up in a costly, time-consuming analyses that would do much less to maintain reliability and service than the processes identified above, at a much higher cost. For instance, from 2007 through the first quarter of 2013, Delmarva performed work on over sixteen thousand different work orders for reliability construction alone.

Q21. Witness Dismukes claims at page 12, line 19, to page 13, line 14, that Delmarva has been required to file a cost effectiveness analysis with the Maryland Commission in response to the so-called "Derecho Order." Is this true?

A21. Yes, Pepco Maryland and Delmarva Maryland, along with all regulated electric utilities in the State of Maryland, were required to conduct cost-benefit analyses of both short term and long term projects to improve storm resiliency. The Derecho Order,

however, does not apply to the type of REP investments that are relevant to this docket. The Maryland Derecho Order relates to potential work that if undertaken, would be for the purpose of re-constructing (or "resiliency") the utility grid in Maryland to withstand storms of unusually high intensity, such as the 2012 Derecho. Specifically, the Maryland Commission stated that:

> "In order to make a fully formed decision as to the actions to be taken to accomplish meaningful reductions in outage durations, we must first analyze the costs and benefits associated with the *vastly upgraded systems required for resiliency against storms having the magnitude of the Derecho*, and then assess whether those benefits are worth the associated costs, which ultimately ratepayers will have to bear." (*emphasis added*).[12]

Q22. Does the Maryland Commission require Pepco, Maryland or Delmarva Power, Maryland to conduct a cost benefit analysis for the REP projects that they have been conducting in Maryland?

A22. No, it does not. The REP projects that Delmarva Power is pursing in Delaware are the same type of projects that Delmarva's affiliated utilities are conducting in Maryland. The REP projects are not covered by the "Derecho Order" because they do not amount to the type of "*vastly upgraded systems*" covered by that Order. Witness Dismukes' attempt to compare the requirement to conduct cost-benefit analyses for the kind of system reconstruction referred to in the Maryland Derecho Order to the REP work being considered in this case is an inappropriate comparison. Accordingly, the Maryland Commission's direction that all Maryland regulated utilities perform a cost-benefit analysis for system reconstruction for storm hardening/resiliency purposes does not translate into a need for Delmarva to "reconcile" its position that cost benefit analyses are not needed to justify REP reliability

1 work.

2 Sound utility engineering practices and business judgment also dictate that cost
3 benefit analyses for REP projects would be inefficient. For example, a detailed cost benefit
4 analysis is not needed to know that the appropriate course of action to take when URD cables
5 are failing is to replace the cable. The analysis that is needed is one that identifies where to
6 replace the cable before a failure occurs.

7 **Q23. Witness Dismukes claims at page 14, line 14, to page 15, line 3, that Delmarva has not**
8 **undertaken any evaluations or analysis for the purpose of identifying projects that**
9 **would improve reliability. Is this true?**

10 A23. No. As explained extensively above, Delmarva's reliability construction program is
11 based on sound engineering principles, and long-standing utility practices and is designed to
12 maintain and enhance reliability on specific parts of the electric system.

13 **Q24. Witness Dismukes claims on page 20 lines 12 to page 21 line 2 that Blanket Projects**
14 **should not be included in Adjustment 26 (reliability closings through 2013) because**
15 **they need "a defined scope" and "may or may not be completed." Do you agree?**

16 A24. No. These are emergency repair projects of substation relays or other substation
17 control house component. This work is necessary to maintain the reliability of the electric
18 system after a failure occurs and to be able to restore the system to normal configuration.
19 These projects are based on historical actual expenditures and although the Company does
20 not know the exact location where the equipment failure may occur, the Company does know
21 that history has shown that these failures will occur and generally at the levels budgeted.

22 **Q25. Witness Dismukes disagrees on page 21, lines 5 to 10, with including spare**

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12 Order No. 85385, Maryland Case No. 9298, at page 17.

transformers in Adjustment 26 (reliability closings through 2013), claiming Delmarva "has not demonstrated that the transformers are needed for reliability purposes." Do you agree?

A25. The concept of maintaining appropriate levels of spare equipment is not new to the electric industry and is considered good engineering practice. The procurement of a substation transformer require a significant lead time of several months based on availability of equipment and materials.

Utilities maintain spare transformers and other specialized equipment that can require long lead times to manufacture and deliver. Due to the large dollar value and specialized nature of the equipment, it is appropriate to be included in Adjustment 26. If a transformer fails, the Company needs to be able to respond to the failure and restore the system to normal configuration as quickly as possible. The spare transformer purchases are necessary in order to ensure that a replacement is readily available in the event of a failure in order to continue to reliably serve customers and should be recovered as requested in Adjustment 26.

Q26. Witness Dismukes also claims on page 21 line 11 to page 22 line 4 that Wilmington Network Upgrade and Christiana District Distribution Substation Bushing Replacements are neither "well-defined and certain" nor "have specific known and measurable reliability benefits for ratepayers." Do you agree?

A26. No. The Wilmington Network Upgrade involves three projects currently underway, as well as one being scheduled to upgrade the Fifth Street Substation. This substation is 45 years old, and breakers, regulators and, tie buses are nearing the end of their useful life. The 12 kV distribution circuits have asbestos cables in the duct system and the secondary wire insulation also required replacement. There have been problems with secondary connection

1 and fuse coordination on the secondary. The Christiana District Distribution Substation
2 Bushing Replacements involves replacing bushing sets on transformers where those bushings
3 have not met testing specifications. This is an ongoing project that is estimated to encompass
4 four projects a year through 2014, then three projects a year through 2017.

5 Both of these projects are well defined and certain, and failure to complete them
6 would result in a deterioration of substation reliability.

7 **Q27. Witness Dismukes recommends at page 22 lines 8-21 that projects associated with**
8 **emergency repairs be removed from Adjustment 26 (reliability closings through 2013),**
9 **claiming they are "not necessary for improving reliability." Do you agree?**

10 A27. No. Replacements of the Company's distribution assets are required in order to
11 continue to provide safe and reliable electric service, and are properly considered reliability
12 investments. Assets may be replaced for several reasons. For example, an asset may reach
13 the end of its expected useful life, or may be damaged due to a storm, an automotive
14 accident, or third-party excavation. These events occur on a regular basis across Delmarva
15 Power's Delaware service territory. It is also known and expected that there will be assets
16 that fail unexpectedly during normal service. Adjustment 26 covers reliability replacements
17 that will be made through 2013. To act as though these kinds of equipment failures will not
18 occur would be unrealistic and irresponsible on the part of Delmarva. We know these
19 failures will, in fact, occur and that equipment will be needed to make these critical repairs.

20 **Q28. Witness Dismukes claims that all "non-REP" projects should be removed from**
21 **Adjustment 26. Do you agree?**

22 A28. No. Witness Dismukes is unfortunately confused about the relationship between

Delmarva's Reliability program, described at length in my Direct Testimony[13] and the REP, described above, which is a subset of the Reliability program. Reliability projects that are not identified as REP projects do, in fact, improve or maintain system reliability. Witness Dismukes has available to him the detailed budget and historical expenditures that identify all reliability projects. Projects that are aligned with responding to emergencies are reliability projects since without these projects, the electric system would be operating in a contingency configuration and would be at higher risk for additional outages or system failures. Therefore, responding to emergencies and making correct repairs cannot be classified as anything other than reliability.

Q29. Does this conclude your Rebuttal Testimony?

A29. Yes, it does.

13 Direct Testimony of Mike Maxwell, Page 3, line 8, to page 4, line 4.

PSC DOCKET NO. 13-115
ATTORNEY GENERAL OF THE STATE OF DELAWARE
FIRST SET OF RELIABILITY DATA REQUESTS
TO DELMARVA POWER & LIGHT COMPANY

Question No. : AG-REL-46

Re: statement in Maxwell Direct, page 6 line 24 and page 7 lines 1-2 that, "However, the Company sees the standard as a minimum performance standard for meeting the expectations of its customers and will continue to seek to perform above the minimum standard."

a. Explain how the Company understands the expectations of its customers and provide documentation supporting the Company's understanding of its customers' expectations as described above.
b. Provide the results of all surveys and/or studies conducted by or for the Company that examined the opinion of its customers in connection with their reliability expectations and the amount of the rate increase(s) required to meet these expectations.
c. Provide the results on all surveys and/or studies conducted by or for the Company that examined the opinion of its customers in connection with their reliability expectations.
d. Provide any and all analyses undertaken by or for the Company to determine the cost/benefit and/or cost-effectiveness of such reliability investments above the minimum standards.
e. Provide any and all analyses undertaken by or for the Company to determine the cost/benefit and/or cost-effectiveness of the reliability investments proposed in this proceeding.
f. Provide the dollars expended by the Company to improve its system to the current level and what it would have expended had it improved its system to the level required in Docket No. 50.
g. Describe how the Company's opinion would change if the Commission does not adopt its request for the cost recovery method identified in Adjustment 26.
h. Provide all workpapers and source documents supporting the Company's response in electronic form, with all spreadsheet links and formulas intact, source data used, and explain all assumptions and calculations used. To the extent the data requested is not available in the form requested, provide the information in the form that most closely matches what has been requested.

RESPONSE:

a. The standard referred to in the testimony quoted above refers to the Docket 50 reliability standards, which specifically provide: "*1.3 Compliance with this regulation is a minimum standard. Compliance does not create a presumption of safe, adequate and proper service. Each EDC needs to exercise their professional judgment based on their systems and service territories.*" With respect to how Delmarva "understands the expectations of its customers," there are multiple sources of information that come to Delmarva from its customers, for example: through email, social media, the call center, walk-in offices, customer contacts to Staff and DPA, Delmarva employees, business groups, community groups, social agencies, and the numerous ongoing community contacts and outreach conducted by Delmarva on an ongoing basis. While every customer contact is important, and Delmarva responds to the concerns expressed by individual customers and groups, contacts with individual or limited groups of customers are not necessarily an accurate method for determining what Delmarva's overall customer base expects and wants with respect to service from Delmarva Power. Accordingly, Delmarva conducts

customer surveys relating to service provided by Delmarva Power. As the MSI and JD Power survey presentations produced in response to the Board Materials review, AG-REL-53, and other requests for data show, the consistent driver for customer satisfaction accross Delmarva's customer base is system reliabilty. In addition, Delmarva works with first responder groups, business groups, Homeland Security/government and other groups. Delmarva's management keeps abreast of engineering and infrastructure development issues necessary to meet the demands of our customers, the State and the State's economy into the future. All of this information has helped establish Delmarva's understanding that in today's digital economy and cyber age, electric system reliability has become a critical issue and we believe that it must continously be improved for Delmarva to deliver improved reliability to our customers/

b. See the attached customer survey: AG-REL-46 Attachment.

c. See response to part b.

d. The requested study has not been performed. Refer to the response to PSC-CP-2 for Delmarva's Reliability Model.

e. The requested study has not been performed.

f. Delmarva objects to this data request on grounds that it calls for speculation, seeks to require Delmarva to perform original work, is based upon an erroneous factual premise, and is not reasonably limited in time. The question asks for the dollars expended to "improve its system to the current level." This portion of the question is overly broad in that it provides no period of time. Delmarva continually invests in the system on an ongoing basis. Investments made as much as 15 years ago or longer continue to provide customers with reliable service just as reliability investments made today will provide reliable service for our customers for decades into the future. Another part of the question asks "what [Delmarva] would have expended had it improved its system to the level required by Docket 50." Delmarva has successfully complied with the minimum performance standards provided in Docket 50 since the inception of those rules. Accordingly, Delmarva does not need to "improve" its system to provide its customers with the minimum level of reliability required by the Docket 50 Rules. Without waving any objection, Delmarva has not performed such a calculation - *see* materials provided in response to d.

g. To the extent Delmarva understands this question, Delmarva responds that regardless of whether the Commission approves recovery of investments made by Delmarva to provide reliable service to its customers, Delmarva's opinion is that its customers want an increased level of service reliability above the minimum standard contained in Docket 50. See response to part e.

h. Refer to attachment above.

Respondent: Michael W. Maxwell

PSC DOCKET NO. 13-115
DELAWARE PUBLIC SERVICE COMMISSION STAFF
INITIAL SET OF COST OF SERVICE DATA REQUESTS
TO DELMARVA POWER & LIGHT COMPANY

Question No.: PSC-COS-6

Please refer to Table 1 on page 5 of the Testimony of Michael W. Maxwell. Please provide (1) in the same format as Table 1 distribution expenditures for the years 2002-2011, (2) for Table 1 and the table provided in response to part (1), a breakdown for each of the three categories on an individual project and Work Request basis showing the dollars expended in or budgeted for each of the years 2002 through 2017 for each project and Work Request, including a description for each project listed, and (3) a detailed description of the processes, procedures, analyses, and design and planning criteria that Delmarva uses in planning and designing the projects listed in response to part (2), including copies of all documents that support the explanation given, particularly corporate documents that document the process and criteria to be used in planning and designing Delmarva's customer driven, reliability, and load growth construction projects

RESPONSE:

1and 2) See PSC-COS-6 Attachment A for actual expenditures from 2002 to 2012.

See PSC-COS-6 Attachment B for budget and forecast from 2013 to 2017.

3) See PSC-COS-6 Attachment C and PSC-COS-5 for a description of Delmarva's distribution planning process with regard to load growth, load modeling, forecasting, reliability, and short and long term planning of its infrastructure.

See PSC-COS-6 Attachment D and PSC-COS-6 A.zip and PSC-COS-6 B.zip for Delmarva's Five Year Plan.

See AG-REL-21.zip for copies of system planning reports for 2012 and 2013.

Respondent: Michael W. Maxwell

PSC DOCKET NO. 13-115
ATTORNEY GENERAL OF THE STATE OF DELAWARE
FIRST SET OF RELIABILITY DATA REQUESTS
TO DELMARVA POWER & LIGHT COMPANY

Question No.: AG-REL-21

Provide copies of any and all engineering studies, analyses, evaluations, assessments, reports, and documents prepared by or on behalf of the Company that provide construction project recommendations for the Company's distribution system for the period 2013 through 2017. Include in your response:

a. All underlying and associated maps, drawings, and supporting documents; and
b. All budgetary cost estimates for each recommended project.

RESPONSE:

a. See attached zip files containing construction reports.

b. Refer to the response to AG-GEN-1 Attachment B.

Respondent: Michael W. Maxwell

PSC DOCKET NO. 13-115
ATTORNEY GENERAL OF THE STATE OF DELAWARE
FIRST SET OF RELIABILITY DATA REQUESTS
TO DELMARVA POWER & LIGHT COMPANY

Question No. : AG-REL-45: Re: Maxwell Direct, page 6.

a. Provide an analogous table to Table 2, providing performance results on an 'All-Inclusive' basis (i.e., including Major Storm performance and other IEEE excluded criteria) for each of the years 2008 through 2013 and the first quarter of 2013.
b. Provide the Docket No. 50 SAIFI Performance Targets for 2008 through 2013.
c. Provide all workpapers and source documents supporting the Company's response in electronic form, with all spreadsheet links and formulas intact, source data used, and explain all assumptions and calculations used. To the extent the data requested is not available in the form requested, provide the information in the form that most closely matches what has been requested.

RESPONSE:

a. See below:

Reliability Performance	2008	2009	2010	2011	2012	2013 Q1
SAIFI	1.92	1.48	1.66	1.83	1.47	0.29
SAIDI	344	232	346	477	362	30

b. There are no "SAIFI Performance Targets" in rules adopted pursuant to Commission Docket No. 50.

c. Delmarva objects to this request on grounds that it is overly broad and unduly burdensome. Without waiving any objection, to the extent that such materials are available after a reasonable search, such materials are provided herewith. See AG-REL-45 Attachments A through C. For the first quarter of 2013, as there were no excludable events, refer to the response to AG-REL-44 Attachment B.

Respondent: Michael W. Maxwell