BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of The Dayton Power and Light Company for Approval of Its Plan to Modernize Its	:	Case No. 18-1875-EL-GRD
Distribution Grid		
In the Matter of the Application of The		Case No. 18-1876-EL-WVR
Dayton Power and Light Company for	:	
Approval of a Limited Waiver of Ohio		
Adm.Code 4901:1-18-06(A)(2)	:	
In the Matter of the Application of The	:	Case No. 18-1877-EL-AAM
Dayton Power and Light Company for		
Approval of Certain Accounting Methods	:	

THE DAYTON POWER AND LIGHT COMPANY'S APPLICATION FOR APPROVAL OF ITS PLAN TO MODERNIZE ITS DISTRIBUTION GRID

Pursuant to the Amended Stipulation and Recommendation approved by the

Public Utilities Commission of Ohio ("PUCO" or "the Commission") in Case No 16-395-EL-

SSO, as well as the Commission's PowerForward Roadmap, The Dayton Power and Light

Company ("DP&L") applies for approval of its Distribution Modernization Plan ("DMP").

DP&L asks the Commission to approve its DMP so that DP&L can bring substantial benefits to

its customers.

1. DP&L is a public utility and electric light company as defined by

R.C. 4905.02 and 4905.03(C) respectively, and an electric distribution utility as defined by R.C. 4928.01(A)(6).

2. In DP&L's third Electric Security Plan case (Case No. 16-0395-EL-SSO,

et al.), the Commission approved an Amended Stipulation and Recommendation ("ESP III

Stipulation"), which stated (pp. 7-8):

- a. "<u>Distribution Infrastructure Modernization Plan</u>: DP&L will file a comprehensive Distribution Infrastructure Modernization Plan ("Modernization Plan")....
- b. The Modernization Plan should assess and analyze the costeffectiveness and provide a cost/benefit analysis of all of its components and provide anticipated timelines for deployment. The Modernization Plan will identify operational cost savings from the program. The Modernization Plan will include a proposal for specific technology components, including but not limited to: advanced metering infrastructure (AMI), including smart meters; meter data management systems capable of providing bill-quality data, <u>i.e.</u>, data that has gone through the validation, estimation, and editing "VEE" process, to CRES providers and authorized third parties; system-wide distribution automation; and volt-VAR optimization.
- c. The costs of DP&L's grid modernization efforts as outlined in the to-be-filed Modernization Plan, once approved by the Commission, will be recovered through a new Smart Grid Rider ("SGR"). The costs of the grid modernization program will be subject to an annual prudence review. The SGR shall be set initially at zero. All other matters relating to the SGR shall be addressed in a future proceeding seeking approval of the Modernization Plan. . . ."
- 3. The purpose of this Application and supporting materials is to explain

DP&L's DMP and to demonstrate that it will provide significant benefits to customers while

seeking Commission approval of the DMP.

4. DP&L's vision for its DMP is: "Our customers will experience

personalized, innovative & seamless energy services enabled by transformative technologies."

DP&L intends to achieve this vision by using the latest technology to provide to customers information, choices and ways to interact with their utility that they have not experienced before.

5. There are a number of customer trends that influenced that vision. Those trends include a general interest by customers in being able to interact via the internet with their service providers, the desire by many customers to purchase electric vehicles ("EVs"), an interest by many customers in implementing Distributed Energy Resources ("DERs") and the desire by customers for improved reliability.

- 6. DP&L's DMP is expected to deliver six primary customer benefits:
 - a. Personalized customer engagements, including optionality, at the customer's convenience.
 - b. Differentiated reliability to meet individual customer energy needs.
 - c. Seamless integration of DERs onto the grid.
 - d. An increase in EVs for public and private use.
 - e. Open access to the grid and grid data, including for third parties.
 - f. Open markets to navigate the rapidly evolving set of energy choices and solutions.
- 7. DP&L has created its customer-centric vision to guide the Company in its

day-to-day planning and operations, and to ensure that customers are at the heart of any and all decisions that the Company makes.

8. DP&L's DMP is consistent with the Principles that the Commission

identified on page 8 of its PowerForward Roadmap:

a. <u>Do No Harm</u>: DP&L's DMP will improve the safety and reliability of DP&L's distribution system by implementing a "self-healing" grid that will allow quicker and safer responses to power outages.

- b. <u>Provide Net Value to Customers</u>: DP&L's DMP, which has a positive cost/benefit result, will provide significant quantifiable benefits to customers, including the ability to lower their bill through time of use rates and through other new innovations. The DMP will also provide qualitative non-quantifiable benefits.
- c. <u>Create an Environment that Fosters Innovation</u>: The installation of AMI will provide many opportunities for innovation. Furthermore, DP&L's DMP has been developed with an approach to be flexible and incorporate open-architecture where possible to ensure its capabilities for years to come.
- d. <u>Enhance the Experience for All</u>: DP&L's DMP will enhance the customer experience by, among other things, providing customers significantly more information, choices and ways to interact with DP&L and third-parties.
- 9. DP&L's DMP not only will provide significant benefits to DP&L's

customers, but also will result in efficiencies to DP&L and will provide certain societal benefits. To determine the value of those benefits, DP&L conducted a cost/benefit analysis for its DMP on a net present value basis. As the chart below shows, the benefits of DP&L's DMP are projected to exceed its costs by \$773.2 million on a net-present-value basis:

Cost/Benefit Summary

(in Millions)

BENEFITS & COSTS	NOMINAL	NPV
BENEFITS (20yr):	\$2,518.7	\$1,350.6
Utility	\$301.6	\$136.3
O&M Savings	\$191.9	\$83.4
Avoided Capital	\$42.3	\$20.9
Billing Process Efficiency	\$67.5	\$32.0
Customer	\$1,217.8	\$478.6
Energy & Demand Savings	\$517.1	\$194.3
Improved Reliability	\$454.7	\$196.3
Customer EV Savings	\$246.0	\$87.9
Societal Benefits	\$999.2	\$735.8
Reduced GHG	\$53.7	\$20.8
Economic Impact	\$945.6	\$714.9
COSTS (20yr):	\$866.9	\$577.4
Capital	\$575.8	\$435.4
AFUDC	\$9.9	\$7.5
Cost of Existing Equipment	\$20.2	\$14.9
0&M	\$261.0	\$119.6
Net Benefit:	\$1,651.8	\$773.2
Benefit/Cost Ratio:	2.9	2.3

10. DP&L's DMP includes Advanced Metering Infrastructure ("AMI"), which

will result in DP&L installing smart meters at customer locations throughout DP&L's service

territory. The benefits of AMI will include, but are not limited to the following:

- a. Creating the ability to implement demand response and time-of-use rates, which will enable customers to save money on their bill.
- b. Accelerating DP&L's restoration response using data from the smart meters to provide additional information to DP&L about outages.
- c. Reducing DP&L's operational expenses. The reduced expenses result from a variety of factors, including the reduction of meter-reading expenses and fewer billing disputes.

d. Improving safety with the elimination of travel and entering customer locations to read meters.

11. DP&L's DMP also includes investments that will modernize other parts of DP&L's distribution system. Those investments will include advanced distribution infrastructure, communications equipment and associated equipment. The modernization of DP&L's distribution system will have significant customer benefits, including but not limited to the following:

- a. Improving reliability for customers, by automatically identifying issues with DP&L's system and either correcting the problems automatically by re-routing power flows or providing information to DP&L about the issue so that DP&L can send crews to fix it more quickly and efficiently than they are currently able.
- b. Reducing operational expenses, because crews will be able to more quickly identify and resolve issues across the distribution system.
- c. Reducing line losses.
- d. Enabling and encouraging distributed energy and demand response resources to be integrated into the grid.
- 12. DP&L's DMP contains many innovations designed to improve the

customer experience, including but not limited to the following:

- a. Implementing an online customer portal, through which customers can review detailed information about their account, including usage comparisons and projected costs, etc. This will give customers greater control over their usage and experience with DP&L.
- b. Improving communications about outage events, through a customer's preferred communication method (<u>e.g.</u>, text message, email or phone message).
- c. Improving billing accuracy, through the elimination of estimated bills.

- d. Implementing a "Prepay" option, which will allow customers to better manage their bills and eliminate the need for a customer deposit.
- 13. DP&L's DMP will also include a new Computer Information System

("CIS"), which will provide the following customer benefits:

- a. Establishing the foundation for providing flexible rate structures for customers.
- b. Driving operational efficiencies across a cross-section of DP&L customer service functions.
- c. Providing for an open-architecture that can adapt to future markets.

14. DP&L's Plan will also include significant investments in both physical and cyber security that will ensure customers can benefit from the Company's DMP technologies while also ensuring that the grid and customers' data are protected.

15. The various devices and technologies that are proposed as part of DP&L's DMP will provide a significant quantity of data in the future. To successfully deliver the benefits of the DMP to DP&L's customers, DP&L is proposing an Analytics Center of Excellence that will consolidate and analyze data from the various devices and systems. This will support improved and more efficient operational decision-making, as well as ensure that customers have access to information upon which to make the best energy-related decisions for their lifestyle, and enable the offering of additional products and solutions for customers.

16. DP&L has developed an implementation timeline that is designed to maximize benefits to customers in the shortest timeframe.

17. There are a number of other elements that are part of DP&L's grid modernization vision that are not included in DP&L's DMP, but which DP&L intends to implement in the future. DP&L did not include those elements in this filing to allow them to develop further while DP&L implements more foundational solutions. The elements to be installed in the future include, but are not limited to, localized asset enhancements, a market management system and dynamic pricing tools, a digital workforce management approach, advanced analytics, and artificial intelligence.

18. In addition to the benefits identified above, other broader, societal benefits will be realized, including:

- a. The reduced energy usage in DP&L's service territory will reduce greenhouse gas emissions.
- b. The investments associated with DP&L's DMP will have multiplier effects, and create additional jobs and other economic benefits throughout DP&L's service territory.

19. DP&L plans to install approximately 50 EV charging stations throughout its service territory. The charging stations will encourage the adoption of EVs in DP&L's service territory by establishing an EV corridor, reducing "range anxiety" for persons considering purchasing an EV. Those charging stations will have a substantial impact on the probability of adoption of EVs, which will create additional pocketbook savings due to cleaner cheaper power of an EV.

20. DP&L proposes the following distributed energy demonstration programs associated with its DMP:

a. A Community solar program, which will consist of approximately eight megawatts of capacity. The program design will allow low-

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income customers to participate by avoiding upfront costs to customers.

- b. Battery storage programs designed to strengthen reliability and to reduce the peak on DP&L's system.
- c. A microgrid program designed to meet the full load requirements of the customers within the area in which it is deployed.

21. To accomplish these benefits for customers, DP&L anticipates that it will need to invest \$573 million in capital and a net \$69 million in O&M during the DMP.

22. DP&L plans to begin installing the required equipment within 30 days of the Commission's approval of DP&L's Application. DP&L anticipates that all necessary capital will be installed within ten years, with most being installed in the first seven years.

23. The DMP will also provide significant non-quantifiable benefits, including improved customer experience, improved safety, and the enabling of DER integration for DP&L's customers.

24. The existence of those non-quantifiable benefits further demonstrates that DP&L's DMP will provide net benefits to customers.

25. DP&L proposes to recover the capital investment and expenses associated with its DMP through the SmartGrid Rider ("SGR") that was established in DP&L's ESP III proceeding. DP&L proposes that the SGR be based on a projected revenue requirement and that it be trued-up quarterly.

26. In order to take advantage of AMI's remote connect and disconnect features and the associated safety benefits, DP&L also seeks limited waiver of Ohio

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Adm.Code 4901:1-18-06(A)(2), which requires DP&L to provide a residential customer with personal notice on the day of disconnection.

27. DP&L's witnesses are subject matter experts and will explain to the Commission how the DMP will be implemented and how it will benefit customers. The principal topics of each witnesses' testimony are:

- a. Robert J. Adams Smart Grid Rider and Grid Modernization R&D Asset
- b. Patrick N. Augustine Market Price Projections
- c. Jeffrey K. Fuller Physical and Cyber Security
- d. Donald A. Gebele Self-Healing Grid and Telecommunications
- e. Kevin L. Hall Enhancing Sustainability and Embracing Innovation, Governance and Analytics, and Cost/Benefit Summary
- f. Thomas G. Hulsebosch Societal Benefits of Grid Modernization and the Analytics Center of Excellence
- g. Lisa A. Krueger DP&L's DMP Vision
- h. Antonio Narvaez CIS and IT-Related Infrastructure
- i. Kathryn N. Storm AMI and AMI-Related Infrastructure
- j. Thomas D. Tatham Customer Engagement and Experience

28. Prior to June 1, 2019, DP&L will be filing an Application to Extend Its

Distribution Modernization Rider ("DMR-E") for two years, pursuant to the ESP III Stipulation. That case will demonstrate that DP&L will not be able to implement its DMP unless the DMR-E is approved. DP&L thus reserves the right to withdraw this Application if the DMR-E is not approved in that case. 29. DP&L's DMP will achieve the objectives that the Commission identified on page 8 of its PowerForward Roadmap. Specifically, DP&L's DMP will create a strong grid by implementing new technology that will enable a "self-healing" grid. Further, DP&L's DMP will create a platform that will allow customers to make choices that will become available in a robust marketplace.

Wherefore, DP&L asks the Commission to approve this Application, including the proposals in supporting schedules and testimony.

Respectfully submitted,

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Summary: Application The Dayton Power and Light Company's Application for Approval of Its Plan to Modernize Its Distribution Grid electronically filed by Mr. Jeffrey S Sharkey on behalf of The Dayton Power and Light Company