BEFORE THE

NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR AUTHORIZATION TO IMPLEMENT GRID MODERNIZATION COMPONENTS THAT INCLUDE ADVANCED METERING INFRASTRUCTURE AND RECOVER THE ASSOCIATED COSTS THROUGH A RIDER, ISSUANCE OF RELATED ACCOUNTING ORDERS, AND OTHER ASSOCIATED RELIEF,	)	**CASE NO. 21-00178-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

OF

COURTNEY LANE

ON BEHALF OF
THE OFFICE OF ATTORNEY GENERAL

October 11, 2022

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I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, title, and employer.

A. My name is Courtney Lane. I am a Principal Associate at Synapse Energy Economics ("Synapse"), located at 485 Massachusetts Avenue, Suite 3, Cambridge, MA 02139.

Q. Please describe Synapse Energy Economics.

A. Synapse is a research and consulting firm specializing in electricity and gas industry regulation, planning, and analysis. Our work covers a range of issues, including economic and technical assessments of demand-side and supply-side energy resources; energy efficiency policies and programs; integrated resource planning; electricity market modeling and assessment; renewable resource technologies and policies; and climate change strategies. Synapse works for a wide range of clients, including attorneys general, offices of consumer advocates, public utility commissions, environmental advocates, the U.S. Environmental Protection Agency, the U.S. Department of Energy, the U.S. Department of Justice, the Federal Trade Commission, and the National Association of Regulatory Utility Commissioners. Synapse has over 40 professional staff with extensive experience in the electricity industry.

Q. Please summarize your professional and educational experience.

A. I have 18 years of experience in energy policy and regulation. At Synapse, I work on issues related to utility regulatory models, grid modernization, benefit-cost assessment frameworks, and performance incentive mechanisms. Prior to working at Synapse, I was employed by National Grid as the Growth Management Lead for New England where I oversaw the development of customer products, services, and business models for

Massachusetts and Rhode Island. In previous roles at National Grid, I worked on the deployment of non-wires alternatives and grid modernization efforts and led the development of the Rhode Island electric and natural gas energy efficiency plans. Prior to joining National Grid, I worked on regulatory and state policy issues pertaining to energy conservation, retail competition, net metering, and the Alternative Energy Portfolio Standard for Citizens for Pennsylvania's Future (PennFuture). Prior to that, I worked for Northeast Energy Efficiency Partnerships, Inc. where I promoted energy efficiency throughout the Northeast.

I hold a Master of Arts in Environmental Policy and Planning from Tufts University and a Bachelor of Arts in Environmental Geography from Colgate University. My resume is attached as Appendix A.

Q. On whose behalf are you testifying in this case?

A. I am testifying on behalf of the New Mexico Office of the Attorney General ("NMAG").

Q. Have you previously testified in regulatory proceedings in New Mexico?

A. Yes. I provided testimony on behalf of NMAG in Case No. 21-00269-UT related to El Paso Electric Company's Application for an Advanced Metering System Project.

Q. Have you previously submitted testimony in proceedings before other state commissions or agencies?

A. Yes. I have testified before the New Hampshire Public Utilities Commission, the Maryland Public Service Commission, the Pennsylvania Public Service Commission, the Public Service Commission of the District of Columbia, and the Rhode Island Public Utilities Commission. A list of my previous testimony is included in Appendix A.

Q. What is the purpose of your testimony?

A. Synapse was retained by NMAG to review Southwestern Public Service Company's ("SPS" or "Company") Application for Authorization to Implement Grid Modernization Components that Include Advanced Metering Infrastructure ("Application") and provide recommendations to the New Mexico Public Regulation Commission ("NMPRC" or "Commission"). Specifically, Synapse was engaged to examine the technical components of the Application, assess the reasonableness of assumed benefits to SPS and customers, and determine whether the proposal is in the interest of New Mexico ratepayers.

Q. What materials did you rely on to develop your testimony?

A. The sources for my testimony and exhibits are the Company's Application and responses to discovery requests, public documents, and my personal knowledge and experience.

Q. Was your testimony prepared by you or under your direction?

A. Yes. My testimony and the accompanying exhibits were prepared by me or under my direct supervision and control.

II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your primary conclusions regarding the Company's Application.

A. My primary conclusion is that while the Company's Application provides more detail on future smart meter uses, potential rate design options including time-of-use ("TOU") rates, and demand response offerings compared to what was in its original application, it is still lacking in many areas.

Specifically, I find that:

- The Company's Application does not provide sufficient information related to its proposal to enable communication between Advanced Metering Infrastructure ("AMI") and the Home Area Network ("HAN") including cost information and when various HAN functionalities will be implemented, including activation of third-party HAN devices.
- The Company does not indicate when customers will be able to authorize data sharing with third parties through Green Button *Connect My Data* ("CMD") or which customer data fields will be available.
- The Company will not propose new demand response or grid management programs until full meter deployment.[1] It states that it needs the foundational infrastructure of technological modernization before it can enable additional capabilities "either functionally or from a rate design perspective."[2]
- The Company's cost-benefit analysis ("CBA") does not illustrate the full impacts on ratepayers since the Application fails to provide a holistic view of the costs and benefits of enabling the distributed intelligence ("DI") capabilities of its AMI meters.
- The Company does not propose adequate reporting metrics. The Company only proposes metrics related to the deployment of meters and does not plan to track

[1] Supplemental Direct Testimony of Mark R. Schoenheider, pg. 19.
[2] Direct Testimony of Brooke A. Trammell, pgs. 44-45.

meter performance, customer engagement, or realization of quantifiable benefits from the CBA after the meters are installed

It is critical that the Company be held accountable for following through with the deployment of new programs and services that allow customers to use AMI meter functionality and share their energy usage data with verified third parties. The AMI meters on their own will not provide sufficient savings opportunities to customers. The benefits of AMI that will be realized by customers are directly related to the types of programs provided by SPS and the design of those programs.

It is far too common for utilities to cite potential customer benefits from AMI meters in applications before a commission and then not follow through with necessary implementation of programs to achieve those purported benefits.[3] Therefore, if the Company and the Commission seek to mitigate rate shock to customers from the costs contained in this Application, customers need to be provided with rates, programs, and services that allow them to benefit from AMI and save energy at the time their meter is installed.

Q. Please summarize your recommendations.

A. I recommend the Commission require that SPS:

1. File a HAN implementation plan that provides additional detail on functionality, costs, timing, and integration with future rates.

[3] Gold, R., Waters, C., York, D. 2020. *Leveraging Advanced Metering Infrastructure to Save Energy*. American Council for an Energy-Efficiency Economy ("ACEEE").

2. Implement full HAN functionality including the ability of customers to activate third-party HAN devices by the time AMI meters are installed.

3. Implement full functionality of Green Button *Download My Data* ("DMD") and Green Button CMD including the ability for customers to authorize automatic data transfers with third parties by the time AMI meters are installed. The Commission should also require SPS to enable the full range of energy data fields within Green Button to ensure that third parties have sufficient information to provide energy management services to customers and develop a data privacy and certification process for third parties receiving access to those data fields.

4. Develop a proposal for a pilot TOU rate to be filed with the Commission in time for it to be made available to customers at the time of meter installation.

5. Commit to the development of new energy efficiency offerings through its Energy Efficiency and Load Management Plans ("EE/LM") that can make use of AMI capabilities prior to the completion of meter deployment.

6. Develop a revised CBA that includes the future anticipated costs associated with enabling the full HAN and DI meter functions.

7. Include additional reporting metrics to better track AMI deployment, customer engagement with meters and SPS offerings, and the resulting benefits.

III. SUMMARY OF THE APPLICATION

Q. Please summarize the grid modernization components and functions included in SPS's Application.

A. The Company's Application seeks authorization to acquire and implement grid modernization components including AMI, Fault Location Isolation System Restoration ("FLISR"), and Field Area Network ("FAN") that enables operation of AMI and FLISR.[4] SPS also seeks authorization from the Commission to enable communication between AMI meters and customer HAN devices.[5]

Q. Please explain SPS's justification for filing this Application.

A. The Company states the Application is being made pursuant to New Mexico's Grid Modernization Statute that allows for a public utility to request "approval of investments or incentives to facilitate grid modernization, rate designs or programs that incorporate the use of technologies, equipment or infrastructure associated with grid modernization and customer education and outreach programs that increase awareness of grid modernization programs and of the benefits of grid modernization."[6] SPS asserts that its proposed investments of AMI (including the HAN component), FAN, and FLISR are aligned with the legislative intent of the Grid Modernization Statute, which establishes a public policy of promoting projects that support grid modernization.[7]

[4] Direct Testimony of Brooke A. Trammell, pg. 5.
[5] SPS Application, pg. 3.
[6] The Grid Modernization Act, § 62-8-13(A). NMSA 1978 (2019).
[7] Direct Testimony of Brook A. Trammell, pg. 11.

IV. RESPONSIVENESS TO COMMISSION ORDER

Q. Did the Company previously file a grid modernization application with the Commission?

A. Yes. In Case No. 21-00148-UT, the Company filed its Application for Authorization to Implement Grid Modernization Components that include AMI and Recover the Associated Costs through a Rider, Issuance of Related Accounting Orders, and other Associated Relief on June 4, 2021 ("Original Application").

Q. What was the outcome of that case?

A. SPS filed a Motion to Dismiss without prejudice on February 17, 2022, recognizing the Commission's concerns regarding the cumulative effect of rate shock during a pandemic period.[8] The Commission granted SPS's Motion to Dismiss without prejudice and ordered SPS to re-file an updated Application that would address the following issues:

a) how SPS's updated Application would affect the cumulative rate increases upon the residential class of ratepayers within the past five years;

b) how the updated Application mitigates rate shock to the residential ratepayers;

c) how SPS's updated Application proposes smart meter uses beyond automatic meter reading and remote fault detection (this discussion must include a description of updated rate design options consistent with variable availability resources that use smart meter capabilities and should include TOU options); and

[8] NMPRC. March 2, 2022. Case No. 21-00148-UT. Order Granting Southwestern Public Service Company's Motion to Dismiss Without Prejudice and Closing Docket and Order to Refile Updated Application, pgs. 2-3.

d) identification of demand response and grid management programs being considered for implementation using smart meter capabilities and how they work in conjunction with proposed rate design principles.[9]

Q. Did you review how the Company's Application responds to this order?

A. Yes. I reviewed the extent to which SPS revised its Original Application to address the requirements in items (c) and (d). The other two requirements are outside the scope of my testimony. Witness Andrea C. Crane of The Columbia Group, Inc., is also filing testimony on behalf of NMAG, addressing other aspects of the Company's Application relating to cost of service and the cost recovery mechanism.

Smart Meter Uses

Q Did the Company amend its Original Application in Case No. 21-00148-UT to propose smart meter uses beyond automatic meter reading and remote fault detection?

A. Not sufficiently. The only change to the Original Application is that the Company now seeks authorization to enable communication between AMI meters and customer HAN devices.[10] However, there is a lack of visibility into what functionalities and costs are included in "enabling" communication compared to providing full functionality of the HAN to customers, including when third-party HAN devices can be connected to their meter.

[9] *Id.*, at pg. 4.
[10] Direct Testimony of Brooke A. Trammell, pg. 9.

Q. Please describe HAN and its capabilities.

A. HAN is a radio device within the AMI meter that typically acts as a gateway between a customer's energy monitoring devices, smart thermostats, smart appliances, and plug load devices, and the utility. HAN is designed to monitor energy use, distill real-time customer consumption, and perform appliance management functions within a home or business.[11] HAN creates different levels of customer benefit depending on its application and resulting changes to energy consumption. For example, HAN paired with an in-home energy display can provide passive information to a customer regarding their energy usage, or HAN can be installed to automatically control appliances in response to price signals, demand response programs, or pre-set preferences.

Q. Please summarize why you find the Company's proposal for HAN insufficient.

A. The Company's proposal for HAN lacks transparent information on costs, a timeline for deploying proposed HAN functionalities, and a process for authorizing a customer's third-party HAN devices.

Q. What functionalities does the Company plan to offer relating to HAN?

A. At the most basic level, the Company states that the current AMI meter communication protocol allows HAN devices that are IEEE 2030.5 compliant to connect to the meter. For these devices, customers will submit an activation request for the HAN device and SPS will process that request and activate the appropriate components in the meter to communicate with that device.[12] The Company also plans to deploy a Bring Your Own

[11] Electric Power Research Institute (EPRI). 2009. *Advanced Metering Infrastructure (AMI)/ Home Area Network (HAN) Economic Benefits Analysis for Utilities.* Technical Update.
[12] Direct Testimony of Chad S. Nickell, pg. 25.

Device ("BYOD") HAN software development kit that would enable third-party software developers and smart device manufactures to configure solutions to communicate with the meter.[13]

Q. Does the Company provide the estimated costs associated with these functionalities?

A. It is unclear. The Company states the meter components that support HAN are included in its proposed Grid Modernization Rider ("GMR") but additional costs for HAN, including software applications and backend systems, are not included. The Company states that it anticipates future filings that would include these costs.[14] It is therefore not clear which of the various planned uses of HAN are included in the GMR versus which will be proposed in future filings.

Q. Does the Company provide an implementation timeline for when each of these proposed HAN functionalities will be available to customers

A. No, not for all proposed HAN functionalities. Within her supplemental direct testimony, Ms. Trammell indicates that once a customer has an AMI meter installed, they can elect to connect their meter to their home Wi-Fi network to see the effects of their energy usage in real-time via a mobile application and this functionality is made possible due to the enablement of HAN.[15] However, the Company does not provide a timeline for when it will complete deployment of the BYOD HAN software development kit. It is therefore unclear when a customer can use the HAN to connect their AMI meter with in-home

[13] Direct Testimony of Brooke A. Trammell, pg. 44.
[14] Direct Testimony of Chad S. Nickell, pg. 26.
[15] Supplemental Direct Testimony of Brooke A. Trammell, pgs. 21-22.

third-party HAN devices like an energy monitoring device, smart thermostat, or smart appliance.

It is also important to note that the only difference I see in the Customer Education Plan compared to the Original Application is the change in timing for Targeted HAN Enrollment, which is shifted out from 2023 to 2024.[16] The Company's current request for authorization to enable HAN does not appear to have changed other aspects of the Original Application.

Q. What steps will SPS take to encourage customer usage of HAN?

A. It is not clear. SPS does not indicate if it will provide incentives to customers to help offset the costs of purchasing in-home HAN devices.

Q. What is your recommendation regarding the Company's HAN proposal?

A. While HAN is a beneficial technology, especially when paired with price signals and demand response programs, the lack of transparency into the costs and implementation timeline within the Company's Application makes it difficult to assess the merits of the proposal. I therefore recommend that the Commission require the Company to file a HAN implementation plan that provides, at a minimum, the following information:

1. A description of each proposed HAN functionality and how SPS will deliver that functionality to customers. This should include whether functionality comes from

[16] Case No. 21-00148-UT. Attachment CSN-5, pg. 3.

the web portal, a new offering or program, or through a customer activating a third-party device.

2. The timeline for developing, completing, and deploying each functionality and customer offering. For proposals that require additional Commission approval, the Company should indicate how it will seek approval and cost recovery (i.e, next rate case or separate grid modernization filing) and the anticipated timing of that filing.

3. The costs associated with each HAN functionality and proposed customer offering or program.

4. A description of how the Company will support customer interaction and usage of HAN. This should include a discussion of potential barriers to customer participation and how they can be addressed, including the use of incentives to offset the cost of purchasing in-home HAN devices.

5. A timeline for when TOU and demand response will be integrated with HAN devices.

6. Tracking metrics that report on number and percent of customers using HAN as described in more detail in Section VI of my direct testimony.

Q. Does the Company include other customer AMI uses from its Original Application?

A. Yes. In both its Original Application and its current Application, the Company indicates that the AMI meters will enable SPS to implement Green Button DMD and Green Button

CMD through a web portal that will permit customers to share their energy usage data with third-party service providers.[17] The Company also indicates that the customer portal will allow customers to access interval energy usage information and personalized insights.[18]

Q. Please describe Green Button.

A. Green Button is an industry-led initiative that seeks to provide utility customers with easy and secure access to their energy usage information. Through Green Button DMD, customers can securely download their own detailed energy usage.[19] The Green Button CMD option automates this process. Green Button CMD is a nationally recognized technical standard that has been ratified by the ANSI-accredited North American Energy Standards Board ("NAESB"), for sharing customer usage, cost, and other related data. The data standards were originally developed by the Smart Grid Interoperability Panel, facilitated by the National Institute of Standards and Technology ("NIST") and is currently offered by dozens of utilities across the country.[20] CMD is an open-data standard designed to enable customer-authorized third parties the ability to quickly and securely obtain interval meter data that can be used to help inform the way in which a customer manages their energy usage. The customer can choose to automatically share AMS meter data with third parties and can define the length of that authorization.[21]

[17] Direct Testimony of Michael O. Remington, pg. 20.
[18] Direct Testimony of Chad S. Nickell, pgs. 58-59.
[19] See https://www.energy.gov/data/green-button. Accessed on 10/3/22.
[20] See https://www.energy.gov/data/green-button. Accessed on 10/3/22.
[21] See https://www.greenbuttonalliance.org/cmd. Accessed on 10/3/22.

Q. Do you support Green Button?

A. Yes. I support this functionality as a well-vetted and industry-supported means to provide customers with access to new market offerings and data-driven services and programs to support better energy consumption monitoring and management.

While the Company proposes both Green Button DMD and CMD, I find that CMD is a preferable option as it provides for the automatic transfer of meter data to third parties without the need for customers to purchase additional equipment for their home or building. It also removes the step of the customer needing to download their meter data to then share with a third-party. By automating the data-sharing process, Green Button CMD creates an ease of use that may encourage more customer participation.

Q. When does the Company plan to make Green Button available to customers?

A. The Company states that both Green Button DMD and CMD functions have already been implemented in the customer portal.[22] However, it is unclear if customers will be able to set up an automatic data transfer with third parties at the time of meter installation.

Q. Does the Company set forth third-party eligibility criteria for Green Button CMD?

A. No, it does not. The Company should be required to establish eligibility criteria for third parties receiving access to customer data through Green Button CMD. This criteria should be part of the development of data privacy and security standards that balances customer protections with non-discriminatory access for new energy management options.

[22] SPS Response to NMAG 3-5(a) and (d).

For example, SPS should require third parties to comply with the U.S. Department of Energy's Data Guard Standard, which provides a framework for establishing practices that protect the access, use, and sharing of customer data.[23] In addition, third parties should be required to provide contact information, including federal tax ID numbers to SPS and demonstrate technical interoperability with the Green Button CMD platform.[24]

Q. Does the Company provide any details regarding which Green Button data fields it will make available to third parties?

A. No, it does not. It is important that SPS enable the full range of energy data fields within Green Button to ensure that third parties have sufficient information to provide energy management services to customers. According to Mission Data, leading advocates for customer-friendly energy data access policies across the country, a complete data set includes (1) customer's historic usage data suitable for settlement in wholesale markets; (2) billing and account information for cost management purposes; (3) other data needed for a customer to determine eligibility for, or participate in, demand-side management or renewable energy programs.[25] I have attached a recommended a full list of data fields in Appendix B.

[23] See https://www.energy.gov/oe/dataguard-energy-data-privacy-program. Accessed on 10/4/22.
[24] Murry, M., Kier, L., and King, B. 2017. 2017. *Energy Data: Unlocking Innovation with Smart Policy.* Mission Data.
[25] Mission Data. 2022. *Deactivated: How Electric Utilities Turned Off the Data-Sharing Features of 14 Million Smart Meters*. pg. 9. Available at: http://www.missiondata.io/s/Deactivated_white_paper.pdf.

Q. What is your recommendation regarding the Company's proposal for Green Button?

A. I recommend the Commission require SPS to provide more detail on its proposal to offer Green Button DMD and Green Button CMD. This should include the costs associated with these offerings, including any costs to update the customer portal, and a timeline for when customers will have access to both DMD and CMD. The Commission should also require SPS to develop a proposed list of data fields it will enable and develop a data privacy and certification process for third parties receiving access to those data fields.

Lastly, I recommend that the Commission direct SPS to have Green Button CMD functionality, including automatic data transfers with a full set of data fields, in place by the time of AMI meter deployment so customers can immediately access and share their data and begin to take advantage of the benefits of these meters.

Rate Design

Q. Did the Company amend its Original Application in Case No. 21-00148-UT to include a description of updated rate design options, including TOU options?

A Not sufficiently. The Company provides the same information regarding TOU rates and Critical Peak Pricing ("CPP") as it did in its Original Application. This includes the results of a load flexibility study prepared by The Brattle Group that models potential customer response to TOU and CPP rates. The results of this study are used to quantify the benefits of TOU and CPP within the Company's Cost-Benefit Analysis ("CBA") model.[26] However, the Company does not indicate when or how it plans to file for

[26] Direct Testimony of Steven D. Rohlwing, pgs. 30-31.

approval for this type of rate design. For example, within her supplemental direct testimony. Ms. Trammell states that after AMI meter deployment has largely been completed, additional pricing options or more advanced rate designs can be evaluated.[27]

The only detail surrounding a potential schedule for offering new rates is within the CBA model itself where the Company assumes TOU benefits begin in year 2027 and the benefits from CPP begin in 2030.[28]

Q. Does the Company provide additional testimony related to rate design?

A. Yes. Within his direct testimony, Company Witness Richard M. Luth indicates that shifts in usage to off-peak periods at lower rates will impact SPS's ability to recover fixed costs. Mr. Luth states that in order to provide SPS investors with the opportunity to earn a reasonable return on their investment, regulatory policy must ensure that SPS has an opportunity to recover its costs to provide service prior to the Company establishing rates to discourage usage during peak hours.[29]

Q. What is your response to the Company's concerns?

A. These concerns do not align with the fact that the Company already has TOU rates in place for residential, small commercial, commercial and industrial, and municipal and school service customers,[30] which are designed to discourage usage during peak hours. It

[27] Supplemental Direct Testimony of Brooke A. Trammell, pg. 25.
[28] Direct Testimony of Steven D. Rohlwing. Attachment SDR-1, pg. 2.
[29] Direct Testimony of Richard M. Luth, pgs. 18-19.
[30] Supplemental Direct Testimony of Brooke A. Trammell, Attachment BAT-S1, pg. 1.

is not clear why the Company cannot modify these rate offerings to utilize AMI technology or implement a new TOU rate.

In addition, if the Company is seeking to mitigate rate shock to residential customers from its investment in AMI, FAN, and FLISR, it should deploy new TOU rate options to customers at the time of meter installation, so customers have options to save energy and money on their bills.

As proposed by SPS, customers will begin paying for AMI meters on January 1, 2023.[31] However, as indicated earlier in my direct testimony, a customer's ability to experience energy price savings from shifting demand through TOU rates does not begin until 2027 in the Company's own analysis. The potential benefits of TOU and CPP represent a significant portion of the overall benefits of the Company's Application. Within its CBA, the Company indicates that in terms of net-present value, TOU rates will create $1.2 million in benefits and CPP will create $10.7 million in benefits.[32]

The Company needs to begin laying the groundwork for developing, testing, and determining a timeline for when it will make a filing to propose new rate designs for use with AMI or there will be a delay in the realization of a substantial portion of the stated AMI benefits.

The Company should also evaluate its existing TOU rates to understand the lack of participation and determine how it can be improved with the addition of AMI and HAN.

[31] Direct Testimony of Brooke A. Trammell, pg. 21.
[32] Direct Testimony of Steven D. Rohlwing, Attachment SDR-1, pg. 2

The Company indicates in its Application that existing TOU rates have not gained traction with residential customers. SPS reports that residential TOU customers represented only 0.011 percent of residential customer bills and 0.014 percent of residential energy usage for the test year ending on December 31, 2020.[33] Customer enrollment in TOU and CPP represent a significant portion of the benefits that make the Company's Application cost-effective. If AMI fails to increase participation or provide savings beyond those already realized through exiting TOU rates, it will diminish the benefits customers will realize from this technology.

Q. What is your recommendation regarding the implementation of TOU rates?

A. I recommend that SPS develop a proposal for a pilot TOU rate that can be rolled out in conjunction with the deployment of AMI meters. The Company should file this proposal to the Commission in time for it to be made available to customers at the time of meter installation.

Q. Is it reasonable for SPS to file a proposal for a TOU pilot before meters are installed?

A. Yes. A similar approach was taken by SPS's sister company in Colorado, Public Service Company of Colorado ("PSCo"). In Colorado, PSCo implemented a voluntary, opt-in trial for Residential Energy Time-of-Use (RE-TOU) rates before meter rollout began across its service territory. The trial was designed to include up to 10,000 customers in 2017, 20,000 in 2018, and 30,000 participants in 2019, including up to 500 low-income

[33] Supplemental Direct Testimony of Brooke A. Trammell, pgs. 28-29.

customers.[34] Based on the results of this trial, customers are transitioned to a modified TOU rate as PSCo installs advanced meters at each ratepayer's residence.[35]

In addition, it appears the Company has already begun to lay the groundwork for integrating AMI with rates. The Company indicates it has already begun AMI meter deployment in Colorado and Minnesota and a significant portion of the software that will be used to support AMI meters once they are installed in New Mexico. SPS further states that it is already in the process of developing software to support the specific requirements of New Mexico, including rate structures.[36]

Demand Response and Grid Management

Q. Did the Company amend its Original Application in Case No. 21-00148-UT to identify demand response and grid management programs and describe how they will work with proposed rate design principles?

A. Yes. In his supplemental direct testimony, Mr. Schoenheider provides an overview of existing demand response programs and indicates that AMI and FAN infrastructure will provide additional visibility into when and where to deploy these offerings.[37] In addition, Company witness Brooke A. Trammell provides a table detailing current TOU rates and demand response programs with examples of potential offerings.[38] However, the Company states that it needs the foundational infrastructure of technological

[34] Public Utilities Commission of the State of Colorado (Colorado PUC). Proceeding No. 19AL-0687E. Decision No. R20-0642, at 12-13.
[35] *Id.*, at pg. 51.
[36] Supplemental Direct Testimony of Brooke A. Trammell, pg. 12.
[37] Supplemental Direct Testimony of Mark R. Schoenheider, pgs. 16-17.
[38] Supplemental Direct Testimony of Brooke A. Trammell, Attachment BAT-S1, pg. 1.

modernization before it can enable additional capabilities "either functionally or from a rate design perspective,"[39] and that it will include specific demand response and/or grid management programs in a future filing.[40]

Specifically, Mr. Schoenheider states that future demand response programs that motivate customers to purchase and use more efficient equipment and behavioral programs could be included in an EE/LM case after full deployment of AMI.[41]

Q. Do you have any concerns with the Company's Application as it relates to demand response and grid management?

A. Yes. While the additional information on potential customer offerings is beneficial, the Company does not specifically commit to proposing programs and would delay any proposal until after the full deployment of AMI.

This is problematic because waiting to propose new offerings until the full deployment of AMI will delay benefits to customers when they are already paying for meters and will create a timing issue if the Company plans to make a proposal through its next EE/LM filing.

SPS is planning for meter deployment to be completed by the end of 2024 but there is a possibility that meter deployment could carry over into 2025.[42] SPS also indicates that it expects to file the next EE/LM plan in the second quarter of 2025.[43] Therefore, if the

[39] Direct Testimony of Steven D. Rohlwing, pg. 45.
[40] Direct Testimony of Brooke A. Trammell, pg. 44.
[41] Supplemental Direct Testimony of Mark R. Schoenheider, pg. 19.
[42] Supplemental Direct Testimony of Brooke A. Trammell, pg. 19.
[43] Supplemental Direct Testimony of Mark R. Schoenheider, pg. 19.

Company does not plan to make a proposal until after meter deployment, there is a risk that a proposal would not be developed in time for inclusion in the 2026-2028 EE/LM plan.

Q. What is your recommendation regarding demand response and grid management?

A. The Company should commit to begin work on developing new demand response and grid management programs prior to full meter deployment. The Company should commit to including proposals for new demand response and grid management programs in its 2026-2028 EE/LM plan as filed in 2025.

In addition, the Company should commit to incorporating AMI into existing EE/LM programs included in the 2023-2025 EE/LM. The Company indicates it already offers several residential demand response offerings including Thermostat Rewards and Optimize Your Charge.[44] The Company also states it is in the process of developing new demand response offerings including Behavioral Demand Response, Heat Saver's Mode, and dynamic space heating fuel switching.[45] The Company should modify these programs to incorporate AMI functionality through a petition to the Commission to modify or approve a new program as part of its 2023-2025 EE/LM Plan.[46] In this manner, AMI could be incorporated into EE/LM programs sooner so it is ready for deployment along with the installation of meters.

[44] Supplemental Direct Testimony of Mark R. Schoenheider, pgs. 13-14.
[45] *Id.*, at pg. 15.
[46] NMAC 17.7.1.12(A).

Q. Do you have any other recommended improvements to the Company's Application related to customer offerings?

A. Yes. The Company should commit to engage the State's Energy Efficiency Measurement & Verification ("EM&V") Evaluator, Evergreen Economics, to evaluate and detail opportunities for improving and streamlining measurement and verification of SPS's energy efficiency and load management measurement from the proposed AMI meters.

V. REVIEW OF THE COMPANY'S COST-BENEFIT ANALYSIS

Q. Do you have any concerns with the Company's CBA analysis?

A. Yes. It is not clear that the CBA includes a holistic view of the full costs associated with AMI. The Company includes the future projected benefits from new rate design options including TOU and CPP, but it excludes future projected costs.

Q. What costs should be included in the CBA?

A. As summarized earlier in my testimony, SPS includes meter components that support HAN in its proposed GMR but additional costs for HAN and DI, including software applications and backend systems, are not included. The Company states that it anticipates future filings that will include these costs.[47]

Anticipated future costs associated with enabling the full functionality of AMI with DI, FAN, and FLISR should be accounted for within the CBA, or as a sensitivity to the CBA. The segmentation of current and future investments does not provide a holistic view of the full impact to ratepayers or an accurate depiction of cost-effectiveness. It is important

[47] Direct Testimony of Chad S. Nickell, pg. 26.

that CBAs for grid modernization not be permitted to omit anticipated future investments in order to improve the optics of their proposals and to increase the chance for regulatory approval.

Q. Is it reasonable to request the Company include anticipated future costs and benefits in its CBA?

A. Yes. The Company commissioned a study by The Brattle Group to estimate potential future benefits of TOU and CPP even though it is not proposing or seeking approval of these rates within its current Application. It seems reasonable that a similar effort could be applied to the Company's other anticipated future investments and customer offerings discussed in its Application to estimate costs and benefits.

Q. Is there additional information related to cost-effectiveness that the Company should provide?

A Yes. The Company should provide the incremental costs and benefits associated with a DI-capable AMI meter compared to a non-DI-capable AMI meter.

The Company indicates in its Application that it wanted to ensure the selected AMI meter could support DI capabilities, because it understood this feature would provide customer-facing, operation, and future-proofing benefits.[48] However, the Company does not provide any detail into the costs and benefits associated with enabling those DI capabilities. For example, the Company provides a CBA and a least-cost/best-fit analysis that compares automatic meter reading ("AMR") meters to AMI meters, but it does not compare non-DI-capable AMI meters to DI-capable AMI meters. Due to this lack of

[48] *Id.*, at pg.68

information, it is not clear if non-DI-capable meters could achieve similar functionality or if similar benefits can be achieved through other software platforms and/or technologies.

VI. IMPROVEMENTS TO EVALUATION AND REPORTING METRICS

Q. Please summarize SPS's proposed evaluation and reporting criteria.

A. SPS proposes to provide annual reports to the Commission, the Commission's Utility Division Staff, and parties that intervened in this case.[49] The Company proposes to include the following metrics in its proposed annual reports: "(1) the number of advanced meters installed; (2) significant delays or deviation from the deployment plan and the reasons for the delay or deviation; (3) the number of any advanced meters that may have been replaced as a result of problems; (4) a description of significant problems SPS has experienced with the implementation of AMI, with an explanation of how the problems are being addressed; (5) the number of customers who have opted-out of AMI; (6) the status of deployment of features; and (7) an identification of new programs that SPS has offered to customers as a result of the implementation of AMI, FAN, and FLISR."[50]

Q Is the Company's proposal for reporting metrics sufficient?

A No, it is not. While the Company proposes several metrics for the meter deployment phase there is little pertaining to post meter deployment, and none that will track progress towards the benefits SPS claims its Application will provide. For example, SPS claims that the AMI will create numerous benefits including, but not limited to, improvements to

[49] Direct Testimony of Brooke A. Trammell, pg. 56
[50] *Id.*, at pgs. 56-57.

reliability, reduction in field and meter services, avoided meter reading costs, reductions in call volume, reduction in consumption on inactive meters, reduced uncollectibles and bad-debt write-offs, reduced outage duration for customers, and direct customer benefits from participation in TOU and CPP. Many of these benefits are quantified in the CBA included as part of the Application.[51] However, SPS does not currently plan to measure or track changes in any of these areas attributable to AMI.

While it may not be possible to track all claimed benefits, SPS should map reporting metrics to as many of these benefits as possible to provide transparency on the actual costs and benefits resulting from the Company's investment in AMI, FAN, and FLISR over time.

Q What additional metrics should the Company track in its annual report?

A I recommend additional metrics for the meter deployment phase and the post meter deployment phase.

For the meter deployment phase, I recommend the following metrics in addition to what is already proposed by the Company: (1) costs associated with customers opting out of AMI installation, (2) number of calls to customer service regarding meter installation, and (3) number of complaints regarding AMI installation.

I also recommend SPS be required to report on an additional set of metrics once meter deployment is complete to track the performance of meters, customer engagement with

[51] Exhibit SPS-NMAG 1-9.1(CONF).

the technology, and progress towards realization of the quantifiable benefits included in the CBA. The metrics for this phase would track to the Company's claimed reliability, operational, and capital benefits. Such metrics could include changes to System Average Interruption Duration Index ("SAIDI") and Customer Average Interruption Duration Index ("CAIDI"), avoided meter reads, AMI meter functionality including meter accuracy, number of remote meter disconnections and connections, customer engagement with the web portal, number of customers registering HAN devices, and customer satisfaction. I include a full list of proposed reporting metrics in Appendix C.

Q. Do you recommend the Company provide any additional information to the Commission?

A. Yes. I recommend that in addition to annual reporting the Company should be required to notify the Commission, the Commission's Utility Division Staff, and the intervening parties in this case regarding any material changes to the proposed grid modernization components and timeline. This would be triggered by a need to change the type of meter technology or meter capabilities, delays of more than a year in the implementation timeline, and if costs are expected to exceed planned contingency amounts. Changes of this magnitude should not be covered in annual reporting alone.

Q. Why do you recommend this additional requirement?

A. Grid modernization technology is rapidly changing in ways that are not always predictable. This can test the future-proofing capabilities of a utility's AMI plan and its adherence to that plan. It is important that the Company not be permitted to make material changes without Commission approval, such as changes to meter technology and functionality or changes to costs above planned contingencies.

Q. Why is it important to require SPS to seek Commission Approval for changes?

A. This recommendation stems from an issue seen in Colorado where SPS's sister company, PSCo, made significant changes to the approved AMI technology and deployment timing without seeking Commission approval. PSCo did not adhere to the timeline or the technologies in its original application where it planned to deliver roughly 1.5 million advanced meters to its electric customers over a timeframe of approximately two years.[52] The first AMI meters were proposed to be installed in Colorado during the fourth quarter of 2018. By the end of 2020, PSCo "anticipated that approximately 95% of the meter installations" would be complete.[53] Only through its 2018 and 2019 Annual Actuals Reports to the Public Utilities Commission of the State of Colorado (Colorado PUC), did PSCo indicate delays in the deployment schedule and that the technological capabilities within the advanced meters would be materially changed.[54] This culminated in mass meter deployment being pushed out to 2021.[55] PSCo indicated it selected a different AMI meter in late 2018 because it offered "Distributed Intelligence" capabilities, a relatively new market offering at the time that involves a localized computer in the meter itself.[56] DI capabilities were not part of its initial application in Colorado. The Company also opted to deploy a different HAN software than what was originally approved, which shifted from a simpler, radio-based software to Wi-Fi-based HAN.

[52] Colorado PUC, Proceeding No. 16A-0588E. Direct testimony of Jennifer B. Wozniak, Attachment JBW-1.
[53] Colorado PUC. Proceeding No. 16A-0588E, Direct testimony of Russell E. Borchert, pg. 34.
[54] Xcel Energy. Grid Certificate of Public Convenience and Necessity (CPCN) Annual Actuals Report for 2018. Proceeding No. 16A-0588E. May 31. 2019. Table 2, pg. 11.
[55] Xcel Energy. Grid CPCN Projects 2019 Annual Actuals Report. Proceeding No. 16A-0588E. May 31,2020, pg. 15.
[56] Xcel Energy. AGIS CPCN Annual Forecast Report for 2021. Proceeding No. 16A-0588E. October 30, 2021, pg. 6.

While I do not presume such a scenario would occur with SPS's proposed AMI meter deployment, this example indicates the need to approach grid modernization investment proposals with protocols that require the Commission be notified if there are material changes.

VII. SUMMARY AND CONCLUSIONS

Q. Please summarize your conclusions.

A. The Company promises significant benefits from its investment in grid modernization. SPS states that "the implementation of AMI, FAN, and FLISR will provide significant benefits to SPS's New Mexico retail customers, including cost savings, better management of energy use and costs, and opportunities for increased DSM programs."[57] However, there is very little in the Application related to detailed implementation plans to achieve these outcomes and insufficient reporting metrics to track progress.

It is far too common for utilities to cite potential customer benefits from AMI meters in applications before a commission and then not follow through with necessary implementation of programs to achieve those purported benefits. For example, a recent study by the American Council for an Energy-Efficient Economy ("ACEEE") found that only one of the 52 utilities surveyed was optimizing its AMS infrastructure to create energy savings opportunities for customers.[58]

[57] Direct Testimony of Brooke A. Trammell, pg. 61.
[58] Gold, R., Waters, C., York, D. 2020. *Leveraging Advanced Metering Infrastructure to Save Energy*. American Council for an Energy-Efficiency Economy ("ACEEE").

AMI meters on their own will not provide sufficient savings opportunities for customers. The benefits of AMI that will be realized by customers are directly related to the types of programs provided by SPS and the design of those programs. Customers need sufficient education, price signals, tools, and ease-of-use applications to take advantage of this new technology.

It is important that SPS be held accountable for developing and deploying AMI customer offerings and rates that will enable customers to take control of their energy usage. There are significant costs associated with SPS's Application and ratepayers should be entitled to have access to the full benefits of this technology.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR AUTHORIZATION TO IMPLEMENT GRID MODERNIZATION COMPONENTS THAT INCLUDE ADVANCED METERING INFRASTRUCTURE AND RECOVER THE ASSOCIATED COSTS THROUGH A RIDER, ISSUANCE OF RELATED ACCOUNTING ORDERS, AND OTHER ASSOCIATED RELIEF,	)	CASE NO. 21-00178-UT
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

AFFIRMATION (IN LIEU OF AFFIDAVIT)

OF COURTNEY LANE

In compliance with the *Temporary NMPRC Electronic Filing Policy of March 20, 2020*, and under Rule 1-011(B) NMRA of the New Mexico Rules of Procedures for the District Courts, I, Courtney Lane, hereby file this testimony on behalf of the New Mexico Attorney General and state as follows:

I hereby affirm in writing under penalty of perjury under the laws of the State of New Mexico that the statements contained in the foregoing *Direct Testimony of Courtney Lane on Behalf of the Office of Attorney General* are true and correct to the best of my knowledge, information, and belief.

I further declare under penalty of perjury that the foregoing is true and correct.

Executed on October 11, 2022.

/s/ Courtney Lane
Courtney Lane (electronically signed)
Expert Witness on Behalf of the New Mexico Attorney General
485 Massachusetts Avenue #3
Cambridge, MA 02139

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR AUTHORIZATION TO IMPLEMENT GRID MODERNIZATION COMPONENTS THAT INCLUDE ADVANCED METERING INFRASTRUCTURE AND RECOVER THE ASSOCIATED COSTS THROUGH THE ASSOCIATED COSTS THROUGH A RIDER, ISSUANCE OF RELATED ACCOUNTING ORDERS, AND OTHER ASSOCIATED RELIEF.	)	**Case No. 22-00178-UT**

CERTIFICATE OF SERVICE

I CERTIFY that on this date I sent, via email, to the parties listed here, a true and correct copy of the ***Direct Testimony of Courtney Lane.***

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Courtney Lane, Principal Associate

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PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA. *Principal Associate*, September 2022 – Present, *Senior Associate,* November 2019 – September 2022.

Provides consulting and researching services on a wide range of issues related to the electric industry including performance-based regulation, benefit-cost assessment, rate and bill impacts, and assessment of distributed energy resource policies and programs. Develops expert witness testimony in public utility commission proceedings.

National Grid, Waltham, MA. *Growth Management Lead*, *New England,* May 2019 – November 2019, *Lead Analyst for Rhode Island Policy and Evaluation,* June 2013 – April 2019.

- Portfolio management of product verticals including energy efficiency, demand response, solar, storage, distributed gas resources, and electric transportation, to optimize growth and customer offerings.
- Strategy lead for the Performance Incentive Mechanisms (PIMs) working group.
- Worked with internal and external stakeholders and led the development of National Grid's Annual and Three-Year Energy Efficiency Plans and System Reliability Procurement Plans for the state of Rhode Island.
- Represented energy efficiency and demand response within the company at various Rhode Island grid modernization proceedings.
- Led the Rhode Island Energy Efficiency Collaborative; a group focused on reaching consensuses regarding energy efficiency plans and policy issues for demand-side resources in Rhode Island.
- Managed evaluations of National Grid's residential energy efficiency programs in Rhode Island, and benefit-cost models to screen energy efficiency measures.

Citizens for Pennsylvania's Future, Philadelphia, PA. *Senior Energy Policy Analyst*, 2005–2013.

- Played a vital role in several legislative victories in Pennsylvania, including passage of energy conservation legislation that requires utilities to reduce overall and peak demand for electricity (2009); passage of the $650 million Alternative Energy Investment Act (2008); and important amendments to the Alternative Energy Portfolio Standards law vital to the development of solar energy in Pennsylvania (2007).
- Performed market research and industry investigation on emerging energy resources including wind, solar, energy efficiency and demand response.
- Planned, facilitated and participated in wind energy advocates training meetings, annual partners retreat with members of wind and solar companies, and the PennFuture annual clean energy conference.

Northeast Energy Efficiency Partnerships, Inc., Lexington, MA. *Research and Policy Analyst,* 2004–2005.

- Drafted comments and testimony on various state regulatory and legislative actions pertaining to energy efficiency.
- Tracked energy efficiency initiatives set forth in various state climate change action plans, and federal and state energy regulatory developments and requirements.
- Participated in Regional Greenhouse Gas Initiative (RGGI) stakeholder meetings.
- Analyzed cost-effectiveness of various initiatives within the organization.

Massachusetts Executive Office of Environmental Affairs, Boston, MA. *Field Projects Extern,* 2003.

- Worked for the Director of Water and Watersheds at the EOEA, examining the risks and benefits of different groundwater recharge techniques and policies throughout the U.S.
- Presented a final report to both Sea Change and the EOEA with findings and policy recommendations for the state.

EnviroBusiness, Inc., Cambridge, MA. *Environmental Scientist,* July 2000 – May 2001

- Conducted pre-acquisition assessments/due diligence assignments for properties throughout New England. Environmental assessments included an analysis of historic properties, wetlands, endangered species habitat, floodplains, and other areas of environmental concern and the possible impacts of cellular installations on these sensitive areas.

EDUCATION

Tufts University, Medford, MA
Master of Arts; Environmental Policy and Planning, 2004.

Colgate University, Hamilton, NY
Bachelor of Arts; Environmental Geography, 2000, *cum laude.*

PUBLICATIONS

National Energy Screening Project. 2022. *Methods, Tools and Resources: A Handbook for Quantifying Distributed Energy Resource Impacts for Benefit-Cost Analysis*. E4TheFuture, Synapse Energy Economics, Parmenter Consulting, Apex Analytics, Energy Futures Group.

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Lane, C., S. Kwok, J. Hall, I. Addleton. 2021. *Macroeconomic Analysis of Clean Vehicle Policy Scenarios for Illinois*. Synapse Energy for the Natural Resources Defense Council.

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Public Utilities Commission of New Hampshire (Docket No. DE 20-092): Direct testimony of Courtney Lane and Danielle Goldberg regarding the 2021-2023 Triennial Energy Efficiency Plan. On behalf of the Office of Consumer Advocate. April 19, 2022.

Public Utilities Commission of New Hampshire (Docket No. DG 21-104): Direct testimony of Courtney Lane and Ben Havumaki regarding Northern Utilities, Inc.'s request for change in rates. On behalf of the Office of Consumer Advocate. April 1, 2022.

Maryland Public Service Commission (Docket No. 9655): Direct and Surrebuttal Testimony of Courtney Lane regarding the application of Potomac Electric Company for a Multi-Year Plan and Performance Incentive Mechanisms. On behalf of the Maryland Office of People's Counsel. March 3, 2021 and April 20, 2021.

Pennsylvania Public Utility Commission (Docket No. M-2020-3020830): Direct testimony of Alice Napoleon and Courtney Lane regarding PECO Energy Company's proposed Act 129 Phase IV Energy Efficiency and Conservation Plan. On behalf of the Natural Resources Defense Council. January 14, 2021.

Maryland Public Service Commission (Case No. 9645): Direct and Surrebuttal Testimony of Courtney Lane regarding the Application of Baltimore Gas and Electric Company for an Electric and Gas Multi-Year Plan. On behalf of the Maryland Office of People's Counsel. August 14, 2020 and October 7, 2020.

Maryland Public Service Commission (Case No. 9619): Comments of Maryland Office of People's Counsel Regarding Energy Storage Pilot Program Applications, attached Synapse Energy Economics Report. June 23, 2020.

Public Service Commission of the District of Columbia (Formal Case No. 1156): Direct, Rebuttal, Surrebuttal, and Supplemental Testimony of Courtney Lane regarding the Application of Potomac Electric Power Company for Authority to Implement a Multiyear Rate Plan for Electric Distribution Service in the District of Columbia. On behalf of the District of Columbia Government. March 6, 2020, April 8, 2020, June 1, 2020, and July 27, 2020.

Rhode Island Public Utilities Commission (Docket No. 4888): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2019 Energy Efficiency Program (EEP). On behalf of National Grid. December 11, 2018.

Rhode Island Public Utilities Commission (Docket No. 4889): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2019 System Reliability Procurement Report (SRP). On behalf of National Grid. December 10, 2018.

Rhode Island Public Utilities Commission (Docket No. 4755): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2018 Energy Efficiency Program (EEP). On behalf of National Grid. December 13, 2017.

Rhode Island Public Utilities Commission (Docket No. 4684): Oral testimony of Courtney Lane regarding the RI Energy Efficiency and Resource Management Council (EERMC) Proposed Energy Efficiency Savings Targets for National Grid's Energy Efficiency and System Reliability Procurement for the Period 2018-2020 Pursuant to §39-1-27.7. On behalf of National Grid. March 7, 2017.

Rhode Island Public Utilities Commission (Docket No. 4684): Oral testimony of Courtney Lane regarding National Grid's 2018-2020 Energy Efficiency and System Reliability Procurement Plan. On behalf of National Grid. October 25, 2017.

Rhode Island Public Utilities Commission (Docket No. 4654): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2017 Energy Efficiency Program Plan (EEPP) for Electric & Gas. On behalf of National Grid. December 8, 2016.

Rhode Island Public Utilities Commission (Docket No. 4580): Oral testimony of Courtney Lane regarding the Narragansett Electric Co. d/b/a National Grid - 2016 Energy Efficiency Program Plan (EEPP) for Electric & Gas. On behalf of National Grid. December 2, 2015.

Pennsylvania Public Utility Commission (Docket No. P-2012-2320369): Direct testimony of Courtney Lane regarding the Petition of PPL Electric Utilities Corporation for an Evidentiary Hearing on the Energy Efficiency Benchmarks Established for the Period June 1, 2013 through May 31, 2016. On behalf of PennFuture. October 19, 2012.

Pennsylvania Public Utility Commission (Docket No. P-2012-2320334): Direct testimony of Courtney Lane regarding the Petition of PECO Energy for an Evidentiary Hearing on the Energy Efficiency Benchmarks Established for the Period June 1, 2013 through May 31, 2016. On behalf of PennFuture. September 20, 2012.

Pennsylvania Public Utility Commission (Docket No. I-2011-2237952): Oral testimony of Courtney Lane regarding the Commission's Investigation of Pennsylvania's Retail Electricity Markets. On behalf of PennFuture. March 21, 2012.

Committee on the Environment Council of the City of Philadelphia (Bill No. 110829): Oral testimony of Courtney Lane regarding building permitting fees for solar energy projects. On behalf of PennFuture. December 5, 2011.

Pennsylvania Public Utility Commission (Docket No. M-00061984): Oral testimony of Courtney Lane regarding the En Banc Hearing on Alternative Energy, Energy Conservation, and Demand Side Response. On behalf of PennFuture. November 19, 2008.

PRESENTATIONS

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Lane, C., A. Flanders. 2017. "National Grid Rhode Island: Piloting Wireless Alternatives: Forging a Successful Program in Difficult Circumstances." Presentation at the 35th Annual Peak Load Management Association (PLMA) Conference, Nashville, TN, April 4, 2017.

Lane, C. 2013. "Regional Renewable Energy Policy Update." Presentation at the Globalcon Conference, Philadelphia, PA, March 6, 2013.

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Lane, C. 2012. "Act 129: Taking Energy Efficiency to the Next Level." Presentation at the Energypath Conference, June 28, 2012.

Lane, C. 2011. "Pennsylvania's Model Wind Ordinance." Presentation at Harvesting Wind Energy on the Delmarva Peninsula, September 14, 2011.

Lane, C. 2011. "Electric Retail Competition and the AEPS." Presentation at the Villanova Law Forum, November 4, 2011.

Lane, C. 2009. "Act 129: Growing the Energy Conservation Market." Presentation at the Western Chester County Chamber of Commerce, March 25, 2009.

Resume updated October 2022

Appendix B: Green Button Connect Data Fields

Data Field
Account Number
Premise
Customer Name
Customer Email Address
Customer Phone
Account Address
Customer Rate Code
Meter Number
Meter Reading Previous
Meter Reading Current
Overall Consumption Last Period
Overall Consumption This Period
Billing Period
Commodity
Bill Amount
Customer Charge
Delivery Charge
Tax
Energy Service Charge
Peak Demand (for current bill period)
Interval Reading Start Date and Time
Interval Reading Value(s)
Interval Duration
Interval Reading Quality
Time-of-Use
Time Configuration

Appendix C. Recommended Reporting Metrics

Phase	Category	Description
Deployment Phase	Installation and Deployment	Number of advanced meters installed
	Installation and Deployment	Percentage of advanced meters deployed compared to planned installation
	Installation and Deployment	Number of advanced meters replaced as a result of problems
	Installation and Deployment	Percentage of customers with advanced meters
	Installation and Deployment	Number of customers electing to opt-out of AMI installation
	Installation and Deployment	Cost associated with customers opting out of AMI installation
	Installation and Deployment	Number of calls to customer service regarding meter installation
	Installation and Deployment	Number of complaints regarding AMI installation
Post Deployment Phase	Field Visits	Operation and maintenance cost savings from avoided field visits
	Field Visits	Number of avoided truck rolls/field visits
	Field Visits	Greenhouse gas reductions from avoided truck rolls/field visits
	AMI Functionality	Percentage of customers with advanced meters that receive estimated bills
	AMI Functionality	Total number of AMI meters used for billing (activated)
	AMI Functionality	Percentage of customers with an advanced meter that have made a complaint of inaccurate meter readings
	AMI Functionality	Number of customers with an advanced meter with an active web portal account
	AMI Functionality	Meter accuracy test percentage
	AMI Functionality	Number of remote meter disconnect operations
	AMI Functionality	Number of remote meter connect operations
	AMI Functionality	Percentage of interval reads received
	Reliability	Changes to CAIDI (pre vs post AMI deployment)
	Reliability	Changes to SAIDI (pre vs post AMI deployment)
	Cost Savings	Number of avoided meter purchases
	Cost Savings	Changes to theft and meter temporing (pre vs post AMI deployment)
	Cost Savings	Changes to uncollectables and bad debt (pre vs post AMI deployment)
	Customer Engagement	Number of monthly, unique visits to the web portal
	Customer Engagement	Customer access to hourly or sub-hourly data
	Customer Engagement	Percentage of customers with advanced meter that are targeted with energy savings messaging
	Customer Engagement	Percentage of low-income customers with advanced meters that are targeted with energy savings messaging
	Customer Engagement	Number of AMI meters by customer class supporting customer Home Area Network (HAN) devices
	Customer Engagement	Number and percentage of customers by customer class using Green Button Connect my Data.
	Customer Engagement	Number and percentage of customers by customer class using Green Button Download my Data.
	Pre/Post AMI Customer Satisfaction Surveys	Survey of customer satisfaction with outage related communications
	Pre/Post AMI Customer Satisfaction Surveys	Percentage of customers aware of AMI
	Pre/Post AMI Customer Satisfaction Surveys	Understanding of AMI technology and benefits
	Pre/Post AMI Customer Satisfaction Surveys	Percentage of low-income customers aware of AMI

Appendix D

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S APPLICATION FOR AUTHORIZATION TO IMPLEMENT GRID MODERNIZATION COMPONENTS THAT INCLUDE ADVANCED METERING INFRASTRUCTURE AND RECOVER THE ASSOCIATED COSTS THROUGH A RIDER, ISSUANCE OF RELATED ACCOUNTING ORDERS, AND OTHER ASSOCIATED RELIEF,	)	**CASE NO. 21-00178-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

Data Responses Referenced in the Direct Testimony of Courtney Lane

SPS Response to NMAG 3-5(a)

SPS Response to NMAG 3-5(d)

QUESTION NO. NMAG 3-5:

Refer to Green Button Download My Data and Connect My Data on page 17 of the Direct Testimony of Michael O. Remington and answer the following:

a. What is the projected cost Green Button Download My Data?

d. What is the projected cost of Green Button Connect My Data?

RESPONSE:

a) The Green Button Download My Data functions have been implemented in the customer portal. These features were included in the overall bid by the Green Button vendor, which includes a wide range of customer energy usage insight features that support the Home Energy Insights DSM program. As such, we are not able to decouple the costs of Green Button Download from the overall customer portal cost because they were not a separate cost component of the project.

d) The Green Button Connect My Data functions have been implemented in the customer portal. These features were included in the overall bid by the Green Button vendor, which includes a wide range of customer energy usage insight features that support the Home Energy Insights DSM program. As such, we are not able to decouple the costs of Green Button Connect from the overall customer portal cost because they were not a separate cost component of the project.

Preparer: Michael O. Remington
Sponsor: Michael O. Remington