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March 12, 2025

BY ELECTRONIC FILING

Hon. Bernard J. Logan, Clerk
State Corporation Commission
Document Control Center
Tyler Building – First Floor
1300 East Main Street
Richmond, Virginia 23219

Re: Petition of Rappahannock Electric Cooperative
For approval to implement a new Large Power
Dedicated Facilities Rate Schedule
Case No.: PUR-2025-00048

Dear Mr. Logan:

Enclosed for filing in the above-referenced proceeding, please find the application of Rappahannock Electric Cooperative for approval to implement a new Large Power Dedicated Facilities Rate Schedule.

Please do not hesitate to contact me with any questions or concerns.

Sincerely,

Timothy E. Biller
Enclosures

cc: William H. Chambliss, Esq.
C. Meade Browder, Jr., Esq.

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

PETITION OF	)	
	)	
RAPPAHANNOCK	)	**CASE NO. PUR-2025-00048**
ELECTRIC COOPERATIVE	)	
	)	
For approval to implement a new Large Power	)	
Dedicated Facilities Rate Schedule	)	

PETITION

Pursuant to §§ 56-231.34, and 56-236 of the Code of Virginia ("Virginia Code"), Rappahannock Electric Cooperative ("REC" or the "Cooperative") respectfully requests that the State Corporation Commission ("Commission") accept filing of REC's Large Power-Dedicated Facilities Rate Schedule ("Schedule LP-DF"). Schedule LP-DF is a new tariff that will apply to all similarly situated Cooperative members that meet the eligibility criteria set forth in the rate schedule. In support of this Petition, REC respectfully states as follows:

I. GENERAL INFORMATION

1. REC is a member-owned, electric distribution cooperative that provides retail electric service in portions of 22 Virginia counties: Albemarle, Caroline, Clarke, Culpeper, Essex, Fauquier, Frederick, Goochland, Greene, Hanover, King and Queen, King William, Louisa, Madison, Orange, Page, Rappahannock, Rockingham, Shenandoah, Spotsylvania, Stafford, and Warren. REC's principle offices are located at 247 Industrial Court, Fredericksburg, Virginia, 22408. REC's website is https://www.myrec.coop/.

2. REC's counsel of record in this proceeding are:

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II. SCHEDULE LP-DF

3. Schedule LP-DF is a new rate schedule designed to provide service to very large, high load factor customers. Specifically, Schedule LP-DF will be used to serve all similarly situated consumers that are served through dedicated facilities[1] with a contracted billing demand that exceeds 25MW and an annual average load factor of 75%. A copy of Schedule LP-DF is provided as Attachment A to this Petition.

4. As previously described to the Commission in detail in Case Nos. PUR-2024-00015, PUR-2024-00016, and PUR-2024-00213, many developers of large-scale data centers and other large load customers are currently developing facilities in the Cooperative's service territory. The electric power demands of these customers will easily eclipse the aggregate peak demand of not only Rappahannock's entire service territory, but also the total aggregate peak electric power demand of Old Dominion Electric Cooperative ("ODEC"), Rappahannock's primary generation and transmission provider. As part of the Cooperative's comprehensive approach to addressing the needs of these customers while also protecting existing Cooperative members, in Case No. PUR-2024-00213 the Commission approved the Cooperative's proposed affiliate arrangement through which it will obtain the power supply necessary to serve these exceptionally-sized customers.

5. Schedule LP-DF is another integral part of the Cooperative's approach to providing service to these exceptionally-sized customers. Schedule LP-DF provides a structured rate that is designed specifically based on the requirements to serve these large load, high load

[1] Dedicated facilities can include colocation facilities owned and operated by a company that leases physical space within their data center to other companies and organizations. Colocation data centers generally serve multiple tenants which allows these companies to benefit from economies of scale.

factor customers. This rate schedule will allow the Cooperative to recover the full cost of providing service to these customers, including the costs associated with providing distribution service as well as the costs associated with obtaining the power supply needed to serve these customers.

6. As detailed in the testimony accompanying this Petition, the structured rate under Schedule LP-DF includes a delivery service charge, service charge, excess facilities charge, and a pass-through of power supply costs. The delivery service charge and service charge are both structured as demand charges on a per megavolt-amperes ("MVA") basis. This rate structure will ensure that the Cooperative's cost recovery aligns with the stable, high load factor of customers under Schedule LP-DF. The charges have been designed based on the Cooperative's current forecast for customers that will begin taking service under Schedule LP-DF in the next two years. As additional Schedule LP-DF customers come online, the Cooperative will monitor the rate and adjust it as necessary in future proceedings.

7. Customers that meet the specific requirements for eligibility under Schedule LP-DF will be required to take service under that rate schedule. As discussed by Company Witness Lyons, the Cooperative's existing Schedule LP-3 was not designed to serve customers with the service requirements of these large load, high load factor customers and appropriately recover the costs of the dedicated facilities necessary to serve these customers. Instead, Schedule LP-DF has been specifically designed to align with these service requirements, allowing for full cost recovery and avoiding impacts to other Cooperative members.

8. Schedule LP-DF includes multiple protections to avoid impacts to existing Cooperative members from providing service to this new class of customers. As discussed by Company Witness Lyons, Schedule LP-DF is designed to require an upfront Contribution-in-aid-of-Construction and the rate includes a contribution margin, both of which protect and compensate Cooperative members from risks associated with service to these customers.

9. In addition, as discussed by Company Witness Sebastian, Schedule LP-DF requires that customers provide collateral to support both their distribution and power supply service requirements in order to avoid the possibility of shifting costs to the Cooperative's other members. The Cooperative currently intends to accept collateral in a variety of forms as may be negotiated with each customer, including surety bonds, letters of credit, parent guarantees, or cash. Although the Cooperative views this collateral requirement as separate and distinct from the customer deposit contemplated by 20 VAC 5-10-20, the Commission Staff has previously raised a question regarding whether a utility accepting cash as collateral from large-load customers is subject to this regulation.[2] To the Cooperative's knowledge, the Commission has not yet addressed this question. Accordingly, should the Commission determine that cash as a form of collateral is not separate and distinct from the utility customer deposit requirements under 20 VAC 5-10-20, the Company respectfully requests that the Commission grant a waiver of the requirements of 20 VAC 5-10-20 with respect to Schedule LP-DF only. This will provide the Cooperative flexibility to work with potential LP-DF customers to secure sufficient collateral to protect the Cooperative and its other members in the event the unexpected occurs with these large load customers.

10. No current customer of the Cooperative currently meets the applicability requirements of Schedule LP-DF, therefore no customer will experience a change in rates for receiving the same service as a result of acceptance of this tariff.[3] Accordingly, the Cooperative respectfully requests that the Commission accept Schedule LP-DF as a new tariff of the Cooperative.

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[2] Testimony of Brian S. Pratt at 30-32, Case No. PUR-2024-00024 (filed August 2, 2024).

[3] Currently, the Cooperative is providing limited bridging power under an existing rate schedule to certain members who will take service under Schedule LP-DF once construction and energization of the dedicated facilities used to serve the customers' facility is completed.

III. SUPPORT FOR APPLICATION

11. This Petition is supported by testimony from the following witnesses:

a. Brian D. Doherty – Mr. Doherty introduces the other witness supporting this Petition; discusses the background and need for Schedule LP-DF; and provides support for the components of the Schedule.

b. Jennifer B. Sebastian – Ms. Sebastian sponsors the proposed Schedule LP-DF and discusses its structure, including the methodology used to determine charges, cost recovery mechanisms, and the financial protections embedded in the tariff. She will also provide an illustrative example of the rate's application to a large-load customer and explain the required agreements that will govern service to these customers.

c. Timothy S. Lyons – Mr. Lyons discusses the development of the LP-DF rate, ensuring that it reflects cost causation principles and aligns with industry best practices. He outlines the structure of the tariff, including its applicability to large-load customers, the primary terms of service, and the mechanisms used to track and allocate revenues and costs.

12. Included as Attachment B to this Petition is a resolution of the Board of Directors authorizing Schedule LP-DF.

13. The Cooperative respectfully requests that the Commission accept Schedule LP-DF for filing as a new rate schedule of the Cooperative pursuant to Va. Code §§ 56-231.34 and 56-236. Schedule LP-DF currently reflects an effective date of July 1, 2025. Should the Commission believe additional time to review this Petition is necessary, the Company respectfully requests that it permit the Cooperative to implement Schedule LP-DF on an interim basis on and after July 1, 2025. Interim authority will allow the Cooperative to continue to work with customers to meet requested in-service dates in a timely manner.

WHEREFORE Rappahannock Electric Cooperative respectfully requests that the Commission (1) accept filing of Schedule LP-DF pursuant to Va. Code §§ 56-231.34 and 56-236, (2) confirm that the Cooperative may accept cash as collateral, in addition to other forms of collateral, as contemplated under Schedule LP-DF and, if it determines it to be necessary, grant a waiver of the requirements of 20 VAC 5-10-20 and (3) grant such additional relief as it deems necessary or appropriate.

Respectfully submitted,

RAPPAHANNOCK ELECTRIC COOPERATIVE

By Counsel

March 12, 2025

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Counsel for Rappahannock Electric Cooperative

CERTIFICATE OF SERVICE

I hereby certify that on this 12th day of March, 2025, a copy of the foregoing Petition of Rappahannock Electric Cooperative was delivered electronically to the following:

William H. Chambliss, Esq.
Office of General Counsel
State Corporation Commission
Tyler Building, 10th Floor
1300 E. Main Street
Richmond, Virginia 23219
William.Chambliss@scc.virginia.gov

C. Meade Browder, Jr., Esq.
Division of Consumer Counsel
Office of Attorney General
202 N. 9th Street
Richmond, Virginia 23219
MBrowder@oag.state.va.us

RAPPAHANNOCK ELECTRIC COOPERATIVE
Fredericksburg, Virginia

LARGE POWER AND DEDICATED FACILITIES
SCHEDULE LP-DF

I. AVAILABILITY

Available throughout the service territory of the Cooperative, subject to the Terms and Conditions of the Cooperative filed with the State Corporation Commission of Virginia (Commission). When a customer being served by the Cooperative meets the Applicability requirements as specified in conditions 2 and 3 the customer will be placed on the Large Power and Dedicated Facilities rate schedule.

II. APPLICABILITY

Applicable upon request to large commercial or industrial consumers subject to the following conditions:

1. The customer must execute an Electric Service Agreement (ESA) for electric distribution service and delivery with an initial effective date not later than twelve (12) months prior to the date of desired service; unless otherwise agreed to by the Cooperative, which shall also provide for revenues sufficient to recover the investment made and costs incurred by the Cooperative and credit collateral support (as determined by the Cooperative) associated with providing electric distribution service; and,
2. To qualify for this Schedule LP-DF, the customer must:
   a. Be served by dedicated substation facilities designed by the Cooperative to facilitate customer's contracted demand. Substation facilities will be considered dedicated if they are designed solely to serve one or more customers under this Schedule LP-DF, and,
   b. Be served at a delivery voltage of thirty-four and one half (34.5) kV or greater where service is: i) from the low voltage side of dedicated substation facilities served from a one hundred fifteen (115) kV or higher transmission delivery point, or ii) from dedicated sub-transmission or primary distribution facilities emanating directly from a Cooperative delivery point served from a low side of one hundred fifteen (115) kV or higher transmission delivery source; and,
   c. Customer's contracted billing demands exceed 25MW, and,
3. The customer must maintain an average annual load factor of at least seventy-five percent (75%) as detailed in the ESA; and,
4. The ESA term for distribution service shall be negotiable between the customer and the Cooperative, but the term shall be structured to recover the full cost of distribution and/or sub-transmission plant investment, maintenance and operation; and,
5. If at any time, the gross installed utility plant required to serve the customer's load is increased or decreased, the Cooperative reserves the right to adjust the

appropriate customer charges to reflect the change in the gross utility plant in service; and,

6. This schedule is not available for breakdown, standby, supplemental, self-generation, net-metering, or resale service

III. TYPE OF SERVICE

Multi-phase, sixty (60) hertz, at available voltage and as detailed in the ESA.

IV. MONTHLY RATES

A. Service Charge per month:[1]

Customer Count per Substation	Customer Service Charge per MVA
1	**$529.19**
2	**$1,058.38**
3	**$1,587.57**
4	**$2,116.76**
5	**$2,645.95**
6	**$3,175.14**
N	**$529.19/(1/N)**

B. Delivery Service Charge:

$874.04 per Installed MVA per month

C. Power Supply

The customer may execute a Power Service Agreement (PSA) for market-based rate electric supply service with an initial effective date not later than twelve (12) months prior to the date of desired service. The customer shall be responsible for all capacity and transmission charges incurred by the Cooperative (or its affiliate) associated with distribution, transmission or related service to the customer, including any charges incurred after the customer discontinues service.

Customer is required to provide power supply credit collateral support (as determined by the Cooperative) as provided in the applicable agreement.

[1] The Service Charge shall be charged based upon the number of customers associated with a substation.

V. POWER FACTOR CORRECTION

The customer agrees to maintain unity power factor as nearly as practicable. In the event the Cooperative deems it necessary to install equipment to correct either leading or lagging power factor on its system, due to the customer's load, the customer shall be responsible for paying the Cooperative an upfront contribution-in-aid of construction equal to the installed cost of the equipment.

VI. EXCESS FACILITIES CHARGE

The Cooperative will provide electric plant facilities on a case-by-case basis up to the cost level supported by the revenues of the customer. Any additional costs of facilities furnished by the Cooperative will be considered additional facilities subject to the following: a) The customer shall pay a contribution-in-aide of construction for electric plant facilities considered additional facilities, and b) The customer shall be charged the following monthly fixed charge rates for the portion of the investment covered by the contributed capital:

Substation Investment 0.92%[2]

Customer may be required to pay additional contributions in aid of construction as provided in an ESA for any additional facilities, including the replacement of Excess Facilities (other than redundant facilities) previously installed to serve the customer.

VII. MINIMUM SERVICE CHARGE

The minimum distribution charge shall be the amount as specified under the ESA which includes the REC Service Charge, Delivery Service Charge plus any Excess Facilities Charge.

VIII. SERVICE IMPAIRING LOADS

The customer agrees to be responsible for any additional facilities, protective devices, or corrective equipment necessary to provide adequate service or prevent interference to transmission or distribution systems. Such loads include, but are not limited to, those requiring excessive capacity because of large momentary current demands or requiring close voltage regulation.

[2] To the extent the Cooperative determines that Excess Facilities are not classified as Substation Excess Facilities, the customer will pay a fixed charge rate in accordance with the Cooperative's Excess Facilities Schedule EF.

IX. APPLICABLE TAXES

The total bill under the Schedule will be increased for any applicable taxes imposed by any governmental authority.

X. BILLING

Notwithstanding Section VII – Billing and Payment for Service of the Cooperative's Terms and Conditions, Customer will be billed in accordance with the terms of the applicable ESA and PSA. Any amount not paid in accordance with the ESA shall be classified as delinquent for the applicable billing period and a Late Payment Charge will be applied. Any amount not paid in accordance with the applicable PSA shall be classified as delinquent for the applicable billing period and a Late Payment Charge will be applied.

Rappahannock Electric Cooperative
A Touchstone Energy Cooperative

Outstanding Service
From Caring People

Resolution # 2025-02-01

Resolution to Direct Staff to Continue Development of Ability to Serve Prospective Large Load Members

Resolution to Direct and Authorize Staff to Develop, Finalize and Submit an Application for Approval of a Large Power – Dedicated Facilities ("LP-DF") Rate Schedule to the State Corporation Commission to Meet the Needs of Membership

WHEREAS, Rappahannock Electric Cooperative (REC) submitted an Application for Approval of an Affiliates Operating Services Agreement (Revised Affiliate Application) to the Virginia State Corporation Commission (Commission) on November 19, 2024, and

WHEREAS, on February 18, 2025, the State Corporation Commission approved the Operating Services Agreement and other related agreements (Loan Agreement, Trademark Agreement and Wholesale Power Form), and

WHEREAS, included within the Operating Services Agreement Application REC has described the need to develop a new rate schedule to serve prospective large load members, while protecting the interests of its existing membership, which will consider the setup and structure of its affiliate organization., and

WHEREAS, the REC Staff recognizes the need to identify a new class of membership within its territory. These members are typified by high load, and uninterrupted demand. This new load could surpass the Cooperative's current peak load requirements for its entire system, creating costs and risks that have not heretofore been encountered, and

WHEREAS, REC Staff is working diligently to develop a rate schedule to serve this new class of large load member.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Rappahannock Electric Cooperative does hereby direct and authorize the President & CEO, or his designee, to execute any reasonable measures Staff sees fit to provide electric service to its prospective large load members and protect existing membership from risk associated with serving such load, including but not limited to the development, execution, and eventual submission to the Commission of an application for approval of an LP-DF rate schedule.

Certificate of Secretary

I, J. Mark Wood, Secretary of the Board of Directors of Rappahannock Electric Cooperative, acting pursuant to Article VI, Section 7 of REC's bylaws as amended and restated on January 22, 2025, do hereby certify that the above is a true and correct copy of a resolution adopted by the Board of Directors of REC at a meeting held on February 26, 2025, as reflected in Rappahannock Electric Cooperative's minute book and that the same has not been rescinded or modified in any way.

This 26th day of February 2025.

J. Mark Wood
Secretary

REC Exhibit No. ____
Witness: BDD

DIRECT TESTIMONY OF
BRIAN D. DOHERTY
FOR RAPPAHANNOCK ELECTRIC COOPERATIVE
IN VIRGINIA S.C.C. CASE NO. PUR-2025-00048

REC Exhibit No. ____
Witness: BDD

SUMMARY OF DIRECT TESTIMONY OF BRIAN D. DOHERTY

In my testimony, I:

- Support REC's request for approval of Rate Schedule Large Power – Dedicated Facilities (LP-DF), which provides a structured rate designed to serve large-load, high load factor customers, including hyperscale data centers;
- Introduce REC's supporting witnesses—Jennifer B. Sebastian and Timothy S. Lyons, who provide further details on rate design, cost allocation, and financial justifications for Schedule LP-DF;
- Explain the need for a new structured rate due to unprecedented load growth in REC's service territory, driven primarily by hyperscale data centers, that require significantly more electricity than traditional commercial or industrial customers;
- Demonstrate how LP-DF provides full cost recovery by requiring large-load customers tocover the costs associated with the energy procurement, infrastructure investments, and system integration necessary to provide service to each customer, preventing financial risk or cost shifts to REC's existing members;
- Describe the rate structure under Schedule LP-DF, which is structured as a per-MVA capacity charge, rather than a traditional volumetric rate, ensuring cost recovery aligns with the stable, high-load factor of these customers; and
- Explain how Schedule LP-DF aligns with the affiliate arrangement approved in Case No. PUR-2024-00213, ensuring compliance with Virginia's regulatory framework while maintaining REC's statutory obligation to serve customers.

REC Exhibit No. ____
Witness: BDD

DIRECT TESTIMONY OF
BRIAN D. DOHERTY
FOR RAPPAHANNOCK ELECTRIC COOPERATIVE
IN VIRGINIA S.C.C. CASE NO. PUR-2025-00048

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is Brian D. Doherty. My business address is 247 Industrial Court, Fredericksburg, Virginia 22408. I am employed by REC as Managing Director of Regulatory Affairs and Compliance.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I received my Bachelor of Arts degree in Economics from the College of William and Mary in 2006. In 2007, I joined IBM Corporation as a Consultant in the Global Business Services group. In 2010, I joined the Public Service Commission of the District of Columbia as an Economist, where I developed regulatory policies and advised commissioners on rate design, grid reliability, and utility performance incentives. In 2013, I moved to Potomac Electric Power Company (Pepco) as a Strategic Policy Lead in the Power Delivery Regulatory group. In 2014, I was promoted to Strategic Policy Principal. In 2016, I joined Pepco's Regulatory Affairs department as a Senior Rate Analyst on the Revenue Requirements team. In 2018, I was promoted to Manager of Regulatory Affairs, where I led rate change applications, tariff modifications, and stakeholder engagement before the DC Public Service Commission. In 2021, I joined REC as the Managing Director of External Affairs. In 2023, I assumed the role of Managing Director of Regulatory Affairs and Compliance.

Q. WHAT ARE YOUR PRINCIPAL AREAS OF RESPONSIBILITY?

A. As Managing Director of Regulatory Affairs and Compliance at REC, I oversee REC's regulatory strategy, rate design, and compliance activities across the organization. Ultimately, my role is to align REC's regulatory and rate strategies with its operational and financial objectives while ensuring fair and sustainable outcomes for our member-owners.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY AS A WITNESS BEFORE ANY REGULATORY COMMISSION?

A. No.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony supports REC's request for approval of Rate Schedule Large Power – Dedicated Facilities (LP-DF) and provides the necessary background, justification, and regulatory context for its approval. To support this request and inform the Commission's decision on the matter, my testimony will:

- Introduce REC's supporting witnesses, Timothy S. Lyons and Jennifer B. Sebastian, who support the development of the proposed LP-DF rate, the LP-DF tariff schedule, and financial protections embedded in the proposed rate;
- Provide an overview of the economic environment and projected load growth in REC's service territory;
- Explain the LP-DF rate structure, including why it is designed as a per-MVA charge rather than a traditional volumetric rate to align with the high, stable load characteristics of hyperscale customers;

- Describe REC's wholesale power procurement model and how it comports with the proposed LP-DF structure;
- Summarize the regulatory background, including SCC rulings in Case Nos. PUR-2024-00015 and PUR-2024-00213, which affirmed REC's responsibility to serve large-load customers and approved its affiliate arrangement;
- Sponsor budgeted expenses for Hyperscale Energy Services (HES) and explain how these costs are incorporated into LP-DF; and
- Clarify the impact of recent legislation on REC's proposal in this proceeding.

Q. ARE YOU SPONSORING ANY EXHIBITS IN THIS PROCEEDING?

A. Yes. I am sponsoring REC Exhibit No. _ (BDD) Schedule 1, which presents budgeted expenses for Hyperscale Energy Services, LLC ("HES") as well as the calculation of the level of HES expense to be used by Cooperative witness Lyons in developing the LP-DF rate.

I. INTRODUCTION OF SUPPORTING WITNESSES

Q. IS THE COOPERATIVE PRESENTING OTHER WITNESS TESTIMONY TO SUPPORT ITS PETITION IN THIS PROCEEDING?

A. Yes, REC is presenting testimony from two additional witnesses: Jennifer B. Sebastian, Director of Rates and Regulatory Affairs at REC, and Timothy S. Lyons, Partner at ScottMadden, Inc. Cooperative Witness Sebastian sponsors the proposed Schedule LP-DF rate schedule and discusses its structure, including the methodology used to determine charges, cost recovery mechanisms, and the financial protections embedded in the tariff.

She will also provide an illustrative example of the rate's application to a large-load customer and explain the required agreements that will govern service to these customers. Cooperative Witness Lyons provides testimony on the development of the LP-DF rate, ensuring that it reflects cost causation principles and aligns with industry best practices. His testimony will outline the structure of the tariff, including its applicability to large-load customers, the primary terms of service, and the mechanisms used to track and allocate revenues and costs.

II. ECONOMIC OVERVIEW AND PROJECTED LOAD GROWTH

Q. PLEASE DESCRIBE THE ECONOMIC ENVIRONMENT IN REC'S SERVICE TERRITORY.

A. REC's service territory is experiencing significant economic expansion, largely due to the rapid growth of hyperscale data centers and large commercial developments. Virginia is the largest data center market in the world, with Northern Virginia accounting for 13% of all reported global data center operational capacity and 25% of capacity in the Americas region. Beyond Northern Virginia, new data center expansion is shifting into counties along the I-95 corridor and central Virginia, including areas within REC's service territory. This expansion is expected to have long-term economic impacts, with data centers contributing $9.1 billion annually to Virginia's GDP and supporting 74,000 jobs, most of which stem from construction and infrastructure investment. However, this growth also presents significant challenges for utilities such as Rappahannock when planning how to serve these exceptionally large-load customers.

Q. WHAT IS THE IMPACT ON LOAD GROWTH IN REC'S SERVICE TERRITORY?

A. The rapid expansion of hyperscale data centers, which consume substantially more electricity than traditional commercial or industrial operations, is the primary driver of REC's projected load growth over the coming years. According to the December 9, 2024 report of Virginia's Joint Legislative Audit and Review Commission ("JLARC"), individual hyperscale data centers are now being built with power loads exceeding 100 MW, while some data center campuses are projected to consume over 1,000 MW once fully built out.[1] JLARC's independent energy forecast projects that, within the next 10 years, power demand in Virginia could double, with data centers being the primary driver of that increase.[2] This represents a fundamental shift in load growth trends for the Cooperative's service territory, requiring REC to plan for scalable, predictable, and cost-recoverable service models for these large-load customers.

Q. HOW DOES REC'S PROJECTED LOAD GROWTH COMPARE TO HISTORIC TRENDS?

A. Historically, REC's peak demand has grown at a moderate and predictable rate, primarily driven by residential and small commercial load expansion. However, data centers and other hyperscale developments introduce an unprecedented step-change in energy demand, rather than the gradual, incremental growth seen in prior decades. For context, REC's 2023

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[1] Joint Legislative Audit and Review Commission, *Data Centers in Virginia*, at 27 (Dec. 9, 2024), https://jlarc.virginia.gov/pdfs/reports/Rpt598.pdf [hererinafter *JLARC Report*].

[2] *Id.*

peak demand was approximately 948 MW, while the load growth from proposed data center projects alone could exceed REC's existing system peak in the near term. This shift is reflected statewide, as Virginia's data centers currently consume approximately 5,050 MW of power—equivalent to the electricity needs of 2 million households.[3]

III. THE PROPOSED LARGE POWER DEDICATED FACILITIES RATE

Q. WHY IS A NEW RATE SCHEDULE LIKE LP-DF NECESSARY FOR REC?

A. REC has received strong, demonstrated interest from hyperscale data centers and other large-load customers that require significant, dedicated electric infrastructure. Traditional rate structures are not designed to accommodate loads of this magnitude. Given the scale, predictability, and financial exposure associated with hyperscale data center and similar loads, a structured rate like LP-DF is essential to provide appropriate cost recovery, system stability, and economic sustainability. Providing service to these large load customers requires substantial grid infrastructure upgrades and dedicated power procurement, and without a specialized rate these costs could be shifted onto existing REC members, putting upward pressure on rates. A structured tariff mitigates this risk by providing that large-load customers cover the costs associated with their service. Furthermore, as Virginia continues to position itself as a leading data center market, balancing this growth with responsible rate design is critical to maintaining long-term financial sustainability for REC and its

[3] JLARC Report at 5.

members. A well-structured tariff provides the necessary framework to support economic development while safeguarding the Cooperative's financial and operational integrity.

The Large Power – Dedicated Facilities (LP-DF) rate schedule provides such a structured, transparent, and financially sustainable mechanism for serving exceptionally large-load customers. Schedule LP-DF includes a customized rate structure that provides:

- Full Cost Recovery – Large-load customers pay for the infrastructure and power procurement costs they incur, preventing cost shift to existing REC members.
- Predictability & Investment Certainty – A capacity-based per-MVA charge allows customers to forecast long-term costs, reducing billing volatility compared to traditional volumetric distribution rates.
- Grid Stability & Resource Planning – A structured tariff provides certainty in planning infrastructure investments to serve these large loads while maintaining system reliability.
- Wholesale Power Procurement Alignment – Hyperscale data centers and other similar large load customers require customized power procurement strategies that are different arrangements than how REC obtains power supply for its traditional members.

Without LP-DF, REC would lack a structured approach to integrating large loads while maintaining fair and cost-based service to its existing membership.

Q. HOW DOES LP-DF PROTECT EXISTING REC MEMBERS FROM FINANCIAL RISK?

A. Schedule LP-DF ensures that large-load customers bear financial responsibility for the costs they impose on the system, minimizing cross-subsidization from existing REC members. This is particularly important given the significant infrastructure investments required to serve these customers. The JLARC Report highlights that data centers impose substantial infrastructure costs on utilities and that unstructured rate designs can create unintended financial burdens on other ratepayers.[4] LP-DF addresses this challenge by structuring charges based on contracted capacity (MVA) rather than variable energy usage, ensuring that cost recovery is directly tied to the electric demand for which the system is designed and constructed. In addition, large-load customers will be required to make upfront financial commitments for necessary system upgrades, reducing the risk of stranded costs if a customer fails to fully utilize its contracted capacity. Additionally, LP-DF separates power procurement and delivery costs to align with REC's wholesale power agreements, ensuring that these large-load customers are served in a financially sustainable manner. By implementing these measures, REC ensures that its traditional members are financially insulated from any potential negative externalities of the rapid expansion of data centers and other large-load customers.

[4] *See JLARC Report* at 45-54.

Q. WHY IS LP-DF STRUCTURED AS A PER-MVA CAPACITY CHARGE INSTEAD OF A TRADITIONAL RATE?

A. The LP-DF rate is structured as a per-MVA charge because large load dedicated facility customers have unique load characteristics that differ significantly from traditional customers. These facilities operate with high, stable, and predictable demand, making a demand-based rate structure more reflective of system costs. As I noted above, a per-MVA structure ensures that cost recovery is directly tied to the actual capacity needs of these customers rather than energy consumption alone. Unlike typical commercial customers, customers that qualify for LP-DF operate at consistently high load factors, meaning a typical rate based upon volumetric demand (kw) and energy usage (kwh) would not accurately reflect the infrastructure investments required to serve them. Schedule LP-DF avoids these volumetric pricing issues by establishing a fixed per-MVA charge, which provides cost predictability and allows data centers to budget more effectively. This approach reduces uncertainty related to monthly energy fluctuations and ensures that customers are charged in proportion to the grid resources they require. Additionally, LP-DF encourages efficient load usage by tying charges to contracted capacity, ensuring that customers optimize their infrastructure investments and do not overbuild power-intensive facilities without committed usage. The JLARC report highlights that other large-load industrial customers in Virginia have benefited from similar customized rate structures designed to reflect capacity-based cost recovery models.[5] LP-DF follows this approach

[5] *See JLARC Report* at 44-45.

while maintaining REC's financial integrity and ensuring that large-load customers contribute appropriately to the costs of serving their unique energy demands.

Q. HOW DOES LP-DF SUPPORT VIRGINIA'S ECONOMIC DEVELOPMENT GOALS?

A. Virginia has established itself as a global leader in data center development, with REC's service territory becoming an increasingly attractive location for hyperscale data center expansion. These facilities contribute billions of dollars to the state's GDP and generate high-paying jobs, tax revenue, and substantial infrastructure investment. However, while data centers provide significant economic benefits, unstructured load growth can create financial and operational risks for utilities, making a tailored rate structure essential to managing this expansion effectively. LP-DF supports Virginia's economic development goals by providing a clear and predictable rate structure that encourages investment while ensuring financial sustainability. The tariff allows REC to serve large-load customers competitively without shifting costs onto existing ratepayers, preserving affordability for cooperative members. Additionally, LP-DF ensures that infrastructure investments are justified and strategically aligned with REC's long-term system planning objectives, preventing unnecessary grid strain and stranded costs. Without LP-DF, REC would lack a viable and cost-effective solution for integrating large-load customers into its system. This could discourage economic investment in the Cooperative's service area by creating uncertainty around power availability and pricing for large-load customers. By implementing LP-DF, REC is ensuring that it remains a competitive, attractive destination

for economic development while maintaining financial stability and protecting its existing membership.

Q. HOW DOES LP-DF ENSURE LONG-TERM SUSTAINABILITY FOR REC?

A. The LP-DF rate is designed to create a sustainable framework that balances the needs of large-load customers, maintains REC's financial stability, and protects existing members. By ensuring that costs associated with serving large-load customers are recovered from those customers, LP-DF prevents cost shifts and maintains fair rates for REC's broader membership. This structure aligns with the Commission's traditional approach to setting rates, which emphasize cost-of-service methodologies and non-discriminatory rate structures. Additionally, LP-DF ensures that infrastructure investments are directly tied to long-term load commitments from large-load customers, preventing overbuilt capacity and stranded costs. This approach allows system expansion to occur responsibly and sustainably, supporting both REC's operational needs and the continued growth of Virginia's data center industry. As hyperscale data center development continues, LP-DF will serve as a scalable and flexible model that enables REC to integrate large-load customers into its system. The structured nature of the tariff ensures that new loads are managed in a way that preserves REC's long-term financial health while fostering economic growth in its service territory.

IV. POWER SUPPLY UNDER SCHEDULE LP-DF

Q. HOW DOES REC PROCURE WHOLESALE POWER TO SERVE ITS MEMBERS?

A. REC procures wholesale power through Old Dominion Electric Cooperative (ODEC), its generation and transmission (G&T) cooperative, under a long-term all-requirements Wholesale Power Contract (WPC). This contract generally provides power supply for all REC members, including residential, small commercial, and industrial customers. However, the unprecedented growth of hyperscale data centers and other large-load customers in REC's service territory has fundamentally changed the scale and nature of demand, creating challenges to serve these loads through the existing WPC . As discussed in Case No. PUR-2024-00015,

Q. HOW DOES REC'S WHOLESALE POWER CONTRACT WITH ODEC COMPORT WITH THE PROPOSED SCHEDULE LP-DF?

A. In Case No. PUR-2024-00213, REC provided detail on ODEC's Board of Directors' action to decline to provide power supply service for hyperscale data centers, requiring REC to secure alternative energy procurement arrangements for these exceptionally large loads. Schedule LP-DF is designed to work within this revised power supply structure by ensuring that hyperscale customers are served under a dedicated rate that fully aligns with REC's regulatory and financial framework. Under the proposed structure, wholesale power procurement for large-load customers will be completely separate from REC's ODEC-supplied load, insulating existing members from financial risk associated with large power procurement for LP-DF members. Power for LP-DF customers will be sourced through

REC's Dedicated Service Affiliates (DSAs)—including Hyperscale Energy 1 (HE1) and Hyperscale Energy 2 (HE2)—which procure energy directly from the wholesale market. This separation ensures that REC's traditional members remain insulated from the substantial power demands of data centers and other large load customers, while maintaining full compliance with REC's regulatory obligation to serve. Schedule LP-DF and the associated structure described in PUR-2024-00213 ensures that large-load customers pay their cost of service and infrastructure investment, preserving the cooperative's financial stability and adherence to cost-of-service principles established by the SCC.

V. REGULATORY BACKGROUND

Q. PLEASE DESCRIBE REC'S OBLIGATION TO SERVE CUSTOMERS IN ITS SERVICE TERRITORY.

A. As a Virginia electric cooperative, REC has a statutory obligation to serve all customers within its certificated service territory under Virginia Code § 56-231.34. This duty applies to all customer classes, including hyperscale data centers seeking to locate in REC's service area.

Q. HOW DID THE SCC PROCEEDING IN CASE NO. PUR-2024-00015 IMPACT REC'S SERVICE MODEL FOR LARGE-LOAD CUSTOMERS?

A. In Case No. PUR-2024-00015, REC petitioned the SCC for a declaratory judgment to determine whether it could meet its obligation to serve hyperscale loads through its affiliate, Hyperscale Energy Services (HES). The SCC ruled that while REC could utilize

an affiliate for wholesale power procurement, it remains the entity responsible for ensuring service to large-load customers. The Commission reaffirmed that REC could not fully meet obligation to serve under the VA Code through an affiliate and must ensure that service to hyperscale customers complies with cost-of-service principles and avoids cross-subsidization. This ruling clarified that REC must maintain regulatory oversight of service to hyperscale customers.

Q. HOW DOES LP-DF ENSURE COST ALLOCATION COMPLIANCE AND PREVENT CROSS-SUBSIDIZATION?

A. The SCC has consistently emphasized that the cost of serving hyperscale data centers must not be borne by REC's existing members. Both PUR-2024-00015 and PUR-2024-00213 made clear that large-load customers must be responsible for their cost of service, including infrastructure investments and power procurement. Schedule LP-DF ensures compliance by structuring power procurement separately from REC's ODEC-supplied load, meaning that wholesale energy costs for hyperscale customers are allocated exclusively to them. Additionally, LP-DF establishes a per-MVA capacity-based charge, ensuring that these customers pay for their infrastructure needs based on their contracted demand rather than through traditional volumetric rates, which do not reflect the fixed costs associated with serving high-load facilities. To further safeguard against financial risk, LP-DF requires upfront financial commitments from hyperscale customers for dedicated infrastructure investments, preventing stranded costs if a customer fails to fully utilize its contracted capacity. These measures ensure that service to hyperscale loads is fully self-sustaining, with no indirect cost impacts on REC's existing membership. The tariff is

designed to be both fair and transparent, ensuring that the financial obligations of large-load customers are clearly defined and that the cooperative remains financially stable as these customers integrate into REC's system.

Q. PLEASE DESCRIBE THE CONTENTS OF REC EXHIBIT NO. _ (BDD) SCHEDULE 1.

A. REC Exhibit No. _ (BDD) Schedule 1 presents the first year of budgeted expenses for Hyperscale Energy Services, LLC. This budget has been approved by the HES Board of Directors and details the projected expenses, associated with HES operation and part of REC's strategy for serving hyperscale customers.

Q. HOW DID YOU CALCULATE THE LEVEL OF HES EXPENSES TO BE INCLUDED BY WITNESS LYONS IN THE CALCULATION OF THE PROPOSED LP-DF RATE?

A. Using the HES 2025 budget, I calculated a level of HES expense based upon the forecasted capacity (in MVA) to be installed for LP-DF customers. Please see Exhibit No. _ (BDD) Schedule 1 for the calculation of the level of HES expense provided to Cooperative Witness Lyons.

Q. HOW DOES LP-DF ENSURE TRANSPARENCY AND REGULATORY ACCOUNTABILITY?

A. Several mechanisms will ensure compliance with the SCC's regulatory requirements and to provide transparency in cost recovery. Initially, the SCC has regulatory oversight of REC's affiliate procurement strategies, ensuring that the cooperative's power acquisition process for large-load customers remains fair, market-based, and aligned with regulatory

principles. In addition, REC has established internal cost tracking mechanisms to monitor infrastructure investments and power supply expenses associated with LP-DF customers. These tracking mechanisms allow REC to assess and confirm that cost recovery remains aligned with actual expenditures or propose appropriate changes in future proceedings. This will ensure that LP-DF operates within the framework of Virginia's cost-of-service regulatory model while maintaining REC's financial stability and accountability to its members.

Q. HOW DOES LP-DF SUPPORT REC'S LONG-TERM FINANCIAL STABILITY AND REGULATORY COMPLIANCE?

A. Schedule LP-DF is a critical component of REC's long-term strategy to manage hyperscale load growth while ensuring financial sustainability. By structuring the tariff to align with SCC-approved rate methodologies, LP-DF provides a scalable framework for REC to integrate large-load customers in a financially responsible manner. It enables REC to meet its legal obligation to serve while maintaining compliance with Virginia's cooperative utility regulations. The tariff ensures that REC's existing membership is protected from cost shifts, that hyperscale customers pay their full cost of service, and that power procurement is conducted transparently and in alignment with SCC oversight. Through LP-DF, REC is positioned to serve hyperscale customers in a way that promotes economic development while preserving the cooperative model. The tariff reflects a balanced approach that allows for continued system expansion without exposing REC's traditional members to financial uncertainty. By implementing this structured rate, REC ensures that

its cooperative business model remains financially sound, operationally stable, and fully compliant with regulatory expectations.

VI. ALIGNMENT WITH AND IMPACT OF RECENT LEGISLATION

Q. HOW DOES REC'S LP-DF PROPOSAL RELATE TO RECENTLY PASSED LEGISLATION REGARDING DATA CENTERS?

A. The passage of House Bill 2644 by the Virginia General Assembly, should it be signed by the Governor, will not directly impact REC's LP-DF proposal, nor will it influence the development or structure of Schedule LP-DF. Rather, the legislation provides an alternative framework for serving large load customers by allowing cooperative affiliates to provide power supply directly to these customers. This bill establishes that electric cooperative affiliates, rather than the cooperatives themselves, can take on the obligation to serve exceptionally large loads exceeding 90 megawatts. REC's Schedule LP-DF remains a separate and distinct approach designed to ensure that hyperscale loads receiving service from REC directly do so under a structured, cost-reflective rate. While HB 2644 may enable cooperatives to shift service responsibility for these loads to an affiliate, REC's current proposal in the instant proceeding maintains that large-load customers within its service territory remain under REC's regulatory framework through Schedule LP-DF. This tariff ensures that if REC, rather than an affiliate, provides retail service to these hyperscale customers, they fully cover their associated costs and do not shift financial risk onto existing cooperative members.

Q. HOW DOES THIS LEGISLATION AFFECT REC'S OBLIGATION TO SERVE HYPERSCALE LOADS?

A. Under Virginia law, electric cooperatives have traditionally been responsible for serving all customers within their certificated service territories. HB 2644 introduces a significant policy shift by allowing the obligation to serve hyperscale data centers to be borne by cooperative affiliates rather than the cooperatives themselves. This change provides cooperatives with an additional option for meeting the energy needs of large-load customers by transferring service responsibility to an unregulated affiliate. REC's Schedule LP-DF, as proposed in the instant proceeding, does not rely on or require this legislative change because it is structured to reflect the fact that REC bears the obligation to serve hyperscale loads and that those customers pay their full cost of service. However, the passage of HB 2644 may create a potential alternative for future large-load customers who may receive power supply service directly from an affiliate instead of REC. While this legislation does not modify or affect REC's LP-DF proposal in this proceeding, it may establish an alternative regulatory path for cooperative affiliates to supply hyperscale customers outside of traditional cooperative power supply rate structures.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Hyperscale Energy Services, LLC

Expense Type	2025 Budget	
Employee Salaries and Benefits	$1,008,825	
Office Expenses	$74,686	
Professional Fees	$480,937	
Computer Information System	$99,600	
Other expenses	$47,715	
Insurance	$68,446	
Board compensation	$234,000	
Total	$2,014,209	A

Two Year Forecasted Installed Capacity	MVA	
2025	99	
2026	894	
Average	496.5	B

Installed Capacity Rate Billing Determinants	298		C
Level of HES Expense included in Installed MVA Rate	$	1,208,000	A* (C/B)

REC Exhibit No. ____
Witness: JBS

DIRECT TESTIMONY OF
JENNIFER B. SEBASTIAN
FOR RAPPAHANNOCK ELECTRIC COOPERATIVE
IN VIRGINIA S.C.C. CASE NO. PUR-2025-00048

REC Exhibit No. ____
Witness: JBS

SUMMARY OF DIRECT TESTIMONY OF JENNIFER B. SEBASTIAN

In my direct testimony, I

- Provide an overview of the Schedule LP-DF; that has been developed to recover the costs associated with providing service to certain large-load, high load factor customers
- Provide a sample distribution rate calculations for a customer served under the proposed Schedule LP-DF; and
- Discuss the key elements of the customer agreements required by Schedule LP-DF.

REC Exhibit No. ____
Witness: JBS

DIRECT TESTIMONY OF
JENNIFER B. SEBASTIAN
FOR RAPPAHANNOCK ELECTRIC COOPERATIVE
IN VIRGINIA S.C.C. CASE NO. PUR-2025-00048

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is Jennifer B. Sebastian. My business address is 247 Industrial Court, Fredericksburg, Virginia 22408. I am employed by Rappahannock Electric Cooperative ("REC" or "Cooperative") as Director of Rates and Regulatory Affairs.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I received my Bachelor of Science degree in Economics from St. Bonaventure University in 1991. In 1991, my professional career began as a Research Assistant for Moody's Investors Services in New York, New York. In 1994, I accepted the position of Cash Management Analyst at Resource Mortgage Capital, Inc. located in Glen Allen, Virginia. I was primarily responsible for the daily reconciliation of cash accounts and daily borrowing activity for the real estate investment trust. In 1996, I accepted the position of Cash Manager for the mortgage operating division, which was later sold to Dominion Capital, Inc. In 1999, I was promoted to Assistant Treasurer where my primary duties included bank facility negotiation and bank facility compliance. In 2001, I assisted in the treasury responsibilities necessary for the mortgage operating division to become a publicly traded corporation. In 2002, I was promoted to Treasurer of Saxon Capital, Inc. and was accountable for liquidity reporting, cash forecasting, treasury controls, corporate capital requirements and cash account reconciliations. In 2008, Saxon Capital was acquired and as a result, I oversaw the treasury activities necessary to facilitate this transition. In 2008,

I accepted the position of Regulatory Consultant with the Appalachian Power Company ("APCo"). From 2008-2022, I held various regulatory positions of increasing responsibility at APCo. In 2022, I accepted the position of Director of Rates and Regulatory Affairs with –the Cooperative, my current position.

Q. WHAT ARE YOUR PRINCIPAL AREAS OF RESPONSIBILITY?

A. My principal areas of responsibility include development of rate structures for innovative Cooperative programs, quantitative analysis of regulatory matters, preparation of specific Commission case filings and investigation of regulatory matters.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY AS A WITNESS BEFORE ANY REGULATORY COMMISSION?

A. Yes. Since 2011, I have submitted testimony in numerous Virginia base rate and rate adjustment clause cases.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to:

- Provide an overview of Schedule LP-DF; that has been developed to recover the costs associated with providing service to certain large-load, high load factor customers;
- Provide a sample distribution rate calculations for a member served under the proposed Schedule LP-DF; and
- Identify the key elements of the customer agreements required by Schedule LP-DF.

Q. ARE YOU SPONSORING ANY EXHIBITS IN THIS PROCEEDING?

A. Yes.

- REC Exhibit No._ (JBS) Schedule 1-Sample LP-DF Distribution Rate Calculations

Q. WHY IS THE COOPERATIVE PRESENTING SCHEDULE LP-DF FOR COMMISSION APPROVAL AT THIS TIME?

A. As described in more detail by Cooperative Witness Doherty and Witness Lyons, over the past few years REC has seen increased activity and interest among large load customers within its historically rural territory. Once operational, these new customers will significantly increase REC's retail load. In addition, because of the service requirements of customers of this size, who are served from dedicated facilities, will require substantial transmission and distribution infrastructure investments and other long-term financial commitments to provide service. The magnitude of demand for electricity associated with these customers is unprecedented and unlike any previous load additions REC has experienced to date. As REC anticipates multiple large load customers will begin taking electric service later this calendar year, it is imperative to provide a consistent rate structure for large load customers taking service from the Cooperative. The proposed rate schedule has been developed to recognize the different needs and unique risks that each large load customer presents when compared to the existing customers served by the Cooperative.

Q. WILL SCHEDULE LP- DF REPLACE ANY EXISTING RATE SCHEDULE?

A. No, the Schedule LP-DF will not replace any existing rate schedule. It will, however, establish a new class of customer that has been identified with different load characteristics and, as a result, different cost of service requirements.

Q. PLEASE ELABORATE ON THE LOAD CHARACTERISTICS THAT ARE USED TO DETERMINE THE APPLICABILITY OF SCHEDULE LP-DF.

A. As discussed above, Schedule LP-DF is designed for service to very large, high load factor customers with dedicated facilities. Service to these customers generally includes the following characteristics:

- Round the clock (24/7) load with reduced flexibility to curtail;
- Significant upfront investment in distribution (including a dedicated substation) and transmission infrastructure to service each site;
- Potential for stranded costs and uncertainty regarding whether a future customer would be able to utilize dedicated facilities where the original customer for which the facilities were built stops taking service for any reason;
- Eligibility to shop for generation supply in the future, in which case the Cooperative has a continuing obligation to provide default power supply for these large load power supply customers should they stop receiving service from a competitive supplier.

Q. WHAT ARE THE REQUIREMENTS THAT WOULD DETERMINE WHETHER A CUSTOMER WOULD BE SERVED UNDER SCHEDULE LP-DF?

A. As proposed, the LP-DF rate schedule would apply to customers that fulfill the following conditions:

- The customer is served by the Cooperative by dedicated substation facilities designed by the Cooperative to facilitate customer's large demands, and

- The customer is served at a delivery voltage of thirty-four and one half (34.5) kV or greater where service is: i) from the low voltage side of dedicated substation facilities served from a one hundred fifteen (115) kV or higher transmission delivery point, or ii) from dedicated sub-transmission or primary distribution facilities emanating directly from a Cooperative delivery point served from a low side of one hundred fifteen (115) kV or higher transmission delivery source; and
- The customer's contracted billing demands exceed 25MW
- The customer must maintain an average annual load factor of 75%

Q. PLEASE DESCRIBE THE DISTRIBUTION CHARGES ASSOCIATED WITH THE LP-DF RATE SCHEDULE.

A. As detailed in the testimony of Cooperative Witness Lyons, the distribution rates and charges under Schedule LP-DF are set based on the Cooperative's cost of providing service to such customers and are designed to ensure the Cooperative's rates remain competitive with other utilities for such loads. Schedule LP-DF includes: 1) a per MVA service charge based on the total substation MVA relative to the number of customers associated with each substation 2) installed MVA charges associated with delivery service and 3) potential excess facilities charges. These charges are designed to ensure that the Cooperative will collect delivery revenues sufficient to recover the cost of distribution services provided to customers under Schedule LP-DF and support any investment in delivery facilities made by REC to connect customers to its system.

Q. HAVE YOU DEVELOPED AN EXAMPLE OF HOW THE DISTRIBUTION CHARGES WOULD BE CALCULATED?

A. Yes, Exhibit No._ (JBS) Schedule 1 calculates the monthly bill for two scenarios:

1) A sample customer that has an installed capacity of 298 MVA and redundant (excess facilities) capacity of 298 MVA.

2) A sample customer that is one of two customers in a dedicated substation facility with total installed capacity of 298 MVA.

Q. REGARDING THE SECOND SCENARIO IN YOUR SCHEDULE 1, HOW CAN TWO CUSTOMERS BE ASSOCIATED WITH ONE DEDICATED SUBSTATION FACILITY?

A. One example might be a colocation facility, often called a "colo." This is a facility where multiple businesses house their servers and other IT equipment, benefiting from shared infrastructure and resources like power, cooling, and security, instead of managing their own data center infrastructure. Under such a scenario; it is possible that the substation may provide service to more than one customer where two tenants are separately metered. As a result, and as further described by Witness Lyons, the service charge has been developed in Schedule LP-DF to ensure that costs associated with multiple customers are recovered appropriately under such circumstances.

Q. WILL CUSTOMERS BE REQUIRED TO ENTER INTO ADDITIONAL AGREEMENTS ASSOCIATED WITH SERVICE UNDER SCHEDULE LP-DF?

A. Yes, as detailed in the LP-DF Rate Schedule, customers will be required to enter into an Electric Service Agreement ("ESA") and Power Supply Agreement ("PSA"). The ESA

will govern the arrangement for the customer's electric distribution service. The PSA will govern the arrangement for the customer's electricity supply service.

Q. WHY WILL A POWER SUPPLY AGREEMENT WITH REC BE REQUIRED?

A. Initially under Schedule LP-DF, very large, high load factor customers will receive electric supply service from the Cooperative. REC will receive the necessary power supply to serve each customer from a dedicated service affiliate that will obtain the power supply from the PJM market at market-based rates under the arrangement approved by the Commission in Case No. PUR-2024-00213. REC will directly pass through the cost of obtaining power on behalf of the customer through a power supply agreement with each customer.[1] The power supply service will reflect pricing in the PJM Interconnection, LLC, wholesale market. Once a customer satisfies the requirements of § 56-577 A (3), they may elect to receive power supply from a competitive service provider.

Q. WHAT ARE SOME OF THE KEY CRITERIA TO BE ESTABLISHED WITHIN THE CUSTOMER'S ELECTRIC SUPPLY AGREEMENT ("ESA")?

A. As noted above, Schedule LP-DF requires that each customer enter into an ESA to govern the basic service requirements for that specific customer. Each ESA will address, among other topics, the following criteria:

[1] REC will execute a specific Wholsale Power Contract between REC and a dedicated service affiliate ("DSA") following execution of a power supply agreement ("PSA") between the Cooperative and each individual Customer pursuant to the Cooperative's Rate Schedule LP-DF. This will allow REC and the dedicated service affiliate to ensure that each Wholesale Power Contract appropriately reflects the power supply service requirements of each Customer (e.g participation levels in the PJM real time market vs. the PJM day ahead market and collateral requirements to support the specific Customer's load requirements relative to their power supply billing cycle) to which the specific dedicated service affiliate will be dedicated.

1) A term for distribution service that shall be negotiable between the customer and the Cooperative, provided such term shall be structured to recover the full cost of distribution and/or sub-transmission plant investment, maintenance and operation.

2) Collateral support to be provided by the customer as required by the Cooperative in accordance with REC's policies and commensurate with each customer's distribution and transmission facility requirements, the customer's credit rating(s) and the frequency of the customer's billing cycle.

3) Clear provisions for termination under an event of default to ensure REC is never at risk of being obliged to continue to deliver (and incur the costs of) power service to a large-use customer in the event of default, nonpayment, insufficient collateral, or other financial or physical system emergencies.

Q. WHY IS IT APPROPRIATE TO ESTABLISH ADDITIONAL COLLATERAL REQUIREMENTS AND CLEAR PROVISIONS FOR SERVICE TERMINATION UNDER AN EVENT OF DEFAULT FOR THESE CUSTOMERS?

A. The ESA ensures that REC has reasonable terms and conditions of service in place that are tailored to address the unique needs and risks that large load customers present. These risks must be managed carefully to avoid unintended financial burdens on other co-op members and the Cooperative itself. Without these terms, the potential for shifting costs from large customers to existing REC customers could undermine the financial stability of REC and quickly erode member trust.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Rappahannock Electric Power Company
Large Power - Dedicated Facilities
Rate Schedule: LP-DF
Proposed Effective Date 7/01/25

Scenario 1

Installed capacity of 298 MVA and redundant (excess facilities) capacity of 298 MVA.

On-Peak Demand (MW):	268		
MWh Usage:	156,629		80%
Excess MVAR	-117		99.8%
Billing Parameters			
Energized Installed Capacity (MVA)	298		
Excess Facilities (Redundant) Capacity	298	CIAC	$27,000,000

	Standard Tariff Billing-Monthly					
Distribution Electric Service Billing	**Units**			**Rates**		**Tariff Billing**
Service Charge	298	MVA	x $	529.19	/MVA	$ 157,699
Delivery Service Charge	298	MVA	x $	874.04	/MVA	$ 260,464
Excess Facilities Charge	27,000,000	$	x	0.92%		$ 248,400
Distribution Monthly Rate Total						**$ 666,563**

Scenario 2

Customer that is one of two customers in a co-location facility with **total** installed capacity of 298 MVA

On-Peak Demand (MW):	134		
MWh Usage:	78,314		80%
Excess MVAR	-59		99.8%
Billing Parameters			
Energized Installed Capacity (MVA)	149		

	Standard Tariff Billing-Monthly					
Distribution Electric Service Billing	**Units**			**Rates**		**Tariff Billing**
Service Charge	149	MVA	x $	1,058.38	/MVA	$ 157,699
Delivery Service Charge	149	MVA	x $	874.04	/MVA	$ 130,232
Distribution Monthly Rate Total						**$ 287,931**

REC Exhibit No. ____
Witness: TSL

DIRECT TESTIMONY OF
TIMOTHY S. LYONS
FOR RAPPAHANNOCK ELECTRIC COOPERATIVE
IN VIRGINIA S.C.C. CASE NO. PUR-2025-00048

REC Exhibit No. ____
Witness: TSL

Summary of DIRECT Testimony of TIMOTHY S. LYONS

In my testimony, I:

- Sponsor the Cooperative's proposed Large Power-Dedicated Facilities ("LP-DF") rate. The LP-DF rate recovers the cost of providing electric service to members with exceptionally high demand and high load factor served from dedicated, high-voltage electric facilities.
- Describe development of the LP-DF rate.

DIRECT TESTIMONY OF

TIMOTHY S. LYONS

FOR RAPPAHANNOCK ELECTRIC COOPERATIVE

IN VIRGINIA S.C.C. CASE NO. PUR-2025-00048

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Timothy S. Lyons. I am a Partner with ScottMadden, Inc. My business address is 1 Speen Street, Suite 150, Framingham, Massachusetts 01701.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this testimony on behalf of Rappahannock Electric Cooperative ("REC" or the "Cooperative") before the State Corporation Commission of Virginia (the "Commission").

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A. I have more than 30 years of experience in the utility industry. I started my career in 1985 at Boston Gas Company, eventually becoming Director of Rates and Revenue Analysis. In 1993, I moved to Providence Gas Company, eventually becoming Vice President of Marketing and Regulatory Affairs. Starting in 2001, I held a number of management consulting positions in the energy industry first at KEMA and then at Quantec, LLC. In 2005, I became Vice President of Sales and Marketing at Vermont Gas Systems, Inc. before joining Sussex Economic Advisors, LLC ("Sussex") in 2013. ScottMadden acquired Sussex in 2016.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I hold a bachelor's degree from St. Anselm College, a master's degree in economics from The Pennsylvania State University, and a master's degree in business administration from Babson College.

Q. HAVE YOU PREVIOUSLY SPONSORED TESTIMONY BEFORE THE STATE CORPORATION COMMISSION OF VIRGINIA (THE "COMMISSION")?

A. Yes. I have previously sponsored testimony before more than 30 U.S. and Canadian regulatory agencies. A summary of my professional experience and education is included in REC Exhibit No. _ (TSL) Schedule 1.

Q. ARE YOU SPONSORING ANY EXHIBITS IN THIS PROCEEDING?

A. Yes.

- REC Exhibit No. _ (TSL) Schedule 1 - Qualifications
- REC Exhibit No._ (TSL) Schedule 2 - Derivation of Proposed LP-DF Rate
- REC Exhibit No._ (TSL) Schedule 3 - Derivation of Excess Facilities Charge

I. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to sponsor the Cooperative's proposed Large Power-Dedicated Facilities ("LP-DF") rate. The LP-DF rate recovers the cost of providing electric service to members with exceptionally high demand and high load factor served from dedicated, high-voltage electric facilities. The testimony describes the development of the LP-DF rate.

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. The Cooperative plans to provide electric service to new members with a contracted billing demand that exceeds 25MW and exceptionally high load factor of at least 75.00 percent from dedicated, high-voltage electric facilities under a new tariff, Schedule LP-DF. None of the Cooperative's current tariffs are based on electric service for such exceptionally high demand and high load factor from dedicated, high-voltage electric facilities.

The proposed LP-DF rate reflects the Cooperative's cost of providing electric service to members with dedicated facilities, exceptionally high demand and high load factor, including the cost of capital investments and operations and maintenance ("O&M") expenses.

The Cooperative plans to track all directly assignable revenues, expenses, and capital investments related to service under Schedule LP-DF.

In addition, the Cooperative plans to assign and allocate costs to Schedule LP-DF within the Class Cost of Service Study ("COSS") in the Cooperative's next rate case filing. The results of the COSS will be used to identify and adjust, as necessary, the LP-DF rate to ensure it meets the rate design objectives discussed below.

II. SUMMARY OF LP-DF RATE

Q. PLEASE SUMMARIZE THE LP-DF RATE.

A. The LP-DF rate is applicable to members served under Schedule LP-DF. The LP-DF rate was designed to reflect the unique service requirements and cost of service

associated with members served under Schedule LP-DF. Specifically, the LP-DF rate was designed to:

- Recover the Cooperative's cost of providing electric service to members served under Schedule LP-DF;
- Ensure the Cooperative's other members do not subsidize members served under Schedule LP-DF; and
- Compensate the Cooperative and its members for the economic value provided by the Cooperative's existing electric system, without which service under Schedule LP-DF would not be possible. The LP-DF rate also compensates the Cooperative and its members for financial and operational risks of providing electric service under Schedule LP-DF.

Q. IN WHAT WAY ARE THE SERVICE REQUIREMENTS UNDER SCHEDULE LP-DF UNIQUE RELATIVE TO THE COOPERATIVE'S OTHER TARIFFS?

A. The service requirements under Schedule LP-DF are unique in the following ways:

- **Exceptionally High Demand and High Load Factor:** Service under Schedule LP-DF is limited to members who have dedicated facilities, contracted billing demand that exceeds 25MW, and load factor is at least 75.00 percent. None of the Cooperative's current tariffs are based on electric service having such exceptionally high demand and load factor.
- **Dedicated Facilities:** Service under Schedule LP-DF is limited to members served by dedicated facilities capable of providing electric service to Schedule LP-DF. None of the Cooperative's current tariffs are based on electric service having such dedicated facilities.

Q. DID THE COOPERATIVE CONSIDER UTILIZING SCHEDULE LP-3 TO SERVE EXCEPTIONALLY HIGH DEMAND, HIGH LOAD FACTOR MEMBERS?

A. No. Service requirements for members with exceptionally high demand, high load factor are substantially different than for members served under the Schedule LP-3, "Large Power Substation Direct Service" tariff.

Q. WHAT PRINCIPLES WERE USED TO GUIDE DEVELOPMENT OF THE SCHEDULE LP-DF RATE DESIGN?

A. The Schedule LP-DF rate design was guided by several principles:

1. Revenue Sufficiency: The LP-DF rate was designed to recover the Cooperative's overall cost of providing service to members served under Schedule LP-DF.
2. Cost Causation: The LP-DF rate was designed to ensure members served under Schedule LP-DF do not subsidize the Cooperative's other members. Specifically, the LP-DF rate was designed to reflect the cost of providing service under Schedule LP-DF, including costs related to capital investment and O&M expenses.
3. Contribution Margin: The LP-DF rate was designed to compensate the Cooperative and its members for the economic value provided by the Cooperative's existing electric system, without which service under Schedule LP-DF would not be possible. The LP-DF rate also compensates the Cooperative and its members for financial and operational risks of providing electric service under Schedule LP-DF.

III. LP-DF RATE

Q. PLEASE SUMMARIZE THE PRIMARY COMPONENTS OF THE LP-DF RATE.

A. The LP-DF rate consist of three charges: (1) delivery service charge, (2) service charge, and (3) excess facilities charge.

1. Delivery Service Charge

Q. WHAT IS THE PURPOSE OF THE DELIVERY SERVICE CHARGE?

A. The delivery service charge recovers the Cooperative's cost of providing delivery service to members served under Schedule LP-DF.

Q. WHAT COSTS ARE INCLUDED IN THE DELIVERY SERVICE CHARGE?

A. The delivery service charge includes direct and indirect costs as well as a contribution to margin.

1. Direct costs include the cost of designing, permitting, construction, and installation of dedicated facilities, as well as O&M expenses and property taxes associated with the dedicated facilities.
2. Indirect costs include general plant, administrative and general ("A&G") expenses, and materials, supplies, and prepayments.
3. Contribution margin includes compensation to the Cooperative and its members for the economic value provided by the Cooperative's existing electric system. The LP-DF rate also compensates the Cooperative and its members for financial and operational risks of providing electric service under Schedule LP-DF.

Q. WOULD YOU PLEASE PROVIDE ADDITIONAL DETAIL ON THE COSTS THAT ARE INCLUDED IN THE DELIVERY SERVICE CHARGE?

A. Yes. Costs included in the delivery service charge are related to capital investments and O&M expenses associated with service under Schedule LP-DF. The costs are summarized in Figure 2 (below).

Figure 2: Summary of Costs Included in the LP-DF Rates

Item	Description
Substation-related Expenses	Direct labor and expenses related to operations and maintenance of dedicated facilities
Administrative and General – Labor	Indirect expenses related to labor including benefits and taxes
Administrative and General – Plant Investment	Indirect expenses related to plant investment
Depreciation	Depreciation expense related to the Cooperative's investment in General Plant facilities
Property Taxes	Property taxes on dedicated and General Plant facilities
Interest Expense	Interest expense on General Plant facilities
Return Requirement	Return requirement on General Plant facilities
Contribution Margin	Compensation for value of existing electric system and financial and operational risks

Q. DOES THE DELIVERY SERVICE CHARGE PROVIDE FOR SAFEGUARDS TO PROTECT THE COOPERATIVE AND ITS MEMBERS?

A. Yes. The delivery service charge is premised on two safeguards: 1) an upfront Contribution-in-aid-of-Construction ("CIAC"); and 2) inclusion of a contribution margin.

Q. HOW DOES THE CIAC SERVE AS A SAFEGUARD?

A. Members served under Schedule LP-DF are required to pay a CIAC to fund the Cooperative's initial investment in dedicated facilities. The CIAC represents full reimbursement for the Cooperative's initial investment in the dedicated facilities. Consequently, the cost of service under Schedule LP-DF does not include a return of invested capital in the dedicated facilities. However, the LP-DF rate does reflect the Cooperative's investments in General Plant facilities, such as vehicles and buildings.

Q. HOW DOES CONTRIBUTION MARGIN SERVE AS A SAFEGUARD?

A. Contribution margin compensates the Cooperative and its members for the economic value provided by the Cooperative's existing electric system, without which service under Schedule LP-DF would not be possible. The contribution margin also compensates the Cooperative and its members for the financial and operational risks of providing service under Schedule LP-DF.

The contribution margin in the initial LP-DF rate is based on the Cooperative's rate of return in its most recent rate case in Case No. PUR-2024-00132.

Q. WHAT IS THE PROPOSED DESIGN OF THE DELIVERY SERVICE CHARGE?

A. The delivery service charge is designed as a demand charge based on installed Megavolt-Amperes("MVA"). Derivation of the delivery service charge is presented in REC Exhibit No._ (TSL) Schedule 2.

Q. WHAT ARE THE BENEFITS OF DESIGNING THE DELIVERY SERVICE CHARGE AS A DEMAND CHARGE?

A. Designing the delivery service charge as a demand charge offers several key benefits:

- Cost Recovery: Demand charges help ensure costs are recovered regardless of actual kWh deliveries.
- Revenue and Bill Stability: Demand charges help stabilize the Cooperative's revenue stream and member bills, mitigating potential revenue volatility associated with fluctuating energy consumption.
- Consistent with Past Commission Decisions: Demand charges are generally consistent with similar large power tariffs approved by the Commission. For example, demand charges are used in Mecklenburg Electric Cooperative's ("MEC") Large Power Contract Rate and Northern Virginia Electric Cooperative's ("NOVEC") Large Power Dedicated Facilities Contract Service.[1]

2. Service Charge

Q. WHAT IS THE PURPOSE OF THE SERVICE CHARGE?

A. The service charge recovers the Cooperative's cost of providing customer services to members served under Schedule LP-DF.

Q. WHAT COSTS ARE INCLUDED IN THE SERVICE CHARGE?

A. The service charge includes direct and indirect costs associated with providing customer services to members served under Schedule LP-DF.

1. Direct costs include (a) HES costs, direct labor and expenses related to meeting the Cooperative's obligation to provide supply service to members served under

[1] MEC Large Power Contract Rate, Case No. PUR-2021-00059, Approved December 14, 2021; NOVEC Large Power Dedicated Facilities Contract Service, Case No. PUR-2018-00165, Approved March 19, 2019

Schedule LP-DF, and (b) customer account and service costs, direct labor and expenses related to billing, customer accounting, and customer service.

2. Indirect costs include A&G expenses related to the direct costs.

Q. WHAT IS THE PROPOSED DESIGN OF THE SERVICE CHARGE?

A. The service charge is designed as a demand charge based on installed MVA, adjusted to reflect the number of members served by each substation since customer service costs are driven by the number of members served. Derivation of the service charge is presented in REC Exhibit No._ (TSL) Schedule 2.

3. <u>Excess Facilities Charge</u>

Q. WHAT IS THE PURPOSE OF THE EXCESS FACILITIES CHARGE?

A. The Excess Facilities charge is designed to recover the Cooperative's capital investments and O&M expenses that exceed those recovered through the delivery service charge.

The delivery service charge, for example, is based on a capital investment of $27.0 million and capacity demand of 298 MVA. To the extent member requirements exceed those contained in the delivery service charge, then the incremental capital investment will be recovered through the Excess Facilities charge.

Q. WHAT IS THE PROPOSED DESIGN OF THE EXCESS FACILITIES CHARGE?

A. The proposed design of the Excess Facilities charge is a fixed fee that reflects a carrying charge applied to the incremental capital investment. Derivation of the Excess Facilities charge is presented in REC Exhibit No._ (TSL) Schedule 3.

IV. FUTURE ADJUSTMENTS TO SCHEDULE LP-DF

Q. HOW DOES THE COOPERATIVE INTEND TO MONITOR THE RATE UNDER SCHEDULE LP-DF AS CUSTOMERS COME ONLINE?

A. The Cooperative intends to identify and track all directly assignable revenues, expenses, and capital expenditures associated with service under Schedule LP-DF as customers come online and begin taking service under the rate schedule.

Q. WHAT OPPORTUNITIES EXIST TO ADJUST THE LP-DF RATE TO REFLECT CHANGES IN THE COST OF PROVIDING SERVICE?

A. The Cooperative proposes in its next rate case filing to assign and allocate costs to Schedule LP-DF, as applicable, in the Cooperative's Class Cost of Service Study ("COSS"). The COSS will be used to identify, as necessary, adjustments to the LP-DF rate to ensure it meets the rate design objectives discussed earlier.

V. CONCLUSIONS

Q. WHAT ARE YOUR CONCLUSIONS?

A. The LP-DF rate was designed to reflect the unique service requirements and cost of service associated with members served under Schedule LP-DF. Specifically, the LP-DF rate was designed to:

- Recover the Cooperative's cost of providing electric service to members served under Schedule LP-DF;
- Ensure the Cooperative's other members do not subsidize members served under Schedule LP-DF; and

- Compensate the Cooperative and its members for the economic value provided by the Cooperative's existing electric system, without which service under Schedule LP-DF would not be possible. The LP-DF rate also compensates the Cooperative and its members for financial and operational risks of providing electric service under Schedule LP-DF.

Q. DOES THE CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Summary of Qualifications

Tim Lyons is a partner with ScottMadden with more than 30 years of experience in the energy industry. Tim has held senior positions at several gas utilities and energy consulting firms. His experience includes rates and regulatory support, sales and marketing, customer service and strategy development. Prior to joining ScottMadden, Tim served as Vice President of Sales and Marketing for Vermont Gas. He has also served as Vice President of Marketing and Regulatory Affairs for Providence Gas Company, Director of Rates at Boston Gas Company, and Project Director at Quantec, LLC, an energy consulting firm.

Tim has sponsored testimony before more than 30 U.S. and Canadian regulatory agencies. Tim holds a bachelor's degree from St. Anselm College, a master's degree in economics from The Pennsylvania State University, and a master's degree in business administration from Babson College.

Areas of Specialization

- Regulation and Rates
- Retail Energy
- Utilities
- Natural Gas

Capabilities

- Regulatory Strategy and Rate Case Support
- Strategic and Business Planning
- Capital Project Planning
- Process Improvements

Articles and Speeches

- "Country Strong: Vermont Gas shares its comprehensive effort to expand natural gas service into rural communities." ***American Gas Association***, June 2011 (with Don Gilbert).
- "Talking Safety With Vermont Gas." ***American Gas Association***, February 2009 (with Dave Attig).
- "Consumers Say 'Act Now' To Stabilize Prices." ***Power & Gas Marketing***, September/ October 2001 (with Jim DeMetro and Gerry Yurkevicz).
- "Rate Reclassification: Who Buys What and When." ***Public Utilities Fortnightly***, October 15, 1991 (with John Martin).

Sponsor	Date	Docket No.	Subject
Regulatory Commission of Alaska			
Cook Inlet Natural Gas Storage Alaska, LLC	7/21	Docket No. U-21-058	Sponsored testimony supporting the lead-lag study/cash working capital requirement for a general rate case proceeding.
ENSTAR Natural Gas Company	06/16	Docket No. U-16-066	Adopted and sponsored testimony supporting a lead-lag study for a general rate case proceeding.
Arizona Corporation Commission			
Southwest Gas Corporation	02/24	Docket No. G-01551A-23-0341	Sponsored testimony supporting class cost of service, rate design and bill impact analysis for a general rate case proceeding.
Southwest Gas Corporation	12/21	Docket No. G-01551A-21-0368	Sponsored testimony supporting class cost of service, rate design and bill impact analysis for a general rate case proceeding.
Arkansas Public Service Commission			
Summit Utilities, Inc.	01/24	Docket No. 23-079-U	Sponsored testimony supporting class cost of service, rate design and bill impact analysis for a general rate case proceeding.
Liberty Utilities (The Empire District Electric Company)	2/23	Docket No. 22-085-U	Sponsored testimony supporting the class cost of service, rate design, bill impact studies, and revenue decoupling for a general rate case proceeding.
Liberty Utilities (Pine Bluff Water)	10/18	Docket No. 18-027-U	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding.
California Public Utilities Commission			
Liberty Utilities (CalPeco Electric)	9/24	Application No. 24-09-010	Sponsored testimony supporting the marginal cost study, rate design and bill impact analysis for a general rate case proceeding.
Liberty Utilities (Apple Valley Water)	01/24	Application No. 24-01-0003	Sponsored testimony supporting rate design studies for a general rate case proceeding.
Liberty Utilities (Park Water)	01/24	Application No. 24-01-0002	Sponsored testimony supporting rate design studies for a general rate case proceeding.
Bear Valley Electric Service, Inc.	10/22	Application No. 22-08-010	Sponsored testimony supporting marginal cost study, rate design and bill impact analysis for a general rate case proceeding.
Liberty Utilities (CalPeco Electric)	5/21	Application No. 21-05-017	Sponsored testimony supporting the lead-lag study/cash working capital, marginal cost study, rate design and bill impact analysis for a general rate case proceeding.
Southwest Gas Corporation (Southern California, Northern California, and South Lake Tahoe jurisdictions)	8/19	Application No. 19-08-015	Sponsored testimony on behalf of three separate rate jurisdictions supporting revenue requirements, lead-lag/ cash working capital, and class cost of service, rate design and bill impact analysis for a general rate case proceeding.
Colorado Public Utilities Commission			
Colorado Natural Gas (Summit Utilities)	01/24	Proceeding No. 23A-0570G	Sponsored the Fully Distributed Cost (FDC) study in support of a Cost Assignment and Allocation Manual (CAAM) application.
Connecticut Public Utilities Regulatory Authority			
Yankee Gas Company	07/14	Docket No. 13-06-02	Sponsored report and testimony supporting the review and evaluation of gas expansion policies, procedures, and analysis.
Delaware Public Service Commission			
Tidewater Utilities, Inc	08/24	Docket No. 24-0991	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding.
Artesian Water Company	04/23	Docket No. 23-0601	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding.
Illinois Commerce Commission			

Sponsor	Date	Docket No.	Subject
Ameren Illinois Company d/b/a Ameren Illinois	6/24	Docket 22-0487/ 23-0082/ 24-0238 (cons.)	Sponsored rebuttal testimony supporting a marginal cost study for a Multi-Year Integrated Grid Plan (Grid Plan) proceeding.
Liberty Utilities (Midstates Natural Gas)	12/23	Docket No. 23-0380	Sponsored testimony supporting cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Ameren Illinois Company d/b/a Ameren Illinois	1/23	Docket No. 22-0487	Sponsored testimony supporting a Multi-Year Integrated Grid Plan (Grid Plan). Prepared research and analysis evaluating the reasonableness of the Grid Plan through comparison to how other electric utilities have responded to the changing energy landscape.
Liberty Utilities (Midstates Natural Gas)	07/16	Docket No. 16-0401	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding. The testimony includes proposal for new commercial classes and a decoupling mechanism.
Iowa Utilities Board			
Liberty Utilities (Midstates Natural Gas)	07/16	Docket No. RPU-2016-0003	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding. The testimony includes proposal for new commercial classes.
Kansas Corporation Commission			
The Empire District Electric Company	12/18	Docket No. 19-EPDE-223-RTS	Sponsored testimony supporting cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Kentucky Public Service Commission			
Bluegrass Water Utility (Central States Water Company)	02/23	Case No. 2022-00432	Sponsored testimony supporting the rate design and bill impact studies for a general rate case proceeding.
Maine Public Utilities Commission			
Maine Water Company	12/24	Docket No. 2024-00378	Sponsored testimony supporting a two-phased approach to consolidate or unify rate schedules for 10 water utility divisions.
Maine Water Company	10/24	Docket No. 2024-00291	Sponsored testimony supporting the class cost of service, rate design, and bill impact studies for a general rate case proceeding for the Camden and Rockland Division.
Calpine Corporation and Casco Bay Energy Company	10/24	Docket No. 2024-00137	Sponsored testimony regarding ratemaking treatment of Net Energy Billing stranded cost rate design.
Northern Utilities, Inc. d/b/a Unitil	05/23	Docket No. 2023-00051	Sponsored testimony supporting a marginal cost study, class cost of service study, rate design and customer bill impact for a general rate case proceeding.
Maine Water Company	03/21	Docket No. 2021-00053	Sponsored testimony supporting a proposed rate smoothing mechanism.
Northern Utilities, Inc. d/b/a Unitil	06/19	Docket No. 2019-00092	Sponsored testimony supporting a proposed capital investment cost recovery mechanism.
Northern Utilities, Inc. d/b/a Unitil	06/15	Docket No. 2015-00146	Sponsored testimony supporting the proposed gas expansion program, including a zone area surcharge.
Maryland Public Service Commission			
The Potomac Edison Company (FirstEnergy)	03/23	Case No. 9695	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Sandpiper Energy, a Chesapeake Utilities company	12/15	Case No. 9410	Sponsored testimony supporting the cost of service, rate design and bill impact studies for a general rate case proceeding. The testimony includes proposal for new residential and commercial classes.

Sponsor	Date	Docket No.	Subject
Massachusetts Department of Public Utilities			
Berkshire Gas Company, Eversource Energy, Liberty Utilities, National Grid, and Unitil	03/22	Docket No. DPU 20-80	Sponsored report that summarizes research, findings, and recommendations for regulatory mechanisms, methodologies, and policies that support Massachusetts's achievement of its net zero climate goal by 2050. The regulatory designs were informed by the results of quantitative and qualitative analysis of decarbonization pathways to achieve the Commonwealth's climate goals.
Liberty Utilities (New England Gas Company)	08/20	Docket No. DPU 20-92	Sponsored the Long-Range Forecast and Supply Plan filing for the five-year forecast period 2020/2021 through 2024/2025.
Eversource Energy, National Grid, and Unitil	02/20	Docket No. DPU 19-55	Sponsored report that summarizes research and evaluation of funding approaches for infrastructure modifications that interconnect Distributed Generation (DG) projects.
Liberty Utilities (New England Gas Company)	07/18	Docket No. DPU 18-68	Sponsored the Long-Range Forecast and Supply Plan filing for the five-year forecast period 2018/2019 through 2022/2023.
Liberty Utilities (New England Gas Company)	07/16	Docket No. DPU 16-109	Sponsored the Long-Range Forecast and Supply Plan filing for the five-year forecast period 2016/2017 through 2020/2021.
Boston Gas	10/93	Docket No. DPU 92-230	Sponsored testimony describing the Company's position regarding rate treatment of vehicular natural gas investments and expenses.
Boston Gas	03/90	Docket No. DPU 90-55	Sponsored testimony supporting the weather and other cost of service adjustments, rate design and customer bill impact studies for a general rate case proceeding.
Boston Gas	03/88	Docket No. DPU 88-67-II	Sponsored testimony supporting the rate reclassification of commercial and industrial customers for a rate design proceeding.
Michigan Public Service Commission			
Lansing Board of Water & Light and Michigan State University	04/24	Docket No. U-21490	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Lansing Board of Water & Light and Michigan State University	04/23	Docket No. U-21308	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Lansing Board of Water & Light and Michigan State University	04/20	Docket No. U-20650	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Lansing Board of Water & Light and Michigan State University	04/19	Docket No. U-20322	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Midland Cogeneration Ventures, LLC	09/18	Docket No. U-18010	Sponsored testimony evaluating Consumer Energy's class cost of service and rate design proposals.
Minnesota Public Utilities Commission			
Northern States Power Company (XcelEnergy)	10/21	Docket No. E002/GR-21-630	Sponsored testimony supporting a Return on Equity (ROE) adjustment mechanism that would allow the Company to symmetrically adjust its ROE to reflect significant changesin financial market conditions.
Missouri Public Service Commission			
The Empire District Electric Company	11/24	Docket No. ER-2024-0261	Sponsored testimony supporting the class cost of service, rate design, bill impact, and lead-lag studies for a general rate case proceeding.

Sponsor	Date	Docket No.	Subject
Spire Missouri, Inc.	11/24	Docket No. GR-2024-0107	Sponsored testimony supporting the class cost of service, rate design, bill impact, and lead-lag studies for a general rate case proceeding.
Liberty Utilities (Missouri Water)	03/24	Docket No. WR-2024-0104	Sponsored testimony supporting lead-lag study for a general rate case proceeding.
Liberty Utilities (Midstates Natural Gas)	02/24	Docket No. GR-2024-0106	Sponsored testimony supporting the class cost of service, rate design, bill impact, and lead-lag studies for a general rate case proceeding.
Confluence Rivers Utility Operating Company	12/22	Case No. WR-2023-0006/ SR-2023-0007	Sponsored testimony supporting the rate design and bill impact studies for a general rate case proceeding.
The Empire District Gas Company	08/21	Docket No. GR-2021-0320	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
The Empire District Electric Company	05/21	Docket No. ER-2021-0312	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Spire Missouri, Inc.	12/20	Docket No. GR-2021-0108	Sponsored testimony supporting class cost of service, rate design, and lead-lag study proposals for a general rate case proceeding. The testimony also included support for a proposed revenue adjustment mechanism.
The Empire District Electric Company	08/19	Docket No. ER-2019-0374	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding. The testimony also included proposals for a weather normalization mechanism.
Liberty Utilities (Midstates Natural Gas)	09/17	Docket No. GR-2018-0013	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding. The testimony also included proposals for a revenue decoupling/ weather normalization mechanism as well as tracker accounts for certain O&M expenses and capital costs.
Missouri Gas Energy	04/17	Docket No. GR-2017-0216	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding. The testimony included support for a decoupling mechanism.
Laclede Gas Company	04/17	Docket No. GR-2017-0215	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding. The testimony included support for a decoupling mechanism.
Nevada Public Utilities Commission			
Southwest Gas Corporation	09/23	Docket No. 23-09012	Sponsored testimony supporting the class cost of service,rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
Southwest Gas Corporation	09/21	Docket No. 21-09001	Sponsored testimony supporting the class cost of service,rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
Southwest Gas Corporation	02/20	Docket No. 20-02023	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
New Hampshire Public Utilities Commission			
Unitil (Northern Utilities, Inc.)	8/21	Docket No. DG 21-104	Sponsored testimony supporting a revenue decoupling mechanism.
Unitil Energy Systems, Inc.	4/21	Docket No. DE 21-030	Sponsored testimony supporting a revenue decoupling mechanism.

Sponsor	Date	Docket No.	Subject
Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities	11/17	Docket No. DG 17-198	Sponsored testimony supporting a levelized cost analysis for approval of firm supply and transportation agreements.
Liberty Utilities d/b/a Granite State Electric Company	04/16	Docket No. DE 16-383	Adopted testimony and sponsored Lead/Lag study for a general rate case proceeding.
New Jersey Board of Public Utilities			
Elizabethtown Gas Company	02/24	Docket No. GR24020158	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Jersey Central Power and Light Company (FirstEnergy)	03/23	Docket No. ER23030144	Sponsored testimony supporting the class cost of service and Lead/Lag studies for a general rate case proceeding.
South Jersey Gas Company	04/22	Docket No. GR22040253	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Elizabethtown Gas Company	12/21	Docket No. GR21121254	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
South Jersey Gas Company	03/20	Docket No. GR20030243	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Elizabethtown Gas Company	04/19	Docket No. GR19040486	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas Company	08/16	Docket No. GR16090826	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
New Mexico Public Regulation Commission			
New Mexico Gas Company, Inc.	12/24	Advice Notice No. 105	Sponsored testimony supporting changes in Rule No. 16 – Line Extension Policy.
New Mexico Gas Company, Inc.	7/24	Case No. 18-00038-UT	Sponsored testimony supporting the Weather Normalization Adjustment Mechanism.
New Mexico Gas Company, Inc.	9/23	Case No. 23-00255-UT	Sponsored testimony supporting the class cost of service, rate design, bill impact and weather normalization adjustment mechanisms for a general rate case proceeding.
New York Public Service Commission			
New York Power Authority	09/04	Case No. 04-E-0572	Sponsored testimony evaluating Con Edison's class cost of service study.
Corporation Commission of Oklahoma			
The Empire District Electric Company	02/21	Cause No. PUD 202100163	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding. The proposed rate design included a three-year phase-in of the proposed rate increase.
The Empire District Electric Company	03/19	Cause No. PUD 201800133	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
The Empire District Electric Company	04/17	Cause No. PUD 201600468	Adopted direct testimony and sponsored rebuttal testimony supporting the revenue requirements for a general rate case proceeding. The testimony included proposals for alternative ratemaking mechanisms.
Ohio Public Utilities Commission			

Sponsor	Date	Docket No.	Subject
Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company	06/24	Case Nos. 24-0468-EL-AIR, 24-0469-EL-ATA, 24-0470-EL-AAM, 24-0471-EL-UNC	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
Pennsylvania Public Utility Commission			
FirstEnergy Pennsylvania Electric Company	04/24	Docket No. R-2024-3047068	Sponsored testimony supporting the class cost of service, rate design, bill impact and Lead/Lag studies for a general rate case proceeding.
Rhode Island Public Utilities Commission			
Providence Gas Company	09/00 01/97 08/96	Docket No. 1673	Sponsored testimony supporting the changes in cost of gas adjustment factor related to projected under-recovery of gas costs; Filed testimony and witness for pilot hedging program to mitigate price risks to customers; Filed testimony and witness for changes in cost of gas adjustment factor related to extension of rate plan.
Providence Gas Company	08/00	Docket No. 2581	Sponsored testimony supporting the extension of a rate plan that began in 1997 and included certain modifications, including a weather normalization clause.
Providence Gas Company	03/00	Docket No. 3100	Sponsored testimony supporting the de-tariff and deregulation of appliance repair service, enabling the Company to have needed pricing flexibility.
Providence Gas Company	08/97	Docket No. 2581	Sponsored testimony supporting a rate plan that fixed all billing rates for three-year period; included funding for critical infrastructure investments in accelerated replacement of mains and services, digitized records system, and economic development projects.
Providence Gas Company	04/97	Docket No. 2552	Sponsored testimony supporting the rate design, customer bill impact studies and retail access tariffs for commercial and industrial customers, including redesign of cost of gas adjustment clause, for a rate design proceeding.
Providence Gas Company	11/95	Docket No. 2374	Sponsored testimony supporting the rate design, customer bill impact studies and retail access tariffs for largest commercial and industrial customers for a rate design proceeding.
Providence Gas Company	07/94	Docket No. 2025	Sponsored testimony supporting the Integrated Resource Plan filing, including a performance-based incentive mechanism.
Providence Gas Company	07/93	Docket No. 2076/ 2082	Sponsored testimony supporting the rate reclassification of customers into new rate classes, rate design (including introduction of demand charges), and customer bill impact studies for a rate design proceeding.
Railroad Commission of Texas			
Texas Gas Service Company – Central-Gulf Service Area	06/24	Case No. 00017471	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy – Texas Gas Division	10/23	Case No. 00015513	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – Rio Grande Valley Service Area	06/23	Case No. 00014399	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – West Texas, North Texas, and Borger/ Skellytown Service Areas	06/22	Case No. 00009896	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – Central Texas	12/19	GUD No. 10928	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.

Sponsor	Date	Docket No.	Subject
and Gulf Coast Service Areas			
CenterPoint Energy – Beaumont/ East Texas Division	11/19	GUD No. 10920	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – Borger/ Skellytown Service Area	08/18	GUD No. 10766	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – North Texas Service Area	06/18	GUD No. 10739	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy – South Texas Division	11/17	GUD No. 10669	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Texas Gas Service Company – Rio Grande Valley Service Area	06/17	GUD No. 10656	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Atmos Pipeline – Texas	01/17	GUD No. 10580	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy – Texas Gulf Division	11/16	GUD No. 10567	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Public Utility Commission of Texas			
CenterPoint Energy Houston Electric, LLC	03/24	Docket No. 56211	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
CenterPoint Energy Houston Electric, LLC	04/19	Docket No. 49421	Sponsored testimony supporting the Lead/Lag study for a general rate case proceeding.
Vermont Public Utilities Commission			
Vermont Gas Systems	12/12	Docket No. 7970	Sponsored testimony describing the market served by $90 million natural gas expansion project to Addison County, VT. Also described the terms and economic benefits of a special contract with International Paper.
Vermont Gas Systems	02/11	Docket No. 7712	Sponsored testimony supporting the market evaluation and analysis for a system expansion and reliability regulatory fund.
Virginia State Corporation Commission			
Rappahannock Electric Cooperative	8/24	Case No. PUR-2024-00132	Sponsored report and studies related to revenue requirements, class cost of service, rate design, and bill impact analysis for a streamlined application to increase base rates.
Shenandoah Valley Electric Cooperative	01/24	Case No. PUR-2023-00207	Sponsored report and studies related to revenue requirements, class cost of service, rate design, and bill impact analysis for a streamlined application to increase base rates.
American Electric Power - Appalachian Power Company	3/23	Case No. PUR-2023-00002	Sponsored testimony supporting the Lead/Lag study for the 2023 triennial review of base rates, terms, and conditions.
Rappahannock Electric Cooperative	10/22	Case No. PUR-2022-00160	Sponsored report and studies related to revenue requirements, class cost of service, rate design, and bill impact analysis for a streamlined application to increase base rates.
American Electric Power - Appalachian Power Company	3/20	Case No. PUR-2020-00015	Sponsored testimony supporting the Lead/Lag study for the 2020 triennial review of base rates, terms, and conditions.
West Virginia Public Service Commission			
American Electric Power - Appalachian Power	11/24	Case No. 24-0854-E-42T	Sponsored testimony supporting the lead-lag study for a general rate case proceeding.

Sponsor	Date	Docket No.	Subject
Company and Wheeling Power Company			
Monongahela Power Company and The Potomac Edison Company (FirstEnergy)	06/23	Case No. 23-0460-E-42T	Sponsored testimony supporting the class cost of service, rate design, bill impact and lead-lag studies for a general rate case proceeding.
Nova Scotia Utility and Review Board			
Nova Scotia Power	01/22	Matter No. M10431	Sponsored evidence supporting the cash working capital requirement and lead/Lag study for a general rate case proceeding.
Ontario Energy Board			
Toronto Hydro-Electric System Limited	11/23	Docket No. EB-2023-0195	Sponsored evidence supporting Toronto Hydro's Custom Rate Framework. Prepared research and analysis evaluating the appropriateness of the Rate Framework in the context of how other electric utility ratemaking practices have responded to developments in the energy industry.
Ontario Energy Association	01/21	Docket No. EB-2020-0133	Sponsored evidence regarding policies and ratemaking treatment related to COVID-19 costs in U.S. and Canadian regulatory jurisdictions. The evidence was used to support Ontario Energy Association's response to Staff's proposals.
Commission of Canada Energy Regulator			
Trans-Northern Pipelines, Inc.	06/23	Docket No. RH-001-2023	Sponsored evidence related to application for approval of incentive tolls.

LP-DF Rate		Rate ($/MVA-Month)
Delivery Service Charge		
Annual Revenue Requirement	$	3,125,576
Substation Facility Demand		298
Rate ($/MVA/Month)	$	874.04
Service Charge		
Annual Revenue Requirement	$	1,892,391
Substation Facility Demand		298
Customer Facility Demand		298
Service Charge Factor		1
Rate ($/MVA/Month)	$	529.19

Derivation of LP-DF Rate	Year 2025	Year 2026	Year 2027	Year 2028	Year 2029
	1	2	3	4	5
Total Cost of Facility Investment					
Substation-related O&M	1,115,606	1,141,727	1,168,460	1,195,818	1,223,818
Customer Accounts O&M	221,000	226,175	231,470	236,890	242,437
HES Costs	1,208,000	1,236,284	1,265,231	1,294,856	1,325,174
Labor-related A&G	361,765	370,235	378,904	387,776	396,856
Plant-related A&G	53,903	55,165	56,457	57,779	59,132
Depreciation (General Plant)	193,101	193,101	193,101	193,101	193,101
Property Taxes	166,401	159,834	153,268	146,701	140,135
Interest Expense	79,539	77,678	73,959	70,249	66,547
Net Income	147,677	144,221	137,316	130,428	123,556
Capital Investment Recovery	431,312	431,312	431,312	431,312	431,312
Contribution to Margin	1,039,664	1,000,431	961,199	921,966	882,734
Total Cost	$ 5,017,968	$ 5,036,164	$ 5,050,678	$ 5,066,877	$ 5,084,800
PV of Total Cost	$ 5,017,968	$ 4,749,470	$ 4,492,005	$ 4,249,875	$ 4,022,120

NPV of Total Cost	$ 73,210,617
Initial Investment	$ 27,000,000

Annual Charge ($)	$ 5,017,968	$ 5,036,164	$ 5,050,678	$ 5,066,877	$ 5,084,800
Annual Carrying Charge (%)	**18.59%**	**18.65%**	**18.71%**	**18.77%**	**18.83%**

Derivation of LP-DF Rate	Year 2025	Year 2026	Year 2027	Year 2028	Year 2029
	1	2	3	4	5
Detailed Calculations					
O&M Costs					
Substation-related O&M	$ 1,115,606	$ 1,141,727	$ 1,168,460	$ 1,195,818	$ 1,223,818
Customer Accounts O&M	$ 221,000	$ 226,175	$ 231,470	$ 236,890	$ 242,437
HES Costs	$ 1,208,000	$ 1,236,284	$ 1,265,231	$ 1,294,856	$ 1,325,174
Labor-related A&G	$ 361,765	$ 370,235	$ 378,904	$ 387,776	$ 396,856
Plant-related A&G	$ 53,903	$ 55,165	$ 56,457	$ 57,779	$ 59,132
Investment					
Total Capital Expenditures	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Gross Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Net Plant Investment	$ -	$ -	$ -	$ -	$ -
General Plant Depreciation					
General Plant Depreciation	$ 193,101	$ 193,101	$ 193,101	$ 193,101	$ 193,101
Accumulated Depreciation	$ 193,101	$ 386,202	$ 579,303	$ 772,405	$ 965,506
Property Taxes					
Property Taxes	$ 166,401	$ 159,834	$ 153,268	$ 146,701	$ 140,135
Rate Base (Cost of service)					
Susbtation Plant	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Accumulated Depreciation					
Net Substation Plant	$ -	$ -	$ -	$ -	$ -
General Plant	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525
Accumulated Depreciation	$ (193,101)	$ (386,202)	$ (579,303)	$ (772,405)	$ (965,506)
Net General Plant	$ 3,041,424	$ 2,848,323	$ 2,655,222	$ 2,462,121	$ 2,269,019
O&M Working Capital	$ 370,034	$ 378,698	$ 387,565	$ 396,640	$ 405,927
Materials & Supplies	$ 288,704	$ 295,464	$ 302,382	$ 309,462	$ 316,708
Prepayments	$ 63,969	$ 65,467	$ 67,000	$ 68,569	$ 70,174
Ending Rate Balance	$ 3,764,131	$ 3,587,952	$ 3,412,169	$ 3,236,791	$ 3,061,828
Average Balance	$ 3,764,131	$ 3,676,042	$ 3,500,060	$ 3,324,480	$ 3,149,310
Return Requirement					
Rate Base	$ 3,764,131	$ 3,676,042	$ 3,500,060	$ 3,324,480	$ 3,149,310
Weighted Cost of Capital	6.04%	6.04%	6.04%	6.04%	6.04%
Return Requirement	$ 227,216	$ 221,898	$ 211,276	$ 200,677	$ 190,103
Weighted Cost of Debt	2.11%	2.11%	2.11%	2.11%	2.11%
Interest Expense	$ 79,539	$ 77,678	$ 73,959	$ 70,249	$ 66,547
Net Income	$ 147,677	$ 144,221	$ 137,316	$ 130,428	$ 123,556
Contribution to Equity					
Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Accumulated Depreciation	$ (1,000,000)	$ (2,000,000)	$ (3,000,000)	$ (4,000,000)	$ (5,000,000)
Net Plant Investment	$ 26,000,000	$ 25,000,000	$ 24,000,000	$ 23,000,000	$ 22,000,000
Contribution to Equity	3.92%	3.92%	3.92%	3.92%	3.92%
Contribution to Equity $	$ 1,039,664	$ 1,000,431	$ 961,199	$ 921,966	$ 882,734

Derivation of LP-DF Rate	Year 2025	Year 2026	Year 2027	Year 2028	Year 2029
	1	2	3	4	5
Levelized Charge ($)	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222
Levelized Carrying Charge (%)	**17.13%**	**17.13%**	**17.13%**	**17.13%**	**17.13%**
Levelized Carrying Charge Breakdown					
Operational Expenses	2,117,992	2,141,962	2,161,466	2,181,853	2,203,144
Carrying Charge	$ 2,599,630	$ 2,539,267	$ 2,478,903	$ 2,418,540	$ 2,358,176
Total Carrying Charge	$ 4,717,622	$ 4,681,228	$ 4,640,369	$ 4,600,393	$ 4,561,321
PV of Total Cost	$ 4,717,622	$ 4,414,740	$ 4,127,081	$ 3,858,609	$ 3,608,043
	$ 60,867,018				
Capital Investment Recovery Factor					
Iowa Survivor Curve (R5)	100.000%	100.000%	100.000%	100.000%	100.000%
Failure Probability (%)	0.000%	0.000%	0.000%	0.000%	0.000%
Incremental Failure Rate (%)	0.000%	0.000%	0.000%	0.000%	0.000%
Substation Replacement Cost ($)	$ 27,000,000	27,632,187	28,279,176	28,941,313	29,618,954
Required Capital Investment Recovery ($)	$ -	$ -	$ -	$ -	$ -
PV of Total Cost	$ -	$ -	$ -	$ -	$ -
Present Value (Year 27)	**$ 2,518,354**				
Investment Recovery Charge ($)	$ 431,312	$ 431,312	$ 431,312	$ 431,312	$ 431,312

Derivation of LP-DF Rate	Year 2030	Year 2031	Year 2032	Year 2033	Year 2034
	6	7	8	9	10
Total Cost of Facility Investment					
Substation-related O&M	1,252,473	1,281,798	1,311,811	1,342,526	1,373,960
Customer Accounts O&M	248,113	253,923	259,868	265,953	272,180
HES Costs	1,356,202	1,387,957	1,420,455	1,453,714	1,487,751
Labor-related A&G	406,148	415,657	425,390	435,350	445,543
Plant-related A&G	60,516	61,933	63,383	64,867	66,386
Depreciation (General Plant)	193,101	193,101	193,101	193,101	193,101
Property Taxes	133,569	127,002	120,436	113,869	107,303
Interest Expense	62,855	59,171	55,497	51,832	48,177
Net Income	116,700	109,861	103,039	96,235	89,449
Capital Investment Recovery	431,312	431,312	431,312	431,312	431,312
Contribution to Margin	843,501	804,268	765,036	725,803	686,571
Total Cost	$ 5,104,489	$ 5,125,984	$ 5,149,327	$ 5,174,562	$ 5,201,733
PV of Total Cost	$ 3,807,840	$ 3,606,192	$ 3,416,390	$ 3,237,694	$ 3,069,415
NPV of Total Cost					
Initial Investment					
Annual Charge ($)	**$ 5,104,489**	**$ 5,125,984**	**$ 5,149,327**	**$ 5,174,562**	**$ 5,201,733**
Annual Carrying Charge (%)	**18.91%**	**18.99%**	**19.07%**	**19.17%**	**19.27%**

Derivation of LP-DF Rate	Year 2030	Year 2031	Year 2032	Year 2033	Year 2034
	6	7	8	9	10
Detailed Calculations					
O&M Costs					
Substation-related O&M	$ 1,252,473	$ 1,281,798	$ 1,311,811	$ 1,342,526	$ 1,373,960
Customer Accounts O&M	$ 248,113	$ 253,923	$ 259,868	$ 265,953	$ 272,180
HES Costs	$ 1,356,202	$ 1,387,957	$ 1,420,455	$ 1,453,714	$ 1,487,751
Labor-related A&G	$ 406,148	$ 415,657	$ 425,390	$ 435,350	$ 445,543
Plant-related A&G	$ 60,516	$ 61,933	$ 63,383	$ 64,867	$ 66,386
Investment					
Total Capital Expenditures	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Gross Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Net Plant Investment	$ -	$ -	$ -	$ -	$ -
General Plant Depreciation					
General Plant Depreciation	$ 193,101	$ 193,101	$ 193,101	$ 193,101	$ 193,101
Accumulated Depreciation	$ 1,158,607	$ 1,351,708	$ 1,544,809	$ 1,737,910	$ 1,931,012
Property Taxes					
Property Taxes	$ 133,569	$ 127,002	$ 120,436	$ 113,869	$ 107,303
Rate Base (Cost of service)					
Susbtation Plant	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Accumulated Depreciation					
Net Substation Plant	$ -	$ -	$ -	$ -	$ -
General Plant	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525
Accumulated Depreciation	$ (1,158,607)	$ (1,351,708)	$ (1,544,809)	$ (1,737,910)	$ (1,931,012)
Net General Plant	$ 2,075,918	$ 1,882,817	$ 1,689,716	$ 1,496,615	$ 1,303,514
O&M Working Capital	$ 415,431	$ 425,159	$ 435,113	$ 445,301	$ 455,728
Materials & Supplies	$ 324,123	$ 331,712	$ 339,479	$ 347,428	$ 355,563
Prepayments	$ 71,817	$ 73,499	$ 75,220	$ 76,981	$ 78,783
Ending Rate Balance	$ 2,887,290	$ 2,713,187	$ 2,539,528	$ 2,366,325	$ 2,193,587
Average Balance	$ 2,974,559	$ 2,800,238	$ 2,626,357	$ 2,452,926	$ 2,279,956
Return Requirement					
Rate Base	$ 2,974,559	$ 2,800,238	$ 2,626,357	$ 2,452,926	$ 2,279,956
Weighted Cost of Capital	6.04%	6.04%	6.04%	6.04%	6.04%
Return Requirement	$ 179,554	$ 169,032	$ 158,536	$ 148,067	$ 137,626
Weighted Cost of Debt	2.11%	2.11%	2.11%	2.11%	2.11%
Interest Expense	$ 62,855	$ 59,171	$ 55,497	$ 51,832	$ 48,177
Net Income	$ 116,700	$ 109,861	$ 103,039	$ 96,235	$ 89,449
Contribution to Equity					
Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Accumulated Depreciation	$ (6,000,000)	$ (7,000,000)	$ (8,000,000)	$ (9,000,000)	$ (10,000,000)
Net Plant Investment	$ 21,000,000	$ 20,000,000	$ 19,000,000	$ 18,000,000	$ 17,000,000
Contribution to Equity	3.92%	3.92%	3.92%	3.92%	3.92%
Contribution to Equity $	$ 843,501	$ 804,268	$ 765,036	$ 725,803	$ 686,571

Derivation of LP-DF Rate	Year 2030	Year 2031	Year 2032	Year 2033	Year 2034
	6	7	8	9	10
Levelized Charge ($)	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222
Levelized Carrying Charge (%)	**17.13%**	**17.13%**	**17.13%**	**17.13%**	**17.13%**
Levelized Carrying Charge Breakdown					
Operational Expenses	2,225,361	2,248,524	2,272,657	2,297,781	2,323,920
Carrying Charge	$ 2,297,813	$ 2,237,450	$ 2,177,086	$ 2,116,723	$ 2,056,359
Total Carrying Charge	$ 4,523,174	$ 4,485,974	$ 4,449,743	$ 4,414,504	$ 4,380,279
PV of Total Cost	$ 3,374,191	$ 3,155,937	$ 2,952,241	$ 2,762,130	$ 2,584,695
Capital Investment Recovery Factor					
Iowa Survivor Curve (R5)	100.000%	100.000%	100.000%	100.000%	100.000%
Failure Probability (%)	0.000%	0.000%	0.000%	0.000%	0.000%
Incremental Failure Rate (%)	0.000%	0.000%	0.000%	0.000%	0.000%
Substation Replacement Cost ($)	30,312,462	31,022,208	31,748,572	32,491,943	33,252,720
Required Capital Investment Recovery ($)	$ -	$ -	$ 1	$ 2	$ 2
PV of Total Cost	$ -	$ -	$ 1	$ 1	$ 1
Present Value (Year 27)					
Investment Recovery Charge ($)	$ 431,312	$ 431,312	$ 431,312	$ 431,312	$ 431,312

Derivation of LP-DF Rate	Year 2035	Year 2036	Year 2037	Year 2038	Year 2039
	11	12	13	14	15
Total Cost of Facility Investment					
Substation-related O&M	1,406,131	1,439,054	1,472,749	1,507,232	1,542,523
Customer Accounts O&M	278,553	285,075	291,750	298,581	305,572
HES Costs	1,522,586	1,558,236	1,594,721	1,632,061	1,670,274
Labor-related A&G	455,975	466,652	477,578	488,760	500,204
Plant-related A&G	67,941	69,531	71,160	72,826	74,531
Depreciation (General Plant)	193,101	193,101	193,101	193,101	193,101
Property Taxes	100,736	94,170	87,604	81,037	74,471
Interest Expense	44,532	40,897	37,273	33,659	30,056
Net Income	82,681	75,932	69,203	62,494	55,804
Capital Investment Recovery	431,312	431,312	431,312	431,312	431,312
Contribution to Margin	647,338	608,105	568,873	529,640	490,408
Total Cost	$ 5,230,886	$ 5,262,067	$ 5,295,323	$ 5,330,703	$ 5,368,256
PV of Total Cost	$ 2,910,905	$ 2,761,559	$ 2,620,811	$ 2,488,130	$ 2,363,018
NPV of Total Cost					
Initial Investment					
Annual Charge ($)	**$ 5,230,886**	**$ 5,262,067**	**$ 5,295,323**	**$ 5,330,703**	**$ 5,368,256**
Annual Carrying Charge (%)	**19.37%**	**19.49%**	**19.61%**	**19.74%**	**19.88%**

Derivation of LP-DF Rate	Year 2035	Year 2036	Year 2037	Year 2038	Year 2039
	11	12	13	14	15
Detailed Calculations					
O&M Costs					
Substation-related O&M	$ 1,406,131	$ 1,439,054	$ 1,472,749	$ 1,507,232	$ 1,542,523
Customer Accounts O&M	$ 278,553	$ 285,075	$ 291,750	$ 298,581	$ 305,572
HES Costs	$ 1,522,586	$ 1,558,236	$ 1,594,721	$ 1,632,061	$ 1,670,274
Labor-related A&G	$ 455,975	$ 466,652	$ 477,578	$ 488,760	$ 500,204
Plant-related A&G	$ 67,941	$ 69,531	$ 71,160	$ 72,826	$ 74,531
Investment					
Total Capital Expenditures	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Gross Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Net Plant Investment	$ -	$ -	$ -	$ -	$ -
General Plant Depreciation					
General Plant Depreciation	$ 193,101	$ 193,101	$ 193,101	$ 193,101	$ 193,101
Accumulated Depreciation	$ 2,124,113	$ 2,317,214	$ 2,510,315	$ 2,703,416	$ 2,896,517
Property Taxes					
Property Taxes	$ 100,736	$ 94,170	$ 87,604	$ 81,037	$ 74,471
Rate Base (Cost of service)					
Susbtation Plant	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Accumulated Depreciation					
Net Substation Plant	$ -	$ -	$ -	$ -	$ -
General Plant	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525
Accumulated Depreciation	$ (2,124,113)	$ (2,317,214)	$ (2,510,315)	$ (2,703,416)	$ (2,896,517)
Net General Plant	$ 1,110,413	$ 917,311	$ 724,210	$ 531,109	$ 338,008
O&M Working Capital	$ 466,398	$ 477,319	$ 488,495	$ 499,932	$ 511,638
Materials & Supplies	$ 363,888	$ 372,408	$ 381,128	$ 390,052	$ 399,184
Prepayments	$ 80,628	$ 82,516	$ 84,448	$ 86,425	$ 88,449
Ending Rate Balance	$ 2,021,327	$ 1,849,554	$ 1,678,281	$ 1,507,518	$ 1,337,279
Average Balance	$ 2,107,457	$ 1,935,440	$ 1,763,917	$ 1,592,899	$ 1,422,399
Return Requirement					
Rate Base	$ 2,107,457	$ 1,935,440	$ 1,763,917	$ 1,592,899	$ 1,422,399
Weighted Cost of Capital	6.04%	6.04%	6.04%	6.04%	6.04%
Return Requirement	$ 127,213	$ 116,830	$ 106,476	$ 96,153	$ 85,861
Weighted Cost of Debt	2.11%	2.11%	2.11%	2.11%	2.11%
Interest Expense	$ 44,532	$ 40,897	$ 37,273	$ 33,659	$ 30,056
Net Income	$ 82,681	$ 75,932	$ 69,203	$ 62,494	$ 55,804
Contribution to Equity					
Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Accumulated Depreciation	$ (11,000,000)	$ (12,000,000)	$ (13,000,000)	$ (14,000,000)	$ (15,000,000)
Net Plant Investment	$ 16,000,000	$ 15,000,000	$ 14,000,000	$ 13,000,000	$ 12,000,000
Contribution to Equity	3.92%	3.92%	3.92%	3.92%	3.92%
Contribution to Equity $	$ 647,338	$ 608,105	$ 568,873	$ 529,640	$ 490,408

Derivation of LP-DF Rate	Year 2035	Year 2036	Year 2037	Year 2038	Year 2039
	11	12	13	14	15
Levelized Charge ($)	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222
Levelized Carrying Charge (%)	**17.13%**	**17.13%**	**17.13%**	**17.13%**	**17.13%**
Levelized Carrying Charge Breakdown					
Operational Expenses	2,351,098	2,379,338	2,408,667	2,439,109	2,470,691
Carrying Charge	$ 1,995,996	$ 1,935,633	$ 1,875,269	$ 1,814,906	$ 1,754,542
Total Carrying Charge	$ 4,347,094	$ 4,314,971	$ 4,283,936	$ 4,254,015	$ 4,225,233
PV of Total Cost	$ 2,419,088	$ 2,264,519	$ 2,120,246	$ 1,985,581	$ 1,859,878
Capital Investment Recovery Factor					
Iowa Survivor Curve (R5)	100.000%	99.999%	99.994%	99.978%	99.951%
Failure Probability (%)	0.000%	0.001%	0.006%	0.022%	0.049%
Incremental Failure Rate (%)	0.000%	0.001%	0.005%	0.016%	0.027%
Substation Replacement Cost ($)	34,031,310	34,828,130	35,643,607	36,478,178	37,332,289
Required Capital Investment Recovery ($)	$ 94	$ 190	$ 1,939	$ 5,839	$ 9,920
PV of Total Cost	$ 52	$ 100	$ 960	$ 2,725	$ 4,367
Present Value (Year 27)					
Investment Recovery Charge ($)	$ 431,312	$ 431,312	$ 431,312	$ 431,312	$ 431,312

Derivation of LP-DF Rate	Year 2040	Year 2041	Year 2042	Year 2043	Year 2044
	16	17	18	19	20
Total Cost of Facility Investment					
Substation-related O&M	1,578,640	1,615,603	1,653,431	1,692,145	1,731,765
Customer Accounts O&M	312,726	320,049	327,542	335,212	343,060
HES Costs	1,709,383	1,749,407	1,790,368	1,832,288	1,875,190
Labor-related A&G	511,916	523,902	536,169	548,723	561,571
Plant-related A&G	76,276	78,062	79,890	81,760	83,675
Depreciation (General Plant)	193,101	144,907	-	-	-
Property Taxes	67,904	61,338	55,037	49,533	44,029
Interest Expense	26,465	23,394	22,375	22,899	23,435
Net Income	49,136	43,434	41,542	42,515	43,510
Capital Investment Recovery	431,312	431,312	431,312	431,312	431,312
Contribution to Margin	451,175	411,942	372,710	333,477	294,245
Total Cost	$ 5,408,034	$ 5,403,349	$ 5,310,375	$ 5,369,864	$ 5,431,792
PV of Total Cost	$ 2,245,011	$ 2,115,375	$ 1,960,627	$ 1,869,727	$ 1,783,624
NPV of Total Cost					
Initial Investment					
Annual Charge ($)	**$ 5,408,034**	**$ 5,403,349**	**$ 5,310,375**	**$ 5,369,864**	**$ 5,431,792**
Annual Carrying Charge (%)	**20.03%**	**20.01%**	**19.67%**	**19.89%**	**20.12%**

Derivation of LP-DF Rate	Year 2040	Year 2041	Year 2042	Year 2043	Year 2044
	16	17	18	19	20
Detailed Calculations					
O&M Costs					
Substation-related O&M	$ 1,578,640	$ 1,615,603	$ 1,653,431	$ 1,692,145	$ 1,731,765
Customer Accounts O&M	$ 312,726	$ 320,049	$ 327,542	$ 335,212	$ 343,060
HES Costs	$ 1,709,383	$ 1,749,407	$ 1,790,368	$ 1,832,288	$ 1,875,190
Labor-related A&G	$ 511,916	$ 523,902	$ 536,169	$ 548,723	$ 561,571
Plant-related A&G	$ 76,276	$ 78,062	$ 79,890	$ 81,760	$ 83,675
Investment					
Total Capital Expenditures	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Gross Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Net Plant Investment	$ -	$ -	$ -	$ -	$ -
General Plant Depreciation					
General Plant Depreciation	$ 193,101	$ 144,907	$ -	$ -	$ -
Accumulated Depreciation	$ 3,089,618	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525
Property Taxes					
Property Taxes	$ 67,904	$ 61,338	$ 55,037	$ 49,533	$ 44,029
Rate Base (Cost of service)					
Susbtation Plant	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Accumulated Depreciation					
Net Substation Plant	$ -	$ -	$ -	$ -	$ -
General Plant	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525
Accumulated Depreciation	$ (3,089,618)	$ (3,234,525)	$ (3,234,525)	$ (3,234,525)	$ (3,234,525)
Net General Plant	$ 144,907	$ -	$ -	$ -	$ -
O&M Working Capital	$ 523,618	$ 535,878	$ 548,425	$ 561,266	$ 574,408
Materials & Supplies	$ 408,531	$ 418,096	$ 427,886	$ 437,905	$ 448,158
Prepayments	$ 90,520	$ 92,639	$ 94,808	$ 97,028	$ 99,300
Ending Rate Balance	$ 1,167,575	$ 1,046,614	$ 1,071,119	$ 1,096,199	$ 1,121,866
Average Balance	$ 1,252,427	$ 1,107,094	$ 1,058,866	$ 1,083,659	$ 1,109,032
Return Requirement					
Rate Base	$ 1,252,427	$ 1,107,094	$ 1,058,866	$ 1,083,659	$ 1,109,032
Weighted Cost of Capital	6.04%	6.04%	6.04%	6.04%	6.04%
Return Requirement	$ 75,601	$ 66,828	$ 63,917	$ 65,413	$ 66,945
Weighted Cost of Debt	2.11%	2.11%	2.11%	2.11%	2.11%
Interest Expense	$ 26,465	$ 23,394	$ 22,375	$ 22,899	$ 23,435
Net Income	$ 49,136	$ 43,434	$ 41,542	$ 42,515	$ 43,510
Contribution to Equity					
Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Accumulated Depreciation	$ (16,000,000)	$ (17,000,000)	$ (18,000,000)	$ (19,000,000)	$ (20,000,000)
Net Plant Investment	$ 11,000,000	$ 10,000,000	$ 9,000,000	$ 8,000,000	$ 7,000,000
Contribution to Equity	3.92%	3.92%	3.92%	3.92%	3.92%
Contribution to Equity $	$ 451,175	$ 411,942	$ 372,710	$ 333,477	$ 294,245

Derivation of LP-DF Rate	Year 2040	Year 2041	Year 2042	Year 2043	Year 2044
	16	17	18	19	20
Levelized Charge ($)	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222
Levelized Carrying Charge (%)	**17.13%**	**17.13%**	**17.13%**	**17.13%**	**17.13%**
Levelized Carrying Charge Breakdown					
Operational Expenses	2,503,438	2,490,640	2,388,443	2,437,575	2,487,986
Carrying Charge	$ 1,694,179	$ 1,633,816	$ 1,573,452	$ 1,513,089	$ 1,452,725
Total Carrying Charge	$ 4,197,617	$ 4,124,455	$ 3,961,896	$ 3,950,664	$ 3,940,711
PV of Total Cost	$ 1,742,537	$ 1,614,697	$ 1,462,759	$ 1,375,577	$ 1,294,002
Capital Investment Recovery Factor					
Iowa Survivor Curve (R5)	99.864%	99.711%	99.492%	99.033%	98.380%
Failure Probability (%)	0.136%	0.289%	0.508%	0.967%	1.620%
Incremental Failure Rate (%)	0.087%	0.153%	0.219%	0.460%	0.652%
Substation Replacement Cost ($)	38,206,400	39,100,976	40,016,499	40,953,458	41,912,356
Required Capital Investment Recovery ($)	$ 33,176	$ 59,779	$ 87,609	$ 188,318	$ 273,460
PV of Total Cost	$ 13,772	$ 23,403	$ 32,346	$ 65,570	$ 89,795
Present Value (Year 27)					
Investment Recovery Charge ($)	$ 431,312	$ 431,312	$ 431,312	$ 431,312	$ 431,312

Derivation of LP-DF Rate	Year 2045	Year 2046	Year 2047	Year 2048	Year 2049
	21	22	23	24	25
Total Cost of Facility Investment					
Substation-related O&M	1,772,314	1,813,811	1,856,280	1,899,744	1,944,225
Customer Accounts O&M	351,093	359,314	367,727	376,337	385,148
HES Costs	1,919,096	1,964,030	2,010,017	2,057,080	2,105,245
Labor-related A&G	574,720	588,177	601,948	616,043	630,467
Plant-related A&G	85,634	87,639	89,691	91,791	93,940
Depreciation (General Plant)	-	-	-	-	-
Property Taxes	38,526	33,022	27,518	22,015	16,511
Interest Expense	23,983	24,545	25,120	25,708	26,310
Net Income	44,529	45,572	46,639	47,731	48,848
Capital Investment Recovery	431,312	431,312	431,312	431,312	431,312
Contribution to Margin	255,012	215,779	176,547	137,314	98,082
Total Cost	$ 5,496,218	$ 5,563,201	$ 5,632,798	$ 5,705,073	$ 5,780,088
PV of Total Cost	$ 1,702,039	$ 1,624,709	$ 1,551,387	$ 1,481,844	$ 1,415,862
NPV of Total Cost					
Initial Investment					
Annual Charge ($)	**$ 5,496,218**	**$ 5,563,201**	**$ 5,632,798**	**$ 5,705,073**	**$ 5,780,088**
Annual Carrying Charge (%)	**20.36%**	**20.60%**	**20.86%**	**21.13%**	**21.41%**

Derivation of LP-DF Rate	Year 2045	Year 2046	Year 2047	Year 2048	Year 2049
	21	22	23	24	25
Detailed Calculations					
O&M Costs					
Substation-related O&M	$ 1,772,314	$ 1,813,811	$ 1,856,280	$ 1,899,744	$ 1,944,225
Customer Accounts O&M	$ 351,093	$ 359,314	$ 367,727	$ 376,337	$ 385,148
HES Costs	$ 1,919,096	$ 1,964,030	$ 2,010,017	$ 2,057,080	$ 2,105,245
Labor-related A&G	$ 574,720	$ 588,177	$ 601,948	$ 616,043	$ 630,467
Plant-related A&G	$ 85,634	$ 87,639	$ 89,691	$ 91,791	$ 93,940
Investment					
Total Capital Expenditures	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Gross Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Net Plant Investment	$ -	$ -	$ -	$ -	$ -
General Plant Depreciation					
General Plant Depreciation	$ -	$ -	$ -	$ -	$ -
Accumulated Depreciation	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525
Property Taxes					
Property Taxes	$ 38,526	$ 33,022	$ 27,518	$ 22,015	$ 16,511
Rate Base (Cost of service)					
Susbtation Plant	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
CIAC	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)	$ (27,000,000)
Accumulated Depreciation					
Net Substation Plant	$ -	$ -	$ -	$ -	$ -
General Plant	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525	$ 3,234,525
Accumulated Depreciation	$ (3,234,525)	$ (3,234,525)	$ (3,234,525)	$ (3,234,525)	$ (3,234,525)
Net General Plant	$ -	$ -	$ -	$ -	$ -
O&M Working Capital	$ 587,857	$ 601,621	$ 615,708	$ 630,124	$ 644,878
Materials & Supplies	$ 458,651	$ 469,390	$ 480,381	$ 491,628	$ 503,139
Prepayments	$ 101,625	$ 104,005	$ 106,440	$ 108,932	$ 111,483
Ending Rate Balance	$ 1,148,133	$ 1,175,016	$ 1,202,528	$ 1,230,685	$ 1,259,500
Average Balance	$ 1,134,999	$ 1,161,575	$ 1,188,772	$ 1,216,606	$ 1,245,092
Return Requirement					
Rate Base	$ 1,134,999	$ 1,161,575	$ 1,188,772	$ 1,216,606	$ 1,245,092
Weighted Cost of Capital	6.04%	6.04%	6.04%	6.04%	6.04%
Return Requirement	$ 68,512	$ 70,117	$ 71,758	$ 73,438	$ 75,158
Weighted Cost of Debt	2.11%	2.11%	2.11%	2.11%	2.11%
Interest Expense	$ 23,983	$ 24,545	$ 25,120	$ 25,708	$ 26,310
Net Income	$ 44,529	$ 45,572	$ 46,639	$ 47,731	$ 48,848
Contribution to Equity					
Plant Investment	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000	$ 27,000,000
Accumulated Depreciation	$ (21,000,000)	$ (22,000,000)	$ (23,000,000)	$ (24,000,000)	$ (25,000,000)
Net Plant Investment	$ 6,000,000	$ 5,000,000	$ 4,000,000	$ 3,000,000	$ 2,000,000
Contribution to Equity	3.92%	3.92%	3.92%	3.92%	3.92%
Contribution to Equity $	$ 255,012	$ 215,779	$ 176,547	$ 137,314	$ 98,082

Derivation of LP-DF Rate	Year 2045	Year 2046	Year 2047	Year 2048	Year 2049
	21	22	23	24	25
Levelized Charge ($)	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222	$ 4,624,222
Levelized Carrying Charge (%)	**17.13%**	**17.13%**	**17.13%**	**17.13%**	**17.13%**
Levelized Carrying Charge Breakdown					
Operational Expenses	2,539,705	2,592,765	2,647,196	2,703,031	2,760,301
Carrying Charge	$ 1,392,362	$ 1,331,999	$ 1,271,635	$ 1,211,272	$ 1,150,908
Total Carrying Charge	$ 3,932,068	$ 3,924,764	$ 3,918,831	$ 3,914,302	$ 3,911,210
PV of Total Cost	$ 1,217,661	$ 1,146,210	$ 1,079,326	$ 1,016,707	$ 958,071
Capital Investment Recovery Factor					
Iowa Survivor Curve (R5)	97.535%	96.110%	94.247%	91.947%	88.354%
Failure Probability (%)	2.465%	3.890%	5.753%	8.053%	11.646%
Incremental Failure Rate (%)	0.845%	1.426%	1.863%	2.300%	3.592%
Substation Replacement Cost ($)	42,893,705	43,898,032	44,925,875	45,977,784	47,054,322
Required Capital Investment Recovery ($)	$ 362,486	$ 625,807	$ 836,905	$ 1,057,544	$ 1,690,383
PV of Total Cost	$ 112,253	$ 182,764	$ 230,501	$ 274,688	$ 414,068
Present Value (Year 27)					
Investment Recovery Charge ($)	$ 431,312	$ 431,312	$ 431,312	$ 431,312	$ 431,312

Derivation of LP-DF Rate	Year 2050	Year 2051
	26	27
Total Cost of Facility Investment		
Substation-related O&M	1,989,748	2,036,336
Customer Accounts O&M	394,166	403,395
HES Costs	2,154,538	2,204,985
Labor-related A&G	645,229	660,336
Plant-related A&G	96,140	98,391
Depreciation (General Plant)	-	-
Property Taxes	11,007	5,504
Interest Expense	26,926	27,556
Net Income	49,992	51,162
Capital Investment Recovery	431,312	431,312
Contribution to Margin	58,849	19,616
Total Cost	$ 5,857,907	$ 5,938,595
PV of Total Cost	$ 1,353,238	$ 1,293,781
NPV of Total Cost		
Initial Investment		
Annual Charge ($)	**$ 5,857,907**	**$ 5,938,595**
Annual Carrying Charge (%)	**21.70%**	**21.99%**

Derivation of LP-DF Rate		Year 2050		Year 2051
		26		27
Detailed Calculations				
O&M Costs				
Substation-related O&M	$	1,989,748	$	2,036,336
Customer Accounts O&M	$	394,166	$	403,395
HES Costs	$	2,154,538	$	2,204,985
Labor-related A&G	$	645,229	$	660,336
Plant-related A&G	$	96,140	$	98,391
Investment				
Total Capital Expenditures	$	27,000,000	$	27,000,000
Gross Plant Investment	$	27,000,000	$	27,000,000
CIAC	$	(27,000,000)	$	(27,000,000)
Net Plant Investment	$	-	$	-
General Plant Depreciation				
General Plant Depreciation	$	-	$	-
Accumulated Depreciation	$	3,234,525	$	3,234,525
Property Taxes				
Property Taxes	$	11,007	$	5,504
Rate Base (Cost of service)				
Susbtation Plant	$	27,000,000	$	27,000,000
CIAC	$	(27,000,000)	$	(27,000,000)
Accumulated Depreciation				
Net Substation Plant	$	-	$	-
General Plant	$	3,234,525	$	3,234,525
Accumulated Depreciation	$	(3,234,525)	$	(3,234,525)
Net General Plant	$	-	$	-
O&M Working Capital	$	659,978	$	675,431
Materials & Supplies	$	514,920	$	526,977
Prepayments	$	114,093	$	116,764
Ending Rate Balance	$	1,288,991	$	1,319,171
Average Balance	$	1,274,245	$	1,304,081
Return Requirement				
Rate Base	$	1,274,245	$	1,304,081
Weighted Cost of Capital		6.04%		6.04%
Return Requirement	$	76,918	$	78,719
Weighted Cost of Debt		2.11%		2.11%
Interest Expense	$	26,926	$	27,556
Net Income	$	49,992	$	51,162
Contribution to Equity				
Plant Investment	$	27,000,000	$	27,000,000
Accumulated Depreciation	$	(26,000,000)	$	(27,000,000)
Net Plant Investment	$	1,000,000	$	-
Contribution to Equity		3.92%		3.92%
Contribution to Equity $	$	58,849	$	19,616

Derivation of LP-DF Rate		Year 2050		Year 2051
		26		27
Levelized Charge ($)	$	4,624,222	$	4,624,222
Levelized Carrying Charge (%)		17.13%		17.13%
Levelized Carrying Charge Breakdown				
Operational Expenses		2,819,041		2,879,286
Carrying Charge	$	1,090,545	$	1,030,182
Total Carrying Charge	$	3,909,586	$	3,909,468
PV of Total Cost	$	903,156	$	851,716
Capital Investment Recovery Factor				
Iowa Survivor Curve (R5)		83.886%		78.541%
Failure Probability (%)		16.114%		21.459%
Incremental Failure Rate (%)		4.469%		5.345%
Substation Replacement Cost ($)		48,156,067		49,283,609
Required Capital Investment Recovery ($)	$	2,151,913	$	2,634,130
PV of Total Cost	$	497,115	$	573,871
Present Value (Year 27)				
Investment Recovery Charge ($)	$	431,312	$	431,312

Carrying Charge Analysis		27-Year
Asset Life		27
NPV Revenue Requirement	$	1,457
Levelized Revenue Requirement	$	111
Levelized Carrying Charge %		11.07%
Monthly Carrying Charge %		0.92%

Year	Investment	Plant Balance	General Plant	Materials & Supplies	Prepayments
27-Year Depreciation					
0	1,000.00	1,000.00	119.80		
1		962.96	112.65	10.69	2.37
2		925.93	105.49	10.94	2.42
3		888.89	98.34	11.20	2.48
4		851.85	91.19	11.46	2.54
5		814.81	84.04	11.73	2.60
6		777.78	76.89	12.00	2.66
7		740.74	69.73	12.29	2.72
8		703.70	62.58	12.57	2.79
9		666.67	55.43	12.87	2.85
10		629.63	48.28	13.17	2.92
11		592.59	41.13	13.48	2.99
12		555.56	33.97	13.79	3.06
13		518.52	26.82	14.12	3.13
14		481.48	19.67	14.45	3.20
15		444.44	12.52	14.78	3.28
16		407.41	5.37	15.13	3.35
17		370.37	-	15.49	3.43
18		333.33	-	15.85	3.51
19		296.30	-	16.22	3.59
20		259.26	-	16.60	3.68
21		222.22	-	16.99	3.76
22		185.19	-	17.38	3.85
23		148.15	-	17.79	3.94
24		111.11	-	18.21	4.03
25		74.07	-	18.63	4.13
26		37.04	-	19.07	4.23
27		-	-	19.52	4.32
Total					

Year	Investment	Working Cash	Ending Rate Base Balance	Average Rate Base Balance	Return Requirements
27-Year Depreciation					
0	1,000.00		119.80		
1		7.09	132.80	126.30	46.13
2		7.26	126.12	129.46	44.87
3		7.43	119.45	122.78	43.01
4		7.60	112.79	116.12	41.16
5		7.78	106.14	109.47	39.30
6		7.96	99.51	102.83	37.45
7		8.15	92.89	96.20	35.59
8		8.34	86.28	89.58	33.74
9		8.53	79.68	82.98	31.89
10		8.73	73.10	76.39	30.04
11		8.94	66.53	69.81	28.19
12		9.14	59.97	63.25	26.34
13		9.36	53.42	56.70	24.49
14		9.58	46.90	50.16	22.64
15		9.80	40.38	43.64	20.80
16		10.03	33.88	37.13	18.95
17		10.27	29.18	31.53	17.16
18		10.51	29.87	29.52	15.59
19		10.75	30.57	30.22	14.17
20		11.00	31.28	30.92	12.76
21		11.26	32.01	31.65	11.36
22		11.53	32.76	32.39	9.95
23		11.80	33.53	33.15	8.54
24		12.07	34.32	33.92	7.13
25		12.35	35.12	34.72	5.73
26		12.64	35.94	35.53	4.32
27		12.94	36.78	36.36	2.92
Total					

Year	Investment	Plant Depreciation	General Plant Depreciation	Substation O&M	A&G
27-Year Depreciation					
0	1,000.00				
1		37.04	7.15	41.32	15.40
2		37.04	7.15	42.29	15.76
3		37.04	7.15	43.28	16.12
4		37.04	7.15	44.29	16.50
5		37.04	7.15	45.33	16.89
6		37.04	7.15	46.39	17.28
7		37.04	7.15	47.47	17.69
8		37.04	7.15	48.59	18.10
9		37.04	7.15	49.72	18.53
10		37.04	7.15	50.89	18.96
11		37.04	7.15	52.08	19.40
12		37.04	7.15	53.30	19.86
13		37.04	7.15	54.55	20.32
14		37.04	7.15	55.82	20.80
15		37.04	7.15	57.13	21.29
16		37.04	7.15	58.47	21.78
17		37.04	5.37	59.84	22.29
18		37.04		61.24	22.82
19		37.04		62.67	23.35
20		37.04		64.14	23.90
21		37.04		65.64	24.46
22		37.04		67.18	25.03
23		37.04		68.75	25.62
24		37.04		70.36	26.22
25		37.04		72.01	26.83
26		37.04		73.69	27.46
27		37.04		75.42	28.10
Total					

Year	Investment	Property Taxes	Annual Revenue Requirement	PV Revenue Requirement
27-Year Depreciation				
0	1,000.00			
1		6.16	116.16	109.55
2		5.92	115.98	103.15
3		5.68	115.24	96.66
4		5.43	114.53	90.60
5		5.19	113.86	84.94
6		4.95	113.22	79.65
7		4.70	112.61	74.71
8		4.46	112.04	70.10
9		4.22	111.51	65.80
10		3.97	111.01	61.78
11		3.73	110.56	58.02
12		3.49	110.14	54.51
13		3.24	109.76	51.23
14		3.00	109.42	48.17
15		2.76	109.12	45.30
16		2.51	108.87	42.62
17		2.27	106.93	39.48
18		2.04	101.68	35.40
19		1.83	102.03	33.50
20		1.63	102.43	31.72
21		1.43	102.88	30.05
22		1.22	103.38	28.47
23		1.02	103.93	26.99
24		0.82	104.53	25.60
25		0.61	105.18	24.30
26		0.41	105.88	23.07
27		0.20	106.65	21.91
Total				1,457.28