

Managing Financial Risks of Emerging Power Demands in Data Centers

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Rappahannock Electric Cooperative



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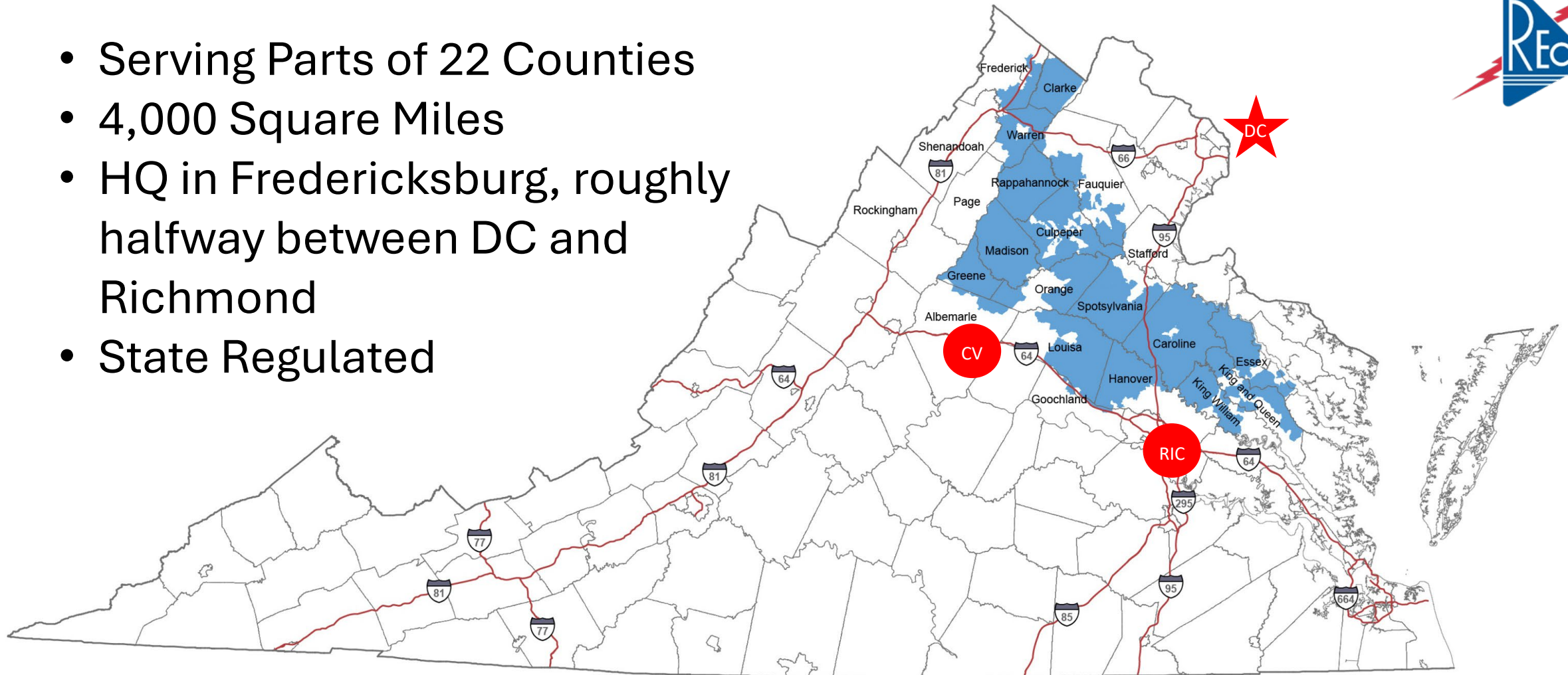
- First, a Little about Us
- Hyperscale Data Centers
= Opportunity & Risk
- REC's "Blue Wall"
- Safeguards
- Lessons Learned So Far



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REC's Service Territory

- Serving Parts of 22 Counties
- 4,000 Square Miles
- HQ in Fredericksburg, roughly halfway between DC and Richmond
- State Regulated

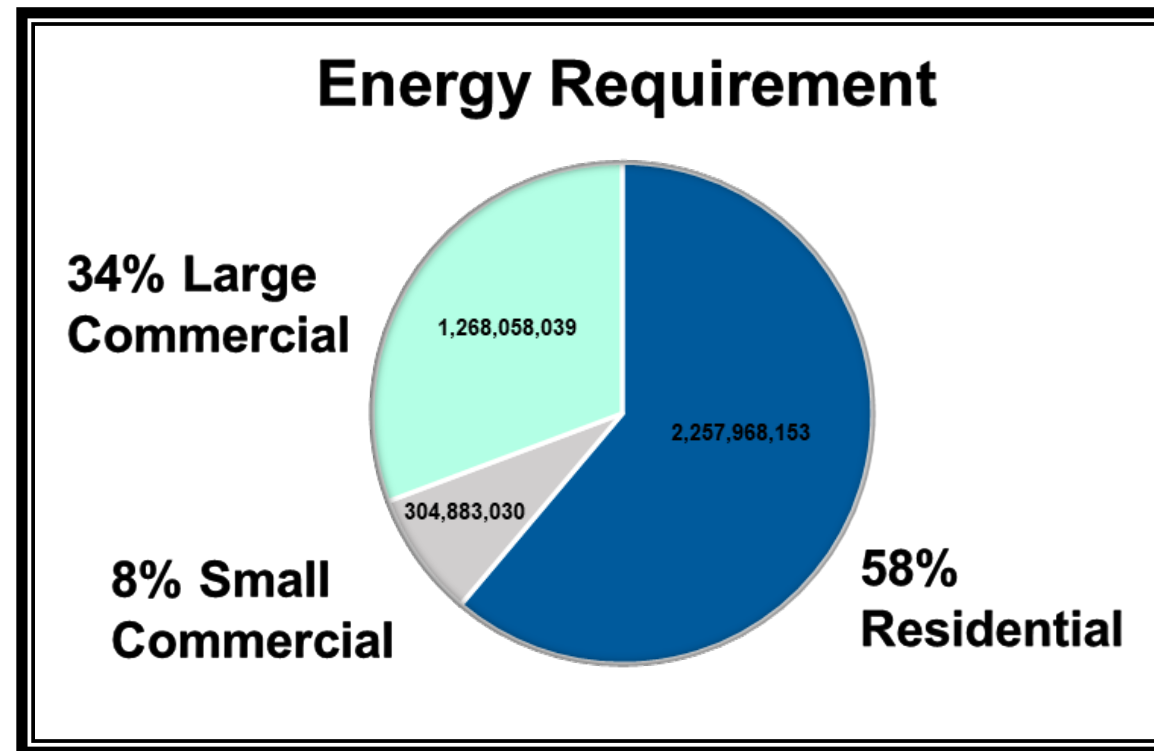
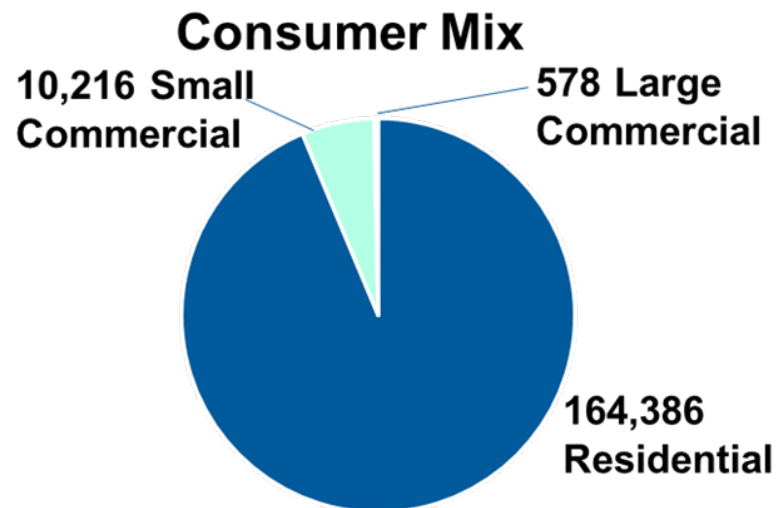


REC's Energy Requirement (2024)



Annual Energy Delivery for 3 Largest Segments: **3,869,930,991 kWh**

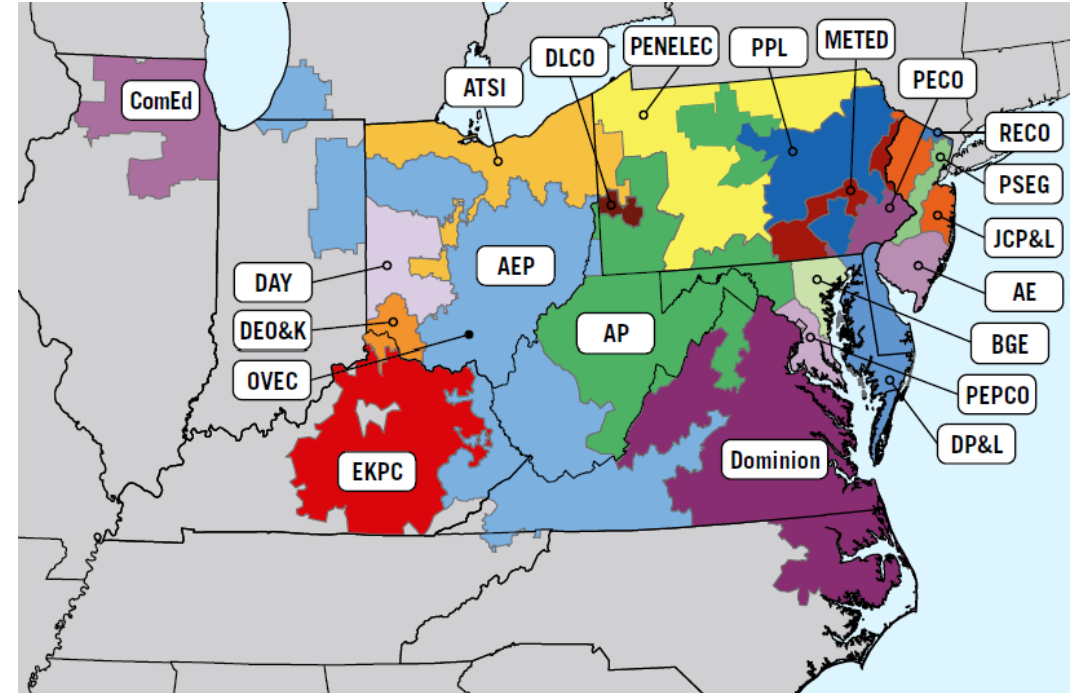
(Excludes lights & public authorities)



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REC's Traditional Power Supply Arrangement

- All Requirements Wholesale Power Contract with Old Dominion Electric Cooperative (ODEC)
- REC is ODEC's largest member at @ 1.1 GW Annual Peak Load
- ODEC is mostly a G with little T, so 2 IOUs provide Transmission Service to REC
- ODEC has a diverse portfolio of Generation Resources + PPAs + Wholesale Market Purchases to meet its members' needs
- Part of PJM Interconnection, Our Territory Falls Mostly in the Dominion zone



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REC's Experience



- Hyperscale Data Centers = Most Projects ≥ 300 MW
Enterprise DC Projects and Co-Locators
- Most have approached us directly (vs. coming through site selectors or Economic Development authorities)
- Speed to Market is Key, Plenty of \$\$ Until You Ask for It



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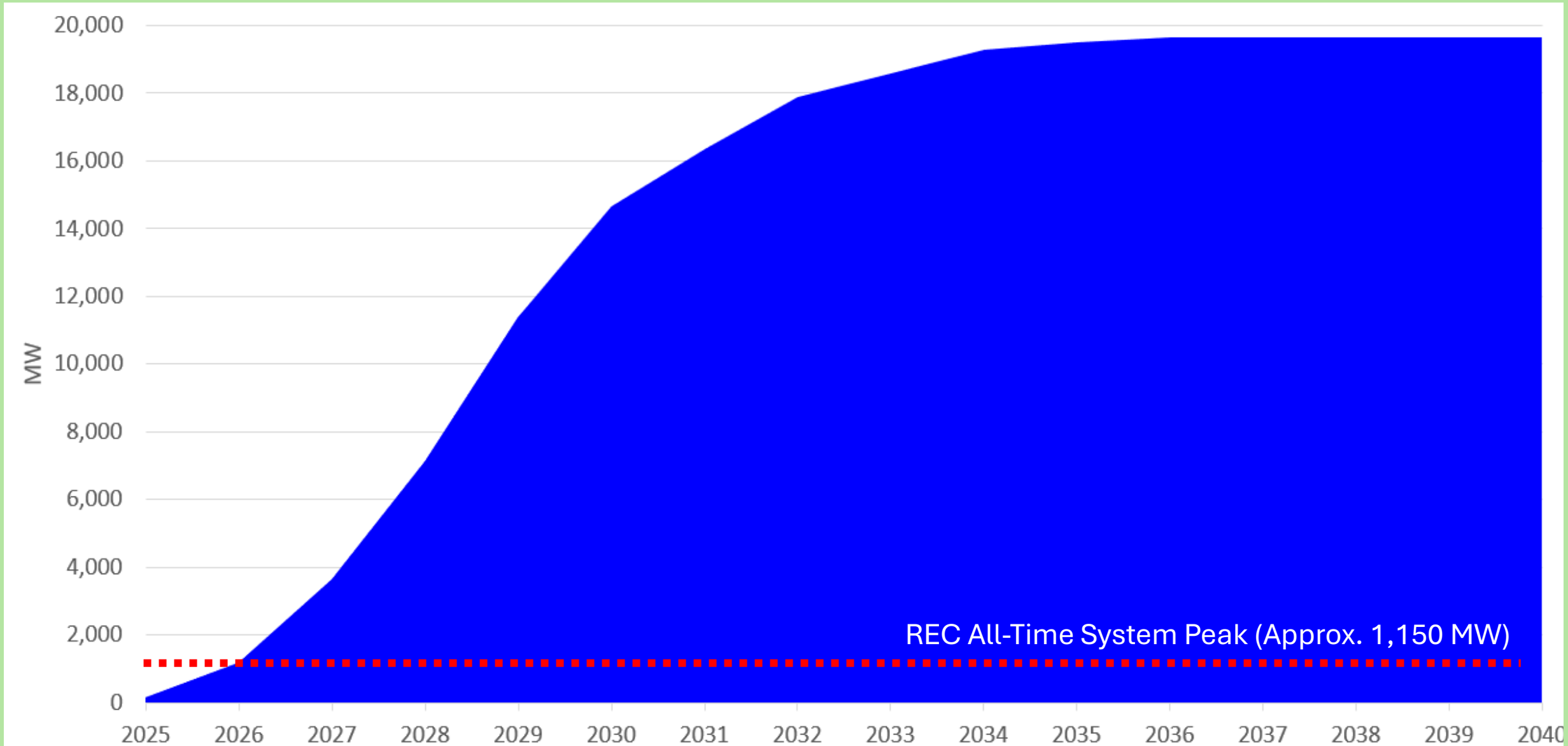
Just How Big is the Hyperscale Data
Center Interest?

Our “Blue Wall”



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Requested Data Center Load in REC Service Territory



Safeguards: Onboarding



- Know Your Customer, No, REALLY Know Them
 - What Kind of Data Center? Enterprise, Co-location, Developer, Speculator
 - Rated vs. Non-Rated
 - Ownership Structure -- Private Equity Investors?
- How Serious Are They?
 - Site control
 - Load ramp – 10 years; realistic?
 - Required county/local development approvals
 - Deposit to cover administrative time and engineering evaluation of project

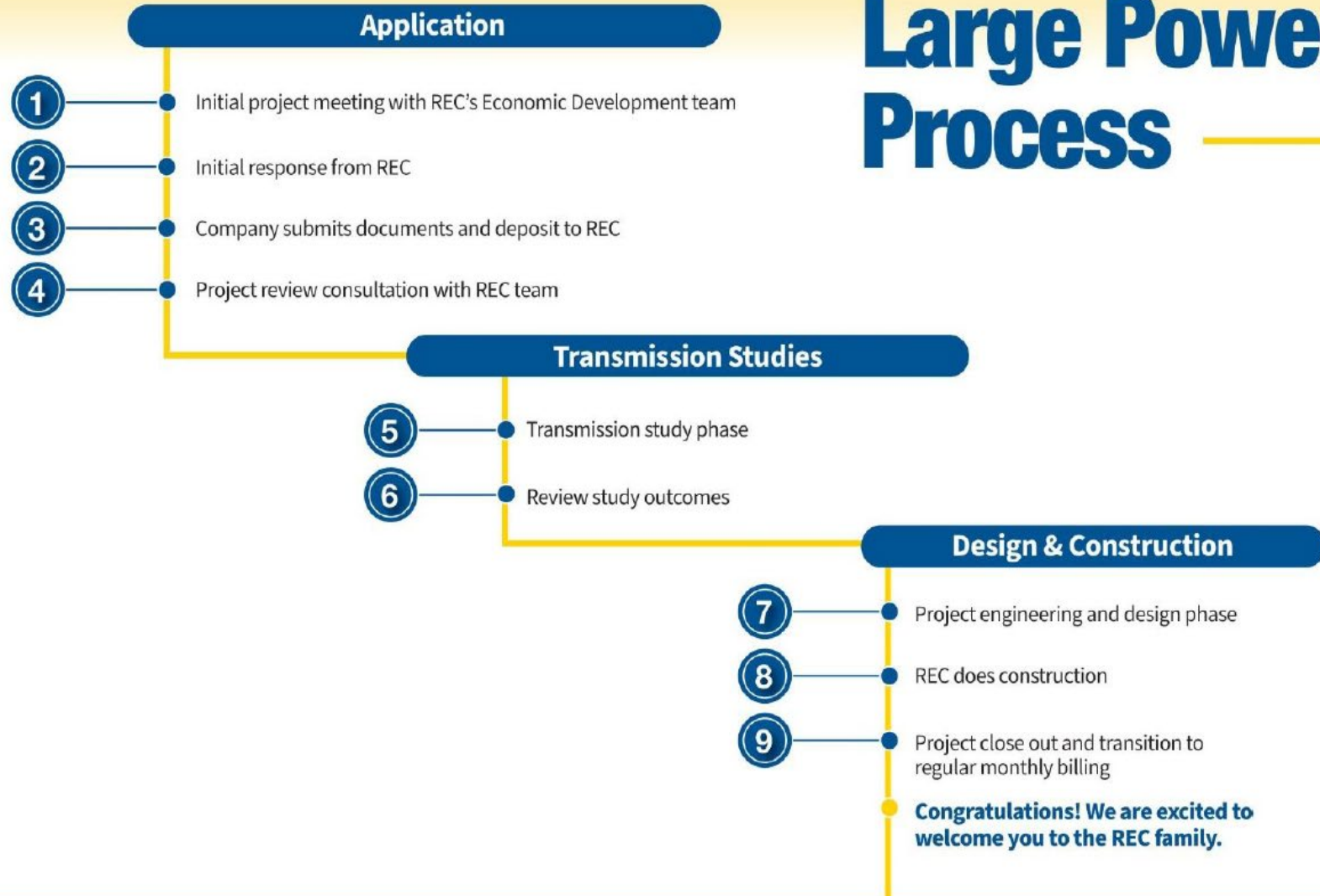


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REC's Large Load Onboarding



Large Power Process





Safeguards: CIAC and Collateral

- CIAC for Distribution Build – Long-Lead Time Equipment & Labor
- Securing Payments – Balancing Risk Mitigation with Being Development Friendly
 - Cash – All upfront, or installments?
 - Types of Collateral -- ILOC, Surety Bond, Parent Guarantee, Escrow – each has pros and cons
- REC developed a **Construction Development Agreement** that Data Center must sign, spelling out CIAC and collateral requirements aligned with project's build-out schedule



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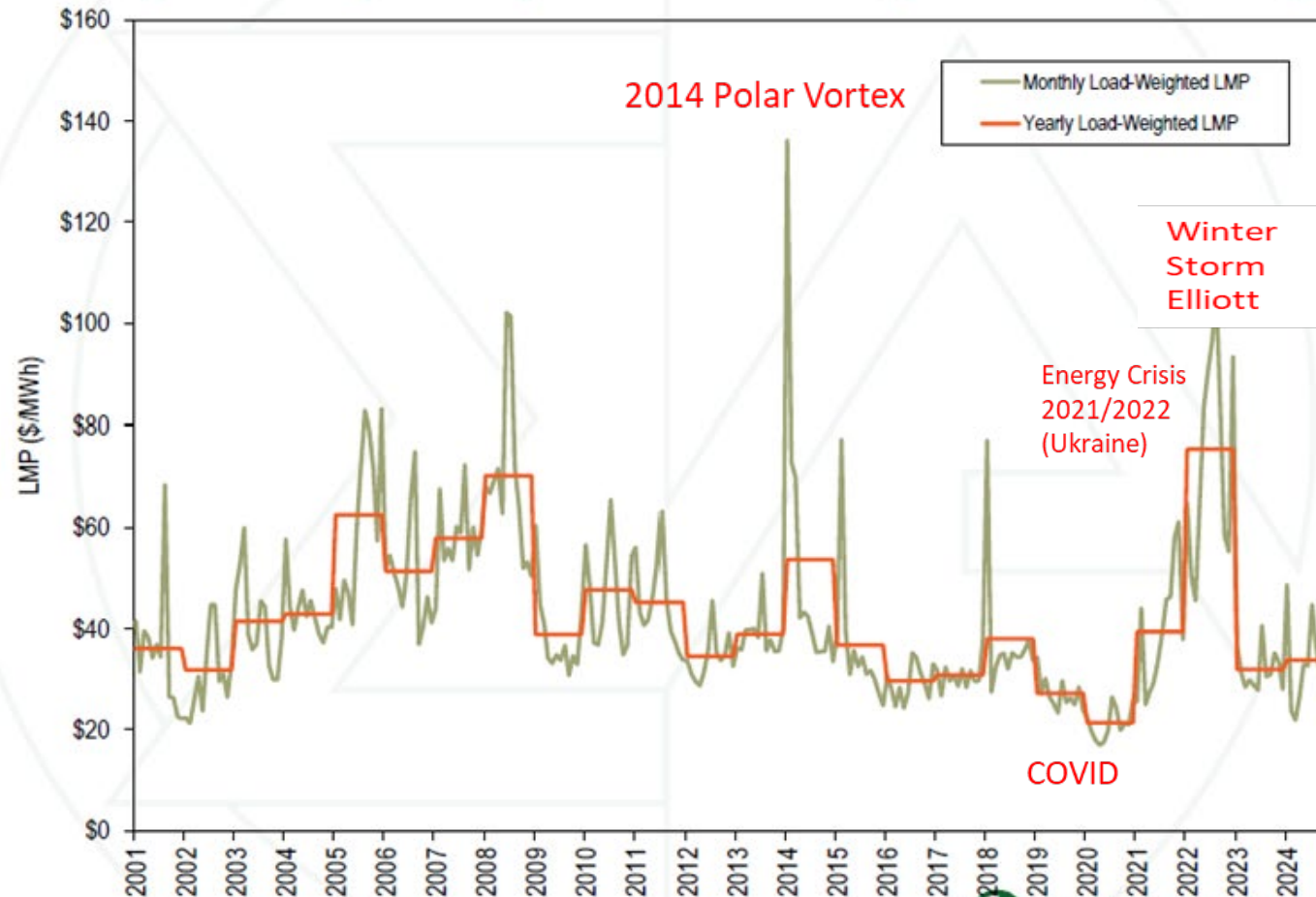
Power Supply Risk



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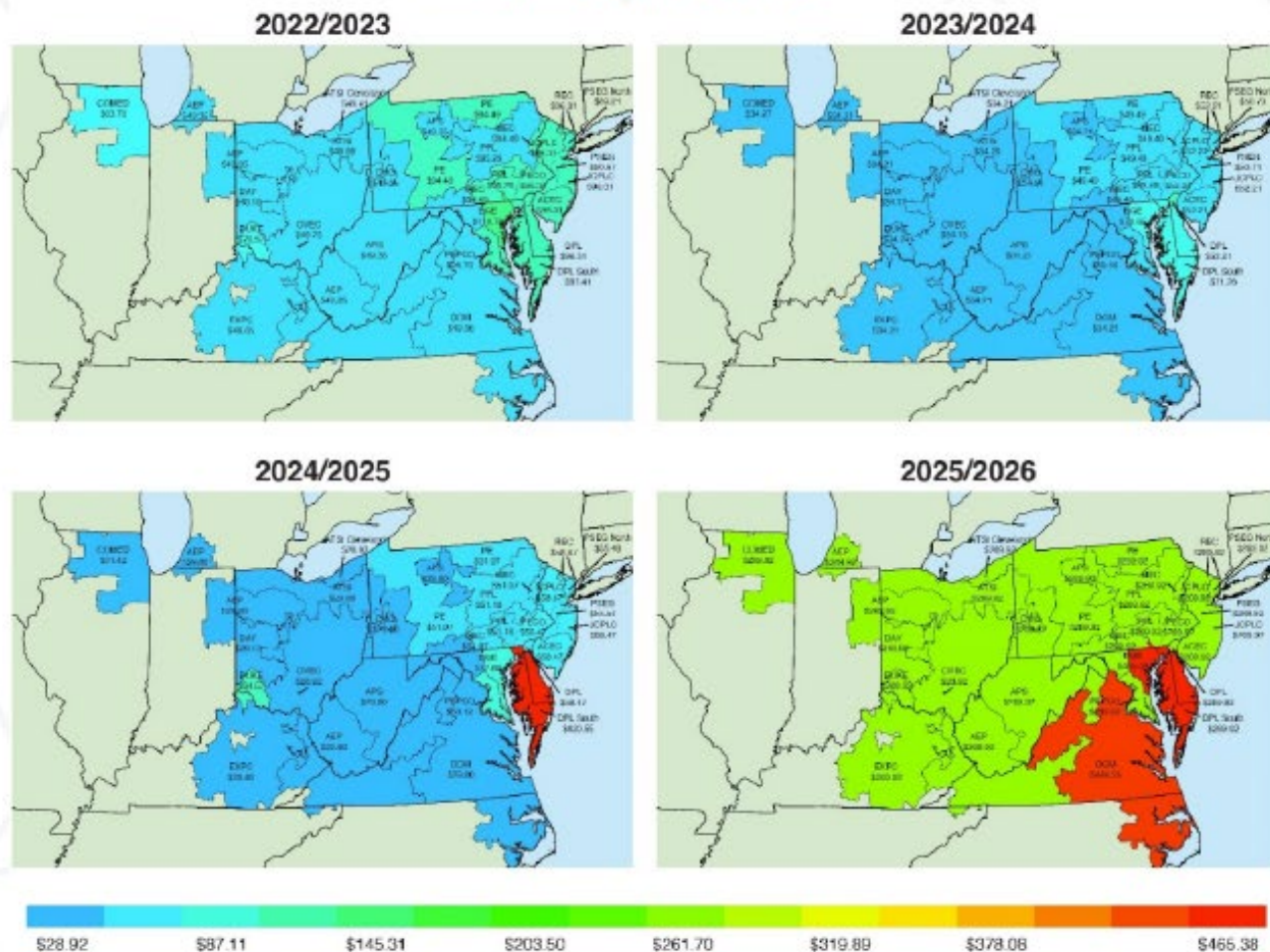
PJM: Power Supply Volatility

DA monthly and yearly load-weighted average LMP



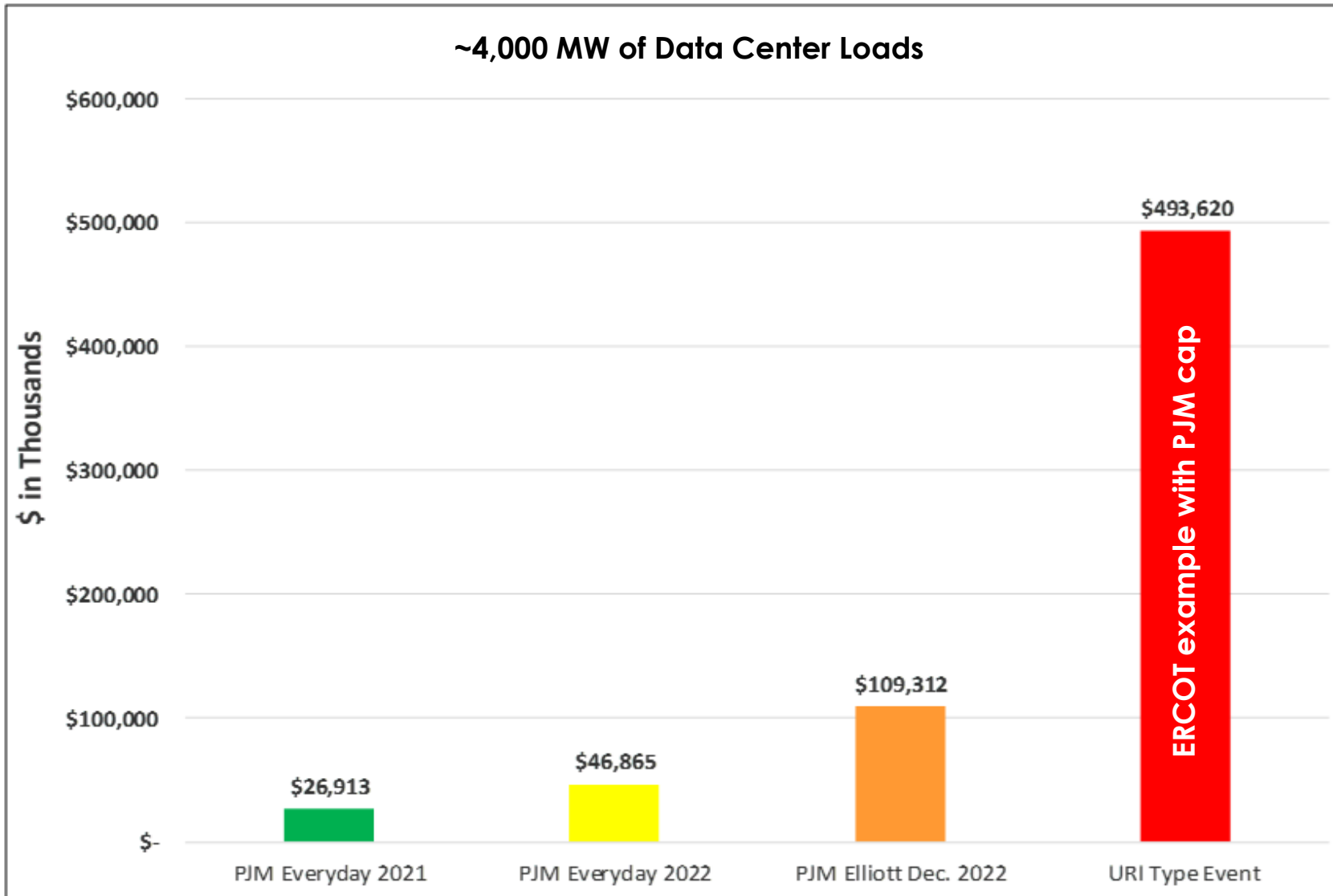
This is chart from PJM's 2024 State of the Market Report shows the seasonal, annual and event-driven market volatility, as well as long-term growth and inflation in PJM.

Map of RPM capacity prices: 2022/2023 through 2025/2026



RPM = Reliability Pricing Model (the name of PJM's capacity market)

Modeling Out Potential Weekly Power Supply Bills



PJM Everyday 2021

- PJM LMP: \$39.78/MWh
- PJM Capacity & DVP Transmission
- Total Price: \$52.98/MWh

PJM Everyday 2022

- PJM LMP: \$80.14/MWh
- PJM Capacity & DVP Transmission
- Total Price: \$92.25/MWh

PJM Winter Storm Elliott Dec. 2022

- PJM Calculated LMP: \$203.06/MWh
- PJM Capacity & DVP Transmission
- Total Price: \$215.17/MWh

URI Type Event

- ERCOT Feb. 2021 conditions w/ 32 hours of market cap settlement.
- \$4,400/MWh during cap
- Assumes \$150/MWh for remainder of week outside cap
- PJM Capacity & DVP Transmission
- Total Price: \$971.63/MWh

Annual Consumption >26,000,000,000 kWh | Weekly Settlement ~500,000 MWh



Safeguards: Mitigating Supply Risk

- Monthly vs. Weekly Billing – Can You Afford to Float a Weekly Power Bill in the \$\$ Millions?
- Pre-Payment
- Deposits or Other Collateral

Plus, Virginia Has Retail Choice for Large Loads (> 90 MW)



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REC's Large Power-Dedicated Facilities Tariff



- Currently before the Virginia State Corporate Commission*
- Rate includes:
 - Delivery service charge
 - Service charge (based on total # of customers served by each dedicated substation)
 - Excess facilities charge
 - Pass-through of power supply costs
- Delivery service charge + service charge are structured as demand charges on a per MVA basis.

*<https://www.scc.virginia.gov/docketsearch#/caseDetails/146004>



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REC's LP-DF Tariff + Electric Service Agreement



- LP-DF Tariff:
 - Rate structure reflects that member will be served by dedicated facilities that they pay for (100% CIAC)
 - Will ensure that REC's cost recovery aligns with their stable, high load factor*
 - *Minimum average annual load factor of 75% required



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REC's LP-DF Tariff + Electric Service Agreement



- Electric Service Agreement *in development*
 - Collateral requirements
 - Early termination fee
 - Provisions to catch “trailing” costs - Ex. Prior year’s critical peaks are used to calculate charges in the subsequent year. REC wanted to ensure that if a member elects to be served by a competitive provider, then those subsequent year costs could be charged.



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REC's Affiliate Model

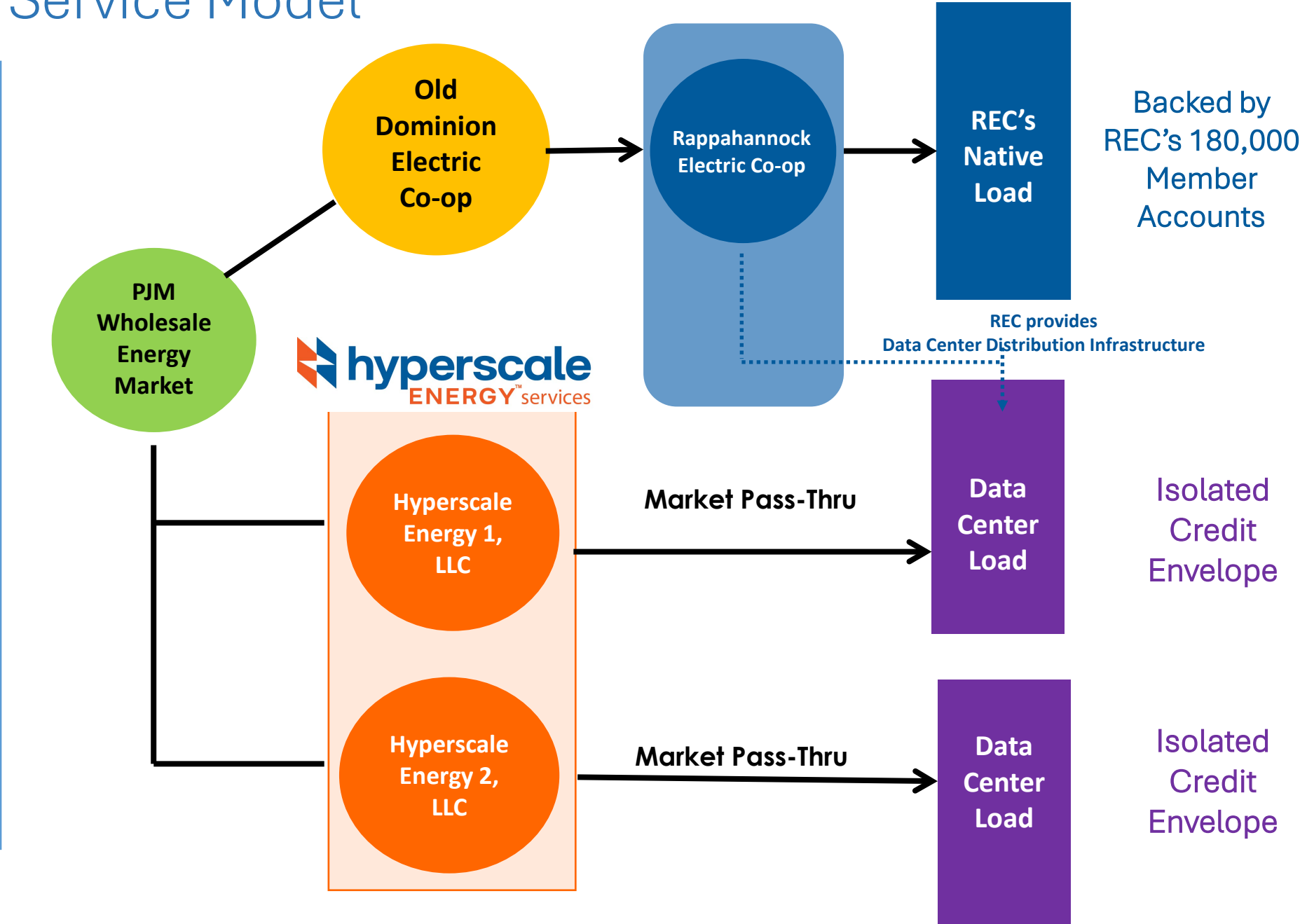
Providing Legal and Financial Separation to
Protect the Co-op and Its Members



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REC's Affiliate Service Model

Fulfilling
REC's
Mission
&
Obligation
To Serve



Some Lessons Learned

- When You've Met One Data Center...
- Have Your Processes in Order
- Contracts, contracts, and more contracts
 - Be prepared to negotiate!
 - Know/set your bounds



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Questions?

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&

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