Distribution Rate Design

A Response

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Disclaimer:

This presentation represents the thoughts and opinions of the author and is in no way representative of the opinions or policy of the Delaware Public Service Commission or its Staff.

Delaware-Specific Considerations

- Delaware has had Advanced Metering Infrastructure in place since 2012, largely unused except for remote reading and easier field disconnects/reconnects.

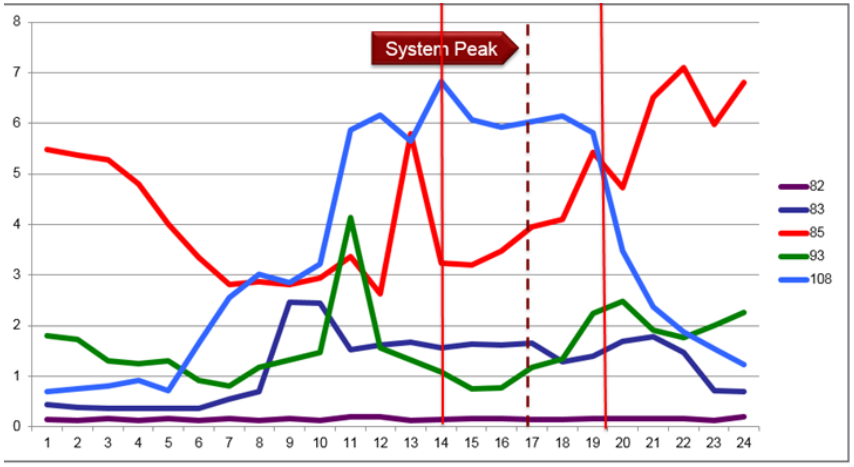
- 26 *Del. C.* § 1014(e)(4)

  - [The rules and regulations promulgated for net energy metering by the Commission … shall] ensure that electric suppliers provide net-metered customers electric service at ***nondiscriminatory rates that are identical, with respect to rate structure and monthly charges***, to the rates that a customer who is not net-metering would be charged. Electric suppliers shall not charge a net-metering customer any stand-by fees or similar charges…

Response Thoughts/Questions

- "What Services Can These Provide?"
  - Both Regulation (Lazar, Slide 5) and Dispatchable Capacity (Lazar, Slide 7) should be compensated through the wholesale markets, not through retail rates.
    - Regulation: Visibility for Distribution Utility/LSE extremely low, would be nearly impossible for 'correct' compensation.
    - Dispatchable Capacity: Distribution Utility/LSE would need to receive credit through PJM to compensate behind-the-meter dispatchable capacity.
  - Most DERs can provide neither Regulation nor Dispatchable Capacity

Response Thoughts/Questions Con't

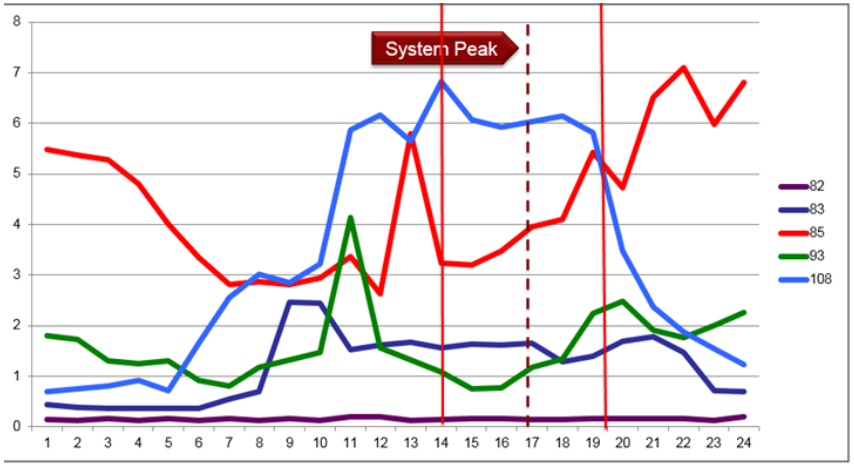


Lazar, Slide 28; Red Lines added.

- Does one "System Peak" adequately represent the true "Peak" of the Distribution System?
  - Distribution systems are too diverse, and their use too geographically inconsistent to find one "System Peak"
  - However, (Delaware) studies have shown that ~85.85% of substations will most likely peak on a weekday between 2-7PM.

Define "peak" as 2-7PM each weekday. Could vary by service territory.

Response Thoughts/Questions Con't



Lazar, Slide 28; Red Lines added.

- Not each component of the distribution system is planned for one "peak;" Some components will not have their peak use at the one system "peak".
  - If charged by 1 CP, "your" local substation (etc..) may not have peaked, and your load diversity may not be accounted for (overcharged)
- Almost all components will peak during the hours of 2-7PM on some weekday throughout the year.

The Problem, Then…

- What is the proper method to calculate (and ***bill***) for each ratepayer's contribution to "peak," taking into account the fact that different components of the distribution system may peak on different days throughout the year?
- How can rates send proper and timely price signals?
- How can we allow NEM customers to avoid costs that they allow the utility to avoid?

Potential Solution

- Averages!
  - Measure ratepayers NCP during the “peak” hours of 2-7 PM each day.
  - Average each weekday “peak” NCP (~30 data points/billing cycle)
  - Update kW billing demand each month

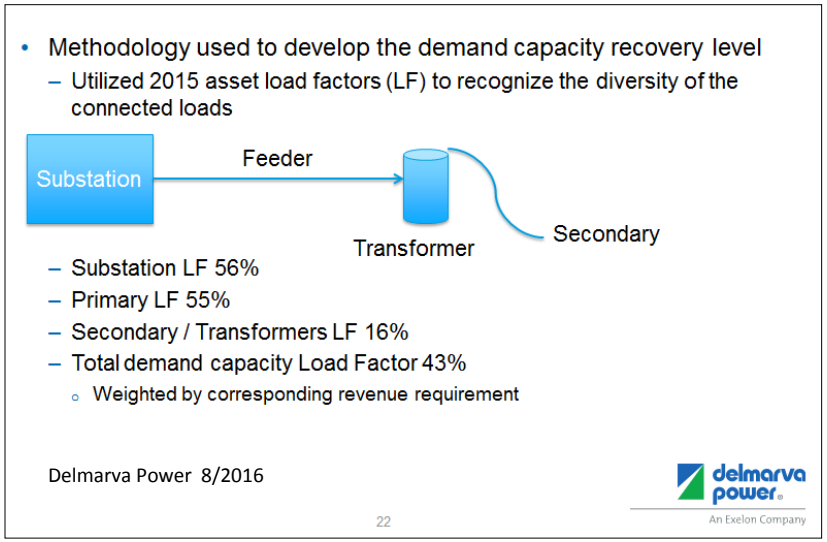
- Will result in:
  - Demand rates that reflect use at distribution system “peak” times
  - Rates that send proper price signals, and are actionable
  - Opportunity for DER to avoid Demand Charges in proportion to the amount they use the distribution grid during peak times.
  - Opportunity for technological advancement to truly avoid peak (e.g. batteries, DR). If DER ratepayers use no demand from the grid during these hours, they will avoid all “peak” Demand Charges, as they should.

Potential Solution, Details

- How much of the rate should be charged through this Average Demand Charge?

43%

"Total Demand Capacity Load Factor"



- The remaining 57% should be recovered through non-bypassable charges (Theoretically, NCP, more realistically, continued volumetric charges[?]).
  - Alignment with Mr. Cleverdon's "monthly fixed charge based on the size of service drop for a given meter." (at 6)
- Net Metering would continue for generation piece of the bill.

Concerns Addressed

An Important Concern:
Demand Charges Shift Costs to Occasional Users

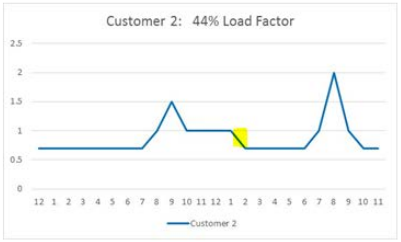
With $10/kW Demand Charge:

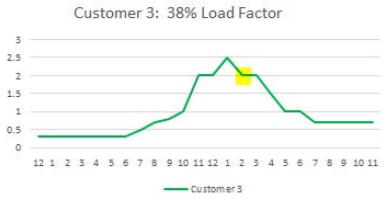
Use 5 kW for 1 hour in month:	$50
Use 4 kW for 720 hours in month:	$40

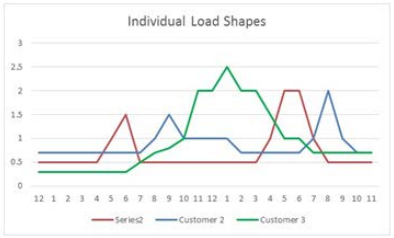
Lazar, Slide 24.

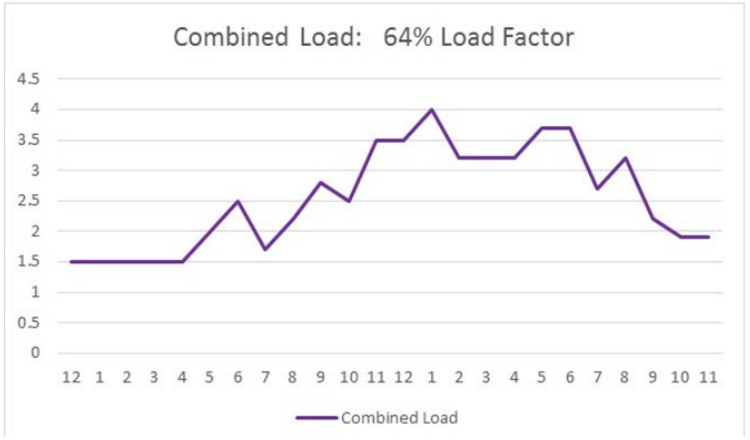
- Average Demand Charge would address this Concern.
- Such an average would charge ratepayers in accordance with their use at "peak"
  - "peak" as defined; occurring ***every weekday*** between 2-7PM
- Potential Solution would be in addition to non-bypassable "fixed" charge (per Cleverdon)
  - Based on size of service drop that would recover facilities of fixed costs.
  - Would correctly be sized to customer NCP
  - Potentially more politically feasible method of recovery: non-bypassable volumetric charges

Concerns Addressed









- While the utility plans for (and therefore should charge) their distribution system "peak," each distribution customer should pay their contribution to such a peak.
- Average Demand Charge would address such a concern.

Lazar, Slide 22, 23.

Delaware: The First State…

- …but do we want to be?
- Unique and untested rate design.
- Bill frequency studies show that phase-in would result in minimal bill impacts.
- How do we implement for maximum customer response?