

FERC Technical Conference

PJM Cost Allocation

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By

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PSE&G: Who We Are

- ❑ Wholly-owned direct subsidiary of Public Service Enterprise Group Incorporated (PSEG), which is a publicly traded, diversified energy company with annual revenues of approximately \$11 billion.
- ❑ New Jersey's oldest and largest regulated electric and gas delivery utility, providing service to 2.2 million electric customers and 1.8 million gas customers.
- ❑ Transmission Owner in the PJM region, owning approximately 1,700 circuit miles of electric transmission facilities.
- ❑ As of 2015, PSE&G has over \$ 5.8 billion of transmission plant in service.
- ❑ Named America's most reliable electric utility for the 5th time in 9 years and winner of regional award for the 13th straight year.



FERC Technical Conference Question Presented

Question:

Whether there is a definable category of reliability projects within PJM for which the solution-based DFAX cost allocation method may not be just and reasonable, such as projects addressing reliability violations that are not related to flow on the planned transmission facility, and whether an alternative just and reasonable *ex ante* cost allocation method could be established for any such category of projects.

Answer:

No, for the following reasons:

1. Power flow driven versus non-power flow driven is not an appropriate distinction.
2. Facts of underlying projects do not warrant any exception. Rather, record supports correctness of allocations.
3. Solution-Based DFAX is just and reasonable and is a superior non-discriminatory *ex ante* cost allocation methodology.



Non-Power Flow Versus Power Flow Is Not An Appropriate Distinction

- ❑ **No Basis For Distinguishing Stability And Short Circuit Issues From Voltage Issues.**
 - ❑ The “non-power flow” distinction turns on the fact that the violation is on a facility rather than on a line.
 - ❑ However, voltage/reactive problems provide examples of violations that are “non-power flow driven” in nature.
 - ❑ And voltage/reactive issues are one of the biggest drivers of RTEP projects in PJM.
- ❑ **Non-power flow violations can be caused by solutions for power-flow driven violations: e.g. short circuit problems.**
- ❑ **Short circuit and stability issues need to be addressed no differently than voltage issues.**



Non-Power Flow Versus Power Flow Is Not An Appropriate Distinction

Solutions To “Non-Power” Driven Violations Provides Regional Benefits

- ❑ **Voltage/Reactive Issues**
 - ❑ E.g., MAPP project; voltage issues affecting Eastern, Central and Western interfaces.
- ❑ **Stability Issues**
 - ❑ Artificial Island; Susquehanna nuclear complex.
- ❑ **Short Circuit Issues**
 - ❑ Caused by variety of issues including (1) existing and new generation; (2) existing and new transmission (3) topology changes.
- ❑ **Conclusion**
- ❑ **Non-power driven violations cannot be pigeon-holed as a localized concern.**
- ❑ **No technical basis for distinction.**



Underlying Cases Do Not Support Different Cost Allocation Category

Projects Address Multiple Violations/Criteria (Including Both Power Flow and Non-Power Flow Driven Violations)

- ❑ Artificial Island: Baseline operational performance project that addressed both system stability and high voltage reliability issues.
- ❑ BLC Project: Baseline reliability project that addresses a variety of reliability violations, including thermal and short circuit violations.
- ❑ Sewaren: Baseline reliability project that addressed aging infrastructure and short circuit issues.
- ❑ Metuchen-Edison: Baseline reliability project is driven by thermal violations (i.e. power flow driven).



Underlying Cases Do Not Support Different Cost Allocation Category

Observations and Conclusion

- ❑ Voltage, short circuit and stability fixes can and do address regional needs.
- ❑ Moreover, most RTEP projects address multiple drivers rather than a single driver.
- ❑ Projects are not readily or easily categorizable as other parties have suggested.
- ❑ Uniqueness is not a distinguishing factor. All RTEP projects are unique because of their unique electrical location which in turns drives DFAX analysis.



Solution-Based DFAX Is A Superior Cost Allocation Approach

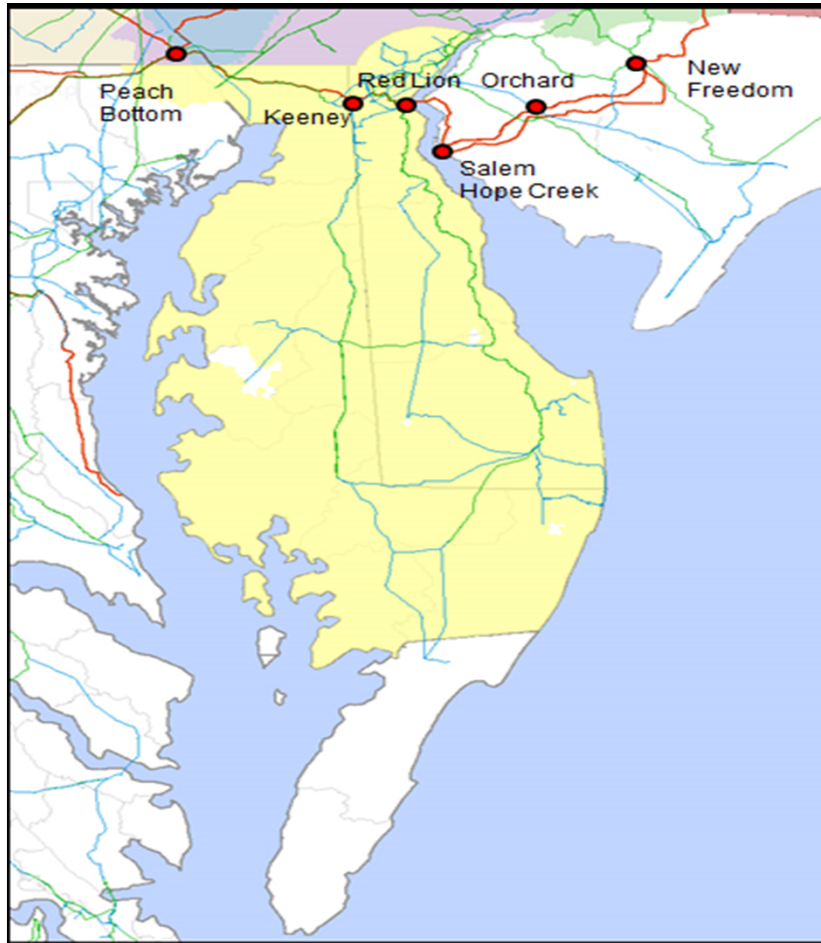
- ❑ **PJM abandoned violations-based DFAX after 8 years of experience with it.**
- ❑ **Problems with Violations-Based Approach:**
 1. Became unmanageable for projects addressing high number of violations.
 - Susquehanna-Roseland project – over 50 violations.
 2. Overly cumbersome approach.
 3. Results were not necessarily repeatable on an annual basis, because violations could disappear.
 4. Does not adequately capture future beneficiaries of RTEP projects.
 5. Ill-suited for analysis of voltage or other issues such as short circuit or stability.
 - Required use of power-flow based line proxies.
 - Selection of proxies requires exercise of engineering judgment, making it less of an exact science.

Solution-Based DFAX Is A Superior Cost Allocation Approach

- ❑ Cost allocation is not an exact science and no cost allocation methodology is perfect.
- ❑ What is important is to have a reasonable approach that is known in advance and that can be applied consistently across a broad category of projects and that is not applied on a project by project basis.
- ❑ Solution-based DFAX, the product of protracted litigation and settlement before FERC, is the correct approach.
 - ❑ It provides the non-discriminatory *ex ante* approach required under Order No. 1000 while avoiding the problems previously encountered under the violations-based approach.
 - ❑ It allocates cost to parties commensurate with the benefits they receive (measured by relative use) from RTEP projects.
 - ❑ It is performed annually and as such captures changes in beneficiaries over time.

Facts/Record Supports DFAX Results

E.g: Delmarva Area Is Prime Beneficiary of AI Project

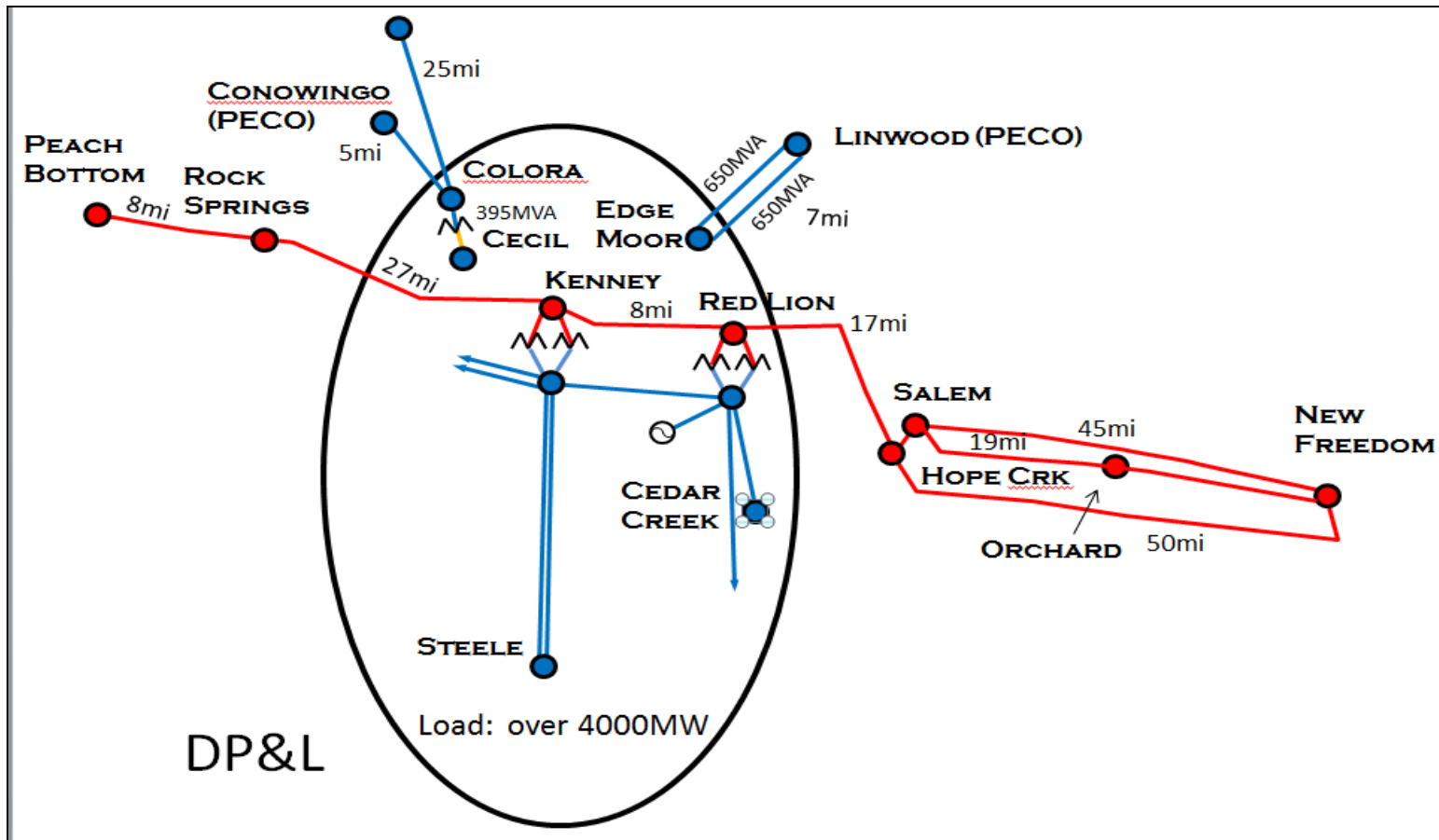


Before Upgrade

- Over 4000 MWs of load in Delaware.
- Load is electrically isolated and served by two 500 kV transmission lines, as well as by two low capacity 230 kV and one 138 kV transmission lines into peninsula.
- Area has been subject to significant transmission constraints and service problems historically.
- Peninsula also has a lot of older higher cost generating units, that are most probably at risk given the current context of low cost gas and strict environmental regulations.

Facts/Record Supports DFAX Results

E.g. Delmarva Area Is Prime Beneficiary of AI Project



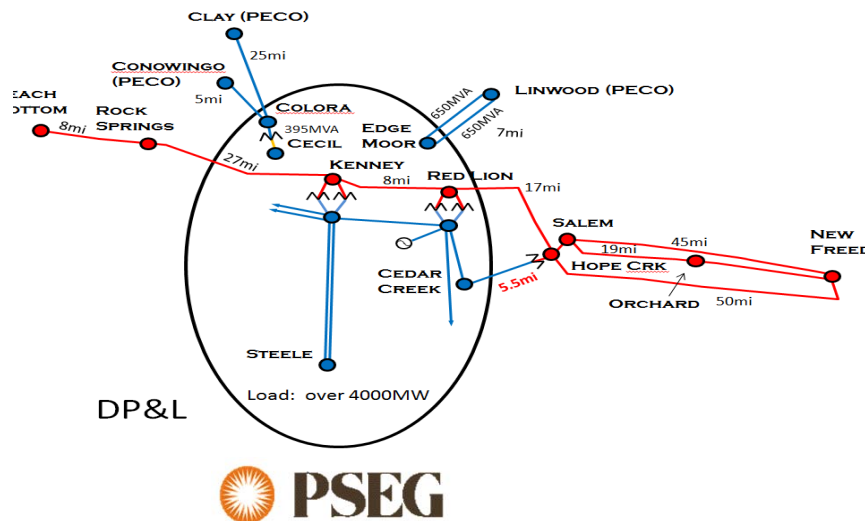
Facts/Record Support DFAX Results

E.g. Delmarva Area Is Prime Beneficiary of AI Project



AI Project Provides Following Specific Benefits:

- AI project adds another high capacity transmission line into Delmarva, 5 miles from a nuclear complex with 3800 MWs of baseload generation.
 - Power will naturally and only flow from AI to Delmarva.
- AI upgrade is electrically closer to the Delmarva load than to any other load area in PJM.
- Reliability for Delmarva customers improved.
- Potential energy savings identified by PJM.
- Likely positive RPM price impacts.
 - Zone split in 2010/2011 and 2012/13 delivery years.
 - Zonal price \$80 /Mwday > Eastern MAAC price in 2012/2013 period.
- AI Project will mitigate future need for projects driven by generation retirements.



These benefits support the results of PJM's DFAX analysis for the AI Project.

Conclusions

1. **Non-power flow versus power flow driven is not an appropriate distinction.**
2. **Cases in the underlying dockets do not support the creation of any new category. Moreover, the record in the underlying dockets support PJM's DFAX analysis.**
3. **Solution-based DFAX is a just and reasonable *ex ante* cost methodology that was appropriately applied to the projects in the underlying dockets. There is no need for any carve-outs.**