High Penetration Workshop
Feeder Identification Breakout Questions

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Feeder Topology and Identification

Themes:

“Feeders are not all created equal”

and now

“Distances are not all created equal”

Same feeder, same conductor, same loads, but how the utility operates that feeder another factor because operations of feeder can add in another level of uncertainty.
What are possible metrics to measure success in the feeder identification tools?

More metric based versus feeder topology and focus on limiting factors of feeders

- Feeder regulation schemes
- Reverse power flow
- CVR – how the system is operated
- What bands exist (5% versus 2%)
- Stiffness on the system
- Load serving (residential versus commercial)
- Keep EVs separate (more of a controllable load)
Hosting Capacity (European Model)

1. Choose a phenomenon and a performance index
2. Determine a suitable limit for the performance index
3. Calculate the value of the performance index as a function of the amount of DG
4. Obtain a hosting capacity value
SMUD Example

- **Hosting Capacity exercise**

  - Where in the system there is headroom to accommodate PV?
    - Improved capacity studies. Mapped and published available capacity to accommodate interconnection. Has to be continually maintained, not a stagnant process.
    - Created buckets of what they could handle. Going to want a big safety margin.
    - Look **at system impact versus cheap interconnection** to look at stiffness. Utility needs to look at feeders to develop that map. Address the need to look at feeders and approach to develop a map.

  - Effort at state level to do a similar activity. Can we do this at the national level?
Penetration Levels and Issues

• Substation rating
• Minimum load (not always night, could be during middle of the day). 15% of peak is meant to simulate minimum load.
• Not all utilities have good minimum load data on their feeders.
• Definitions have to be flexible to fit operations data to quantify system impact.
• Is that PV going to reverse the power flow? If yes, then we need to take a further look at it. If no, not a big deal, just do it.

• Minimum load is what we really want to know. How do we measure that?
  • Distribution SCADA
  • More AMI, etc.
  • More and more we are able to measure minimum load.

• Need visibility