November 24, 2020 - Combined CRSTT/DisTT Call Notes

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Attendees
Roll call – not captured.

Agenda:

- Recap November 2020 NASPI Working Group Meeting (feedback regarding the meeting can be emailed to naspi@pnnl.gov and the presentations may be download here).
- Discuss development of Use of Synchrophasor Data in Real-time Operations Paper
- Summary of Distribution PMU Task Force discussions on specifications for performance or testing needs, with opportunity for input and suggestions (Ken Martin and Sascha von Meier).

WG Meeting: Generally positive experiences. Consider returning to Task Team Breakout Sessions next time. Question about whether chat was captured?

ISO hosted workshops: Mike Cassiadoro and NDR Sarma discussed a suggestion for educational workshops on synchrophasors to be hosted by ISOs with support from NASPI, since many of their members don't have much knowledge of PMUs.

Mike advised that a video of the *Use of Time Synchronized Measurements in the Real-Time Operations Horizon "Train-the-Trainer" Session* would be posted on the NASPI website December and that he'd speak with PNNL about conducting such workshops in 2021.

Survey Follow-up: Panos Moutis suggested producing a short slide deck summarizing findings from our last report, to distribute to utilities while inviting feedback, updates and experiences with distribution PMU applications (in lieu of another formal survey). *Next steps: Panos and Sascha will start a draft and circulate.*

D-PMU Specs: Ken Martin discussed the charter of the IEEE PSRC Task Force, which is considering whether the existing 60255-118-1 Standard for transmission PMUs is adequate in the distribution context. His Task Force Report, due in January 2021, may conclude that the existing standard is adequate, or should be augmented by adding another class of PMU with specific tests or performance limits, or should be fundamentally changed (not a likely finding at this point). The Task force has decided to leave alone the definitional problem of representational versus operational measurements (i.e., don't fix what isn't broken). There are some concerns around the presence of higher levels of harmonics, or dynamic behaviors such as high local rates of change of frequency. What's needed is *factual information based on the actual needs of applications*. This question was put to attendees for input.

Sascha argued that small (10-100 millidegrees) phase angle differences are informative about power flows on a distribution circuit to support DER control, but these applications are admittedly not yet at a high enough TRL or commercialized to the point of justifying an urgent need.

Greg Zweigle posed the question whether the phasor compression is most useful in the distribution context, or whether it might make sense to go straight to point-on-wave measurements. Panos argued that phasors are still valuable.

Harold Kirkham posed the challenge of identifying actual pain points, i.e. what's wrong that needs to be improved. For example, distribution service reliability where he lives in Richland Washington is driven by failures of XLPE cables. Advanced measurement would have little relevance or impact on actual outcomes.

A point was raised [by Kirkham] about relaxing voltage constraints; there has been some recent thread about this on Power Globe. [anyone got more on this?] Such relaxation might impact the need for low uncertainty voltage-magnitude measurement (which has historically been driven by light-flicker issues).

Someone [NDR?] asked about the number of PMUs actually installed at the distribution level to date -- do they number in the tens, hundreds, or thousands? Many may be installed but not enabled. [Greg, any good data on this? I think you had dropped off the call by then.]

Reza Arghandeh argued that time synchronized measurements are highly relevant for DER, and particularly in the face of high EV adoption rates. [Reza, would you like to add more?]

Bryce Johanneck raised the importance of device location. [Bryce, would you like to add more?]

Bryce cont'd: To operationalize distribution sensor data, sensors need sufficient registration capabilities. Registration here refers to the sensor(s) relationship(s) to one another, and to the distribution system at large. Granular voltage/current data loses significant value if we don't know the measurement devices position in the network at measured granularity & latency. For clarity, I'm referring to sensor(s) relationship(s) to other upline/downline devices/hardware/sensors etc.

Extracting maximum sensor value comes from making control decisions with the sensor(s). There are many use cases that come to mind...load shaping that reconciles infrastructure constraints being one, Remedial Action Schemes may be another, etc. If (when) data is actionable, it's valuable. Data that comes from an indeterminate place in the dynamic distribution network is tough to make sufficiently actionable.

Next Steps: On the basis of this discussion and our previous reports, DisTT could compose a memo to Ken and his Task Force about measurement requirements and issues that warrant further study -- perhaps overlapping with the slide deck mentioned above.

Next Call: Let's skip the December holidays and reconvene January 22, 2021 (4th Tuesday of the month).