

Agenda for TP&C Task Force on Smart Grid Monitors

Dale Douglass, Acting Chair
Minneapolis, MN –
Updated July 29, 2010
3PM to 5PM, MCC Room M100A

Meeting attended by about 30 people. Quite a range of views but all thought worth continuing. Members Dean Stoddart (vice-chair), Tom McCarthy, Bernie Clairmont, Bill Chisholm, Jerry Reding (need utility representation)

Proposed PAR Scope

- Identify useful line monitoring devices intended to guide operator actions.
- Emphasize monitoring just prior to and during system emergency events.
- Evaluate proposed methods of data analysis and interpretation.

We discussed and had presentations on quite a few different devices – line temp monitors, insulator leakage sensor, ice detectors,

Generally discussed and agreed that there should be a distinction with regard to asset management monitors. The proposed distinction was that the device should communicate measured data to utility operations within 24 hours. Delays of data transmission of more than 24 hrs should put the device in the Asset management camp.

Seemed no particular need to emphasize monitoring just prior to emergency.

Discussion of Scope

- Does not include data collection devices intended to guide asset managers & maintenance.
- Restrict to monitors that measure line characteristics (e.g. not weather)
- Only monitors in near real-time communication with SCADA database.
- Should we restrict the TF in this way?

As noted before, distinction is mostly time-based. TF concerned w <24 hrs

Interesting note suggested by Andy Stewart – maybe no need to stick to monitors that measure line behavior. Should also include items like weather to predict and identify fires, lightning, etc.

Note important issue of communication security (Tom McKernan)

Some Monitors

Challenge	Present Approach	Monitor Data Analysis
Icing Over-tension Failures	Design for worst-case, accept rare failures	Tension monitors - Predict ice rate buildup - load events
Plastic Elongation	Design with typical sag increase allowance	Detect rate of change and re-tension as required
Wind Vibration	Low Conductor Tension & dampers	Track vibration and take action as required
Conductor Loss of Strength	Choose worst-case weather and conservative cond temp limit	Calculate annealing over line life and adjust rating accordingly
Electrical flashover	ROW maint and insulator inspection	Predict failure and flashover.

Ice, vibration, imminent flashover useful

Permanent sag change & loss of strength not so much

Like to be warned that clearance is too low,

Economics is part of this but how to bring it in – maybe per unit comparison not dollars.

Deliverables

- Working Group paper describing real-time monitors that might be useful to system operations.
- Explain how each device can best be applied and interpreted.
- Recommend development of line sensors that are useful to operations.
- Evaluate the usefulness of proposed very large sensor arrays as part of Smart Grid effort.

Yes, all agreed that a TF paper is just the thing

Purpose is to note those data that are useful and accurate (interoperable)

Presentations

- Bernie Clairmont – showing temp, insulator leakage sensors with communication sensors