ERCOT Synchrophasor Task Force (STF)

monthly report to

ERCOT Reliability Operation Subcommittee (ROS)

March 6, 2014

**STF meetings since last ROS meeting:**

The STF last met on 2/5/14. At that meeting, Dave Costello w/SEL was our guest speaker in the morning. In the afternoon we reviewed our Issues List and confirmed each area is assigned to one or more leads. The latest copy of our Issues List is attached to this report. The STF list-serv now has 36 subscribers.

**Current group activity:**

The 2014 meeting & WebEx schedule has been established and is posted.

An ERCOT PMU data specification survey has been developed and routed to the membership to gather baseline info on existing ERCOT PMU systems.

An agenda for the March 7, 2014 STF meeting has been distributed to the STF membership. Ken Martin w/Electric Power Group is our guest speaker. In the afternoon we will review recent ERCOT PMU events and discuss progress & action items on the Issues List.

Several ERCOT STF members will be attending and/or presenting at the NASPI meeting next week.

Submitted by Kris Koellner, STF Chair, 3/6/14

**ERCOT STF Issues List, 2/5/14**

The STF should prepare a report of its findings and recommended Protocol and Guide changes for ROS. The report shall recommend whether the STF should be continued as an on-going Working Group or be discontinued. The STF should report its progress to ROS as required.

| **#** | **Topic(s)** | **Lead(s)** | **Document(s)** | **Status** |
| --- | --- | --- | --- | --- |
| 1 | * How will synchrophasor data be used in ERCOT (real-time monitoring, unit model validation, etc.)? * What are the current and planned uses by ERCOT? * What are current and planned uses by TSPs and generators? | Bill Blevins (ERCOT)  Kris Koellner (TSPs and generators) | Section in final report. | ERCOT top three issues identified at 1/2014 meeting. |
| 2 | * What kinds of locations of PMUs are needed to meet this use(s)? * How will these locations be determined? * What channels are needed (V only, I only, etc? | Bill Blevins | Updated version of ERCOT paper.  Plus  NOG section 6 – DDR requirements  Plus  Section in final report. | Discussed at 1/2014 mtg. Function of item 1.  Layered approach; communication requirements will vary by location/application. Impacted by PRC-002-2 R6 (“major transmission interfaces”, IROL, SOL). **AI** – re-run ERCOT PMU placement analysis focused solely on 3 key apps; also look at the two gen applications vs. post-event analysis application.  Compare also to WECC and EI efforts/requirements. **AI** – Kris to request location algorithm/paper on PMU placement from M. Grady |
| 3 | * What are the data latency and quality requirements and other specifications, in order to meet the intended uses? * Should these vary depending on the kind of PMU location/use case? * Input sampling rate? * Output data rate? PRC-002: 30 samples/cycle, may need higher for model validation * Bandwidth? f(PMUs, phasors, sample rate) – Impacts data storage * Data format, time-stamping | David Mercado | NOG section 6 – DDR requirements  Plus  Section in final report. | Discussed at 1/2014 mtg. Function of item 1.  NASPI DNMTT data classes (A/B/C/D) – need to add specifics – next 6 mos.  Researching/data gathering phase. Focus on 3 ERCOT use cases; 2 of 3 are off-line applications. **AI** – Need current PMU specs from ERCOT TSPs. **AI** – David & Bill to develop PMU spec/storage survey. |
| 4 | * Who should install and own the PMUs? * Who should be responsible for the communications from the PMUs? | Tabled  David Bogen + Carlos Casablanca + **ERCOT IT staff to be named** (Communications aspect) | PMU Connectivity Guide  Plus section in final report. | Tabled, but the communications aspect will be researched. |
| 5 | * How should synchrophasor data be treated in terms of confidentiality? * Leverage work in other interconnects | Alison Silverstein | ERCOT Market Participant agreement + WECC WISP data sharing agreement (merge) | Assigned at 1/2014 mtg.   1. Success in WECC w/WISP effort. 99 TOs, GOs, RCs signed. Will request language from V. Van Zandt. 2. EIDSN functioning in EI among RCs. RFP for stand-alone network. Legal doc still pending.   **AI** – Bill to determine resource to speak with about ERCOT language governing this area.  **AI** – Milton to distribute CCET NDA. |
| 6 | * What reporting should be established for synchrophasor data? ROS/DWG/SPWG/PDCWG etc. * OWG? BSWG? | Paul Rocha | Include as section in report (less prescriptive than formal language revisions)  Modifications to Operations Report, PMU section?  Event categories?   1. Df/dt 2. Oscillation 3. Angle deviation | Assigned at 1/2014 mtg. Focus on use cases; ERCOT top 3 apps are priority.   1. Gen Osc. 🡪 ROS as-needed basis as part of event; associated data goes to WG as needed per ROS assignment. 2. Model Val. 🡪 ERCOT dynamics modeling staff + DWG. Feedback to RARF; akin to generator testing findings. 3. Dist. Analysis 🡪 shared upon request w/any ROS working group, as assigned (e.g. SPWG). **AI** – Paul poll WG chairs/vice-chairs for potential PMU uses. **AI** – Bill bring ERCOT detailed PMU report(s) to March meeting (osc. event, fault event, system stress, etc). |
| 7 | * What data retention should be established for synchrophasor data? * Archive by exception? Events only? * Store locally vs. centrally? * Full sampling rate or down-sampled rate? * Off-line storage for older data? | Bill Blevins | Section in report: some minimum guidelines or requirements for storage duration/sampling rate/format/down-sampled data storage/tagging specific data sets (events, blue sky data)/channel specific data retention. | Discussed at 1/2014 mtg. Function of item 1.  Implicated in part by PDC configuration work. ERCOT is currently storing two weeks of data in real-time system (RTDMS); 400 days in PGDA system. PRC-002 has a 10 day requirement. |
| 8 | * What are the CIP implications/requirements for the use of this data? | David Penney |  | Assigned at 1/2014 mtg.  Version 5 coming soon. Criticality may depend on PMU use. **AI** – Kris to follow up with David. |
| 9 | * Phasor data/applications not previously identified that may yield grid reliability/market benefits. | All |  | Assigned at 1/2014 mtg. |