NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Welcome – NERC Update

Robert W. Cummings - NERC Director of System Analysis and Reliability Initiatives

NASPI Meeting

June 8, 2011

to ensure the reliability of the bulk power system

NASPI Funding

- Continuing near term support of NASPI as part of a plan to significantly reduce and potentially eliminate further funding by the end of 2013 as synchro-phasor technologies are commercialized
- NERC's 2012 NASPI budget amount increased by $300k to reflect known and projected funding requirements
  - Including co-funding commitments in connection with the SEIGate Grant initiative
- Budget available at:

http://www.nerc.com/docs/bot/finance

Phasors in NERC

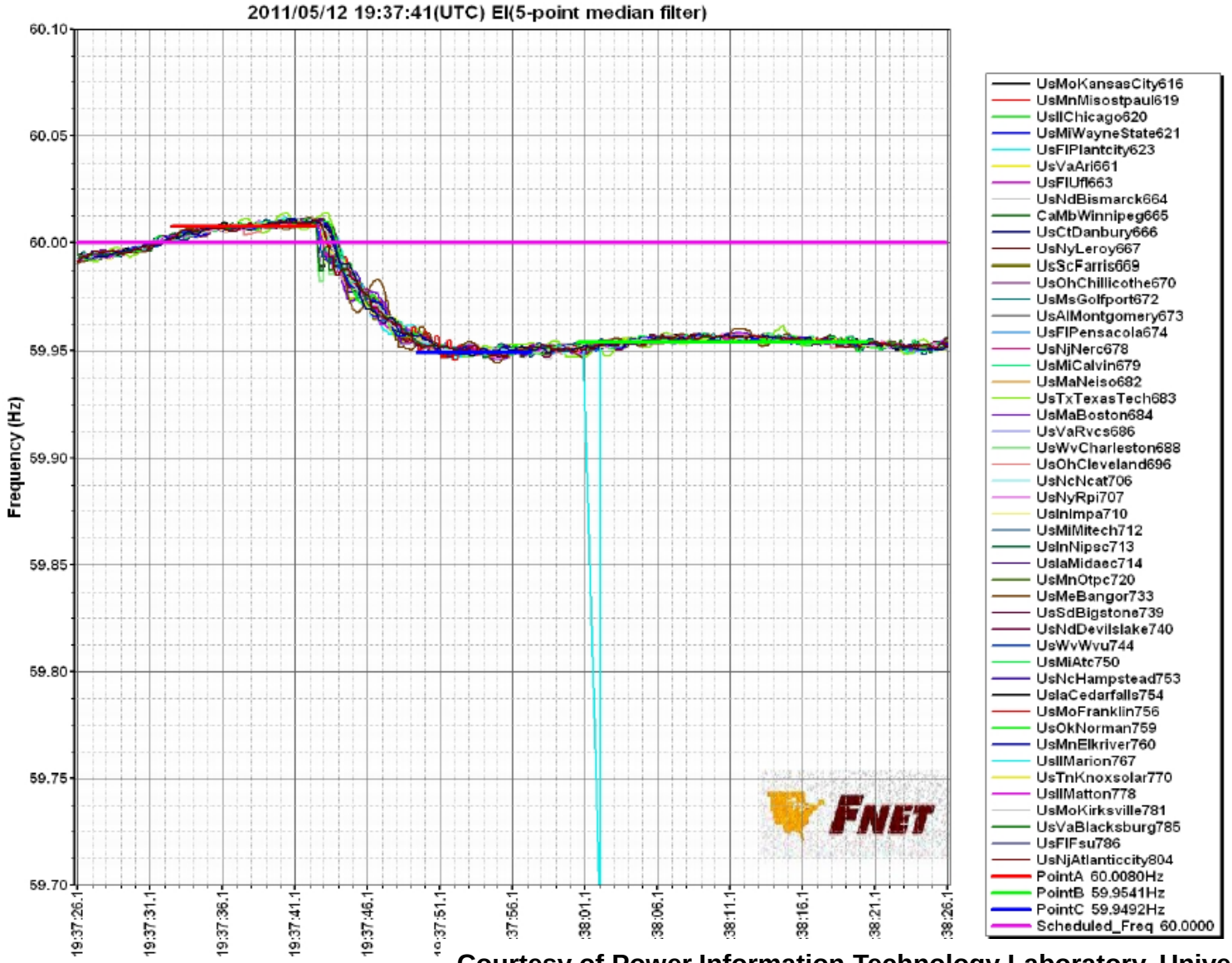
- FNet being used to detect events and collect data in BAL-003 Frequency Response Standard Field Trial
  - Soon to add PMU fleet to FDRs
- Being incorporated into Modeling Validation Initiative
- Being commercialized in CAISO

Candidate Frequency Event Detection

Combination of tools used:

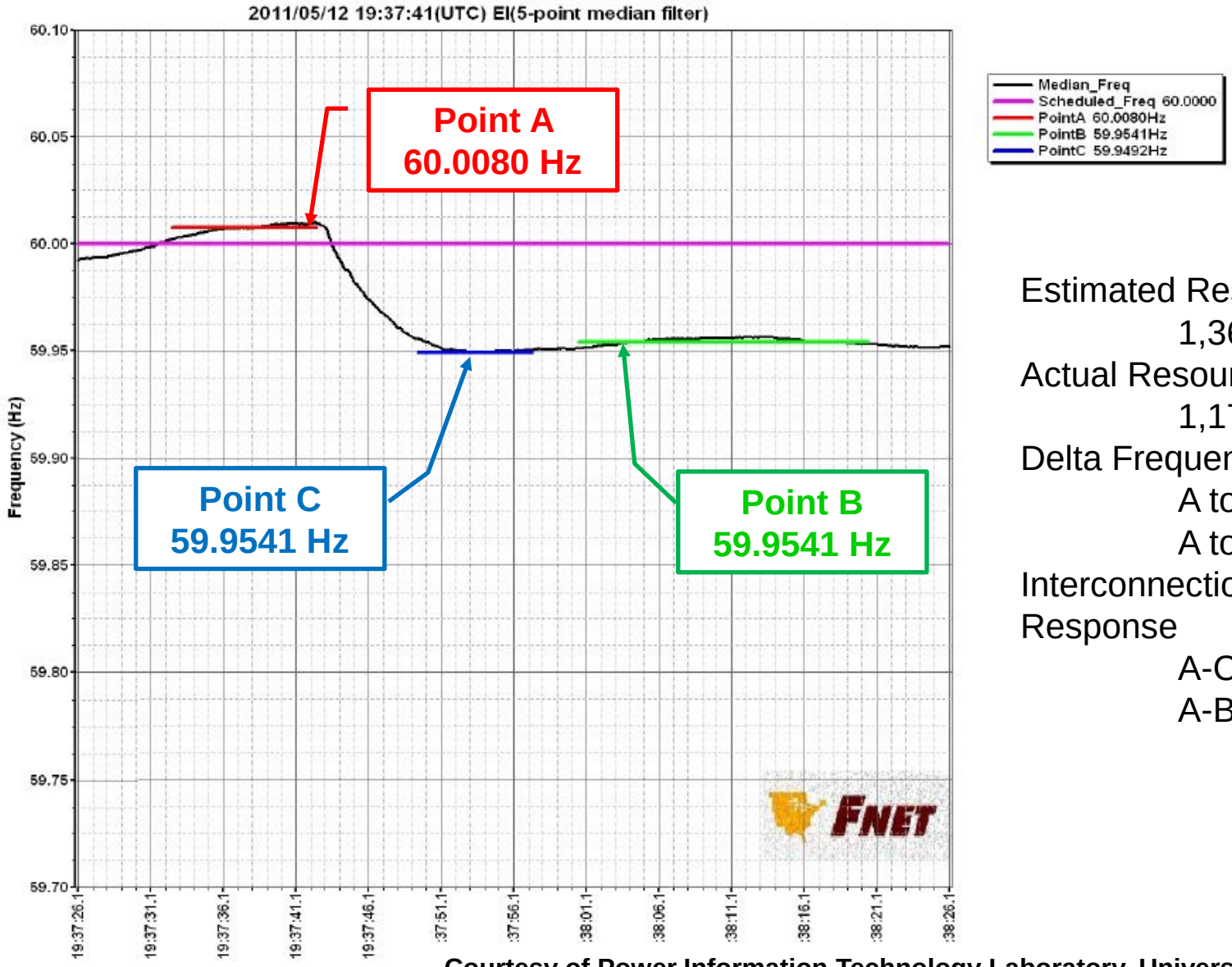
- Univ. of Tenn. Enhanced FNet System
  - High-speed sensors (10 samples/second)
  - Detects frequency excursions and estimates gen or load lost
  - Triangulates to estimate location of disturbance
  - Records data & calculates key frequency response factors
- CERTS Resource Adequacy (RA)Tool
  - Smart Alarm System
    - Based on 1-minute average frequency ICCP readings
    - Indicates frequency deviations and alarms beyond trigger levels
    - Provides BA-level variances in ACE
- CERTS Frequency Monitoring and Analysis (FMA) Tool
  - After-the-fact analysis of detected and recorded data

FNet Sample Detection Output
Trace of All Eastern Interconnection FDRs



Courtesy of Power Information Technology Laboratory, University of Tennessee

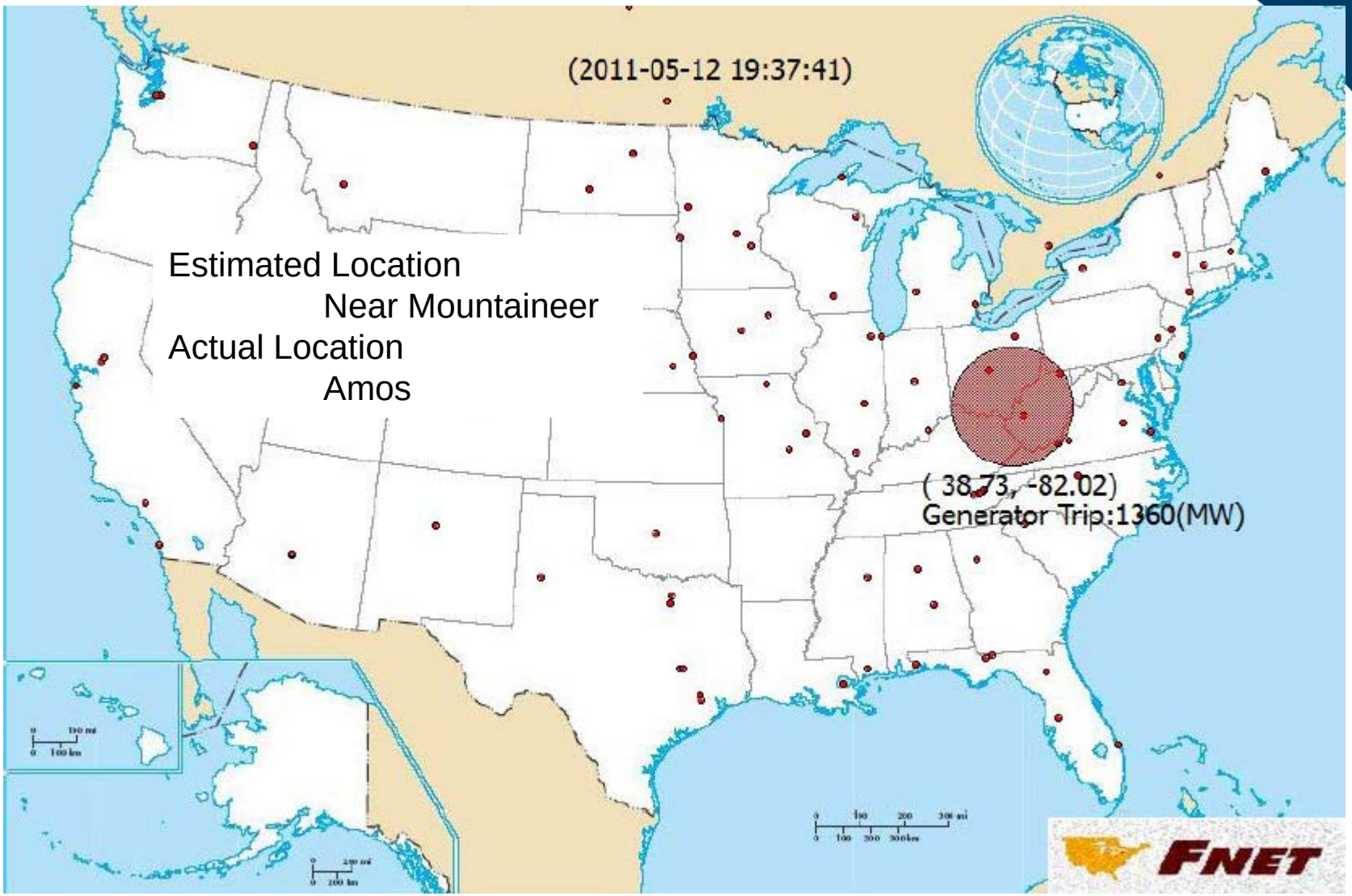
FNet Sample Output
5 Point Median Eastern Interconnection



Estimated Resource Loss
1,360 MW
Actual Resource Loss
1,178 MW
Delta Frequency
A to C – 58.8 mHz
A to B – 53.9 mHz
Interconnection Frequency Response
A-C -2,003 MW/0.1 Hz
A-B -2,186 MW/0.1 Hz

Courtesy of Power Information Technology Laboratory, University of Tennessee

FNet Sample Detection Output
Trace of All Eastern Interconnection

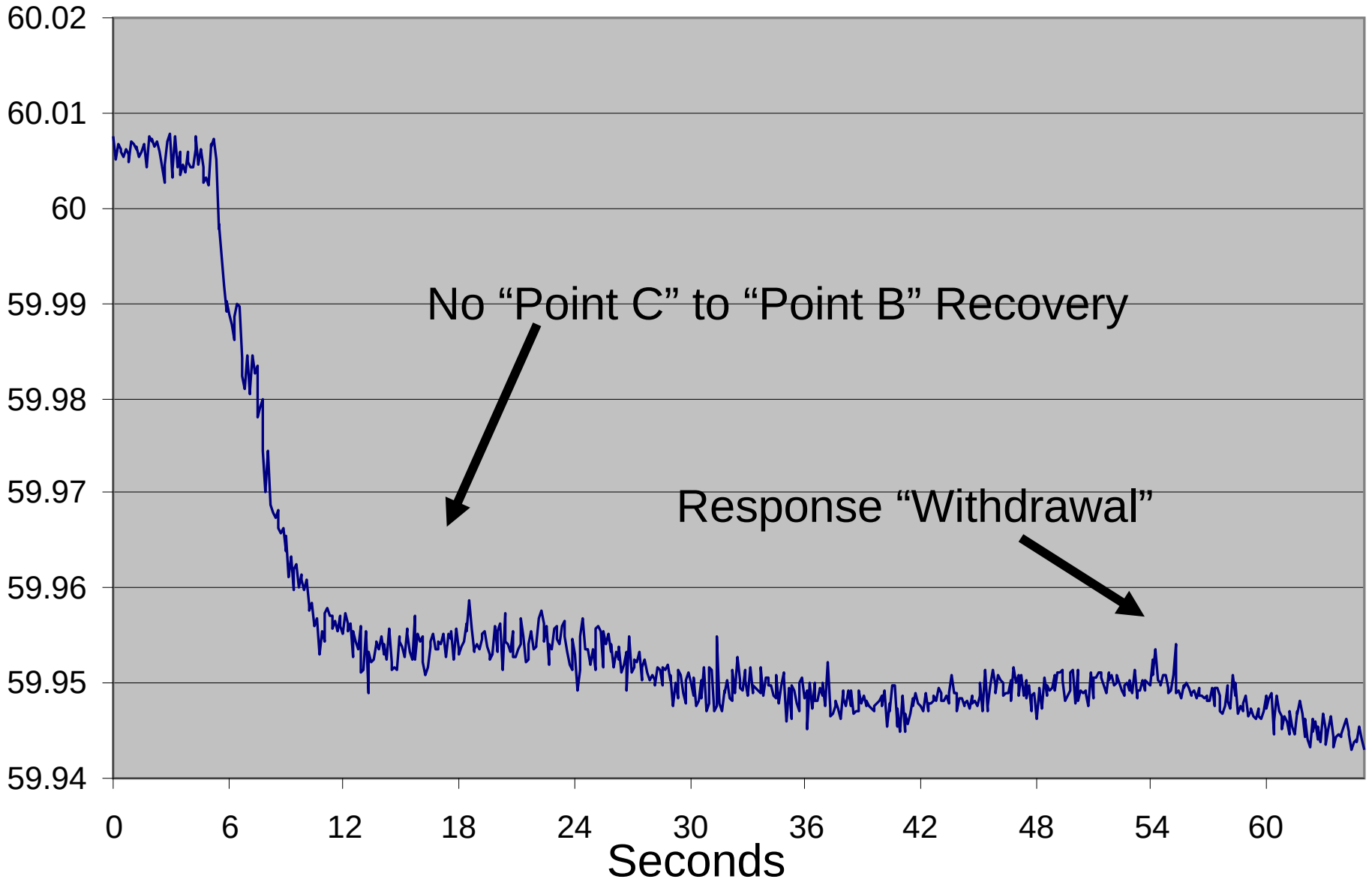


Courtesy of Power Information Technology Laboratory, University of Tennessee

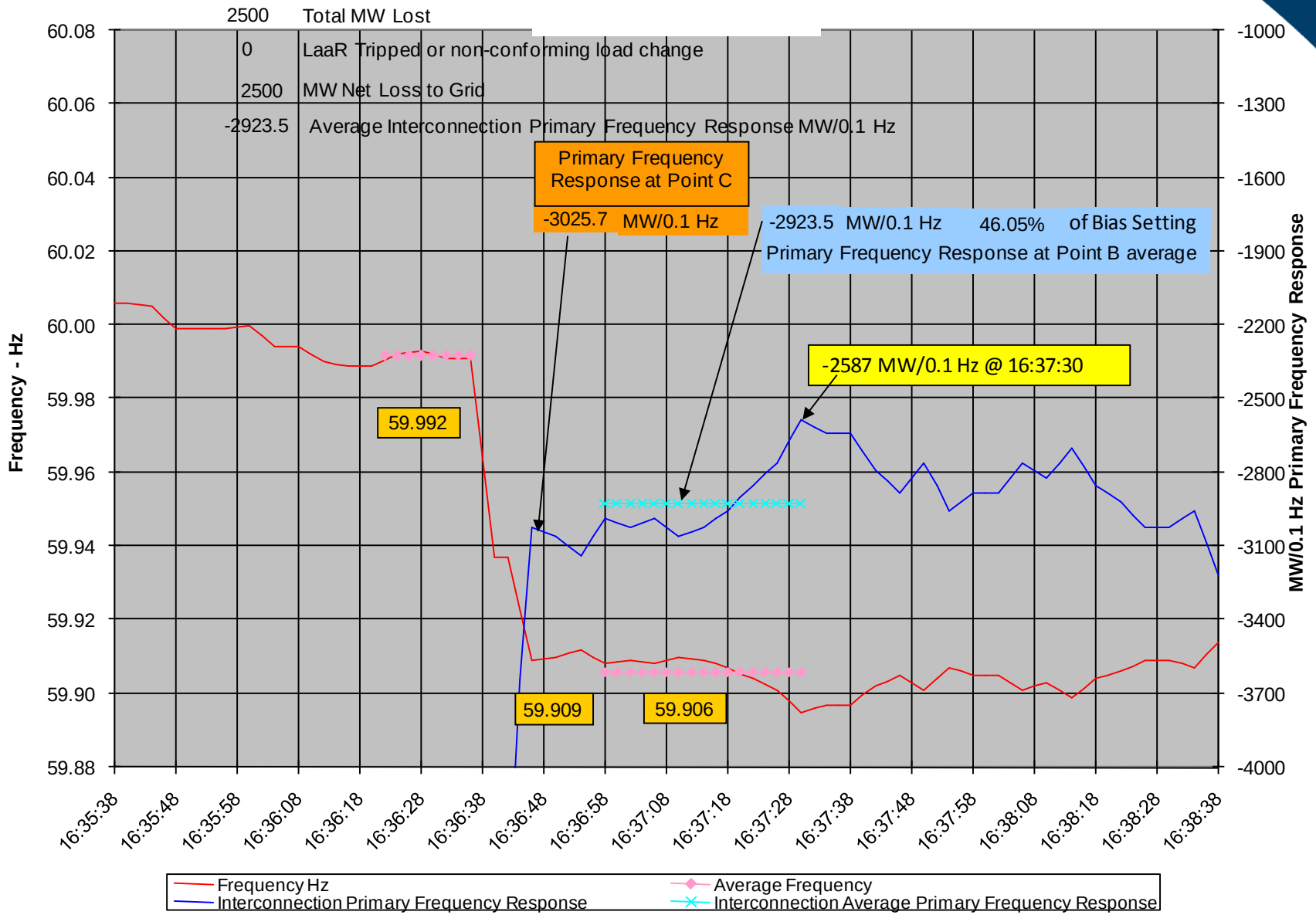
NERC Operating & Planning Committees

- Quarterly presentations to both Committees
- Keen interest

Example of Withdrawal



Sample Analysis



Questions?