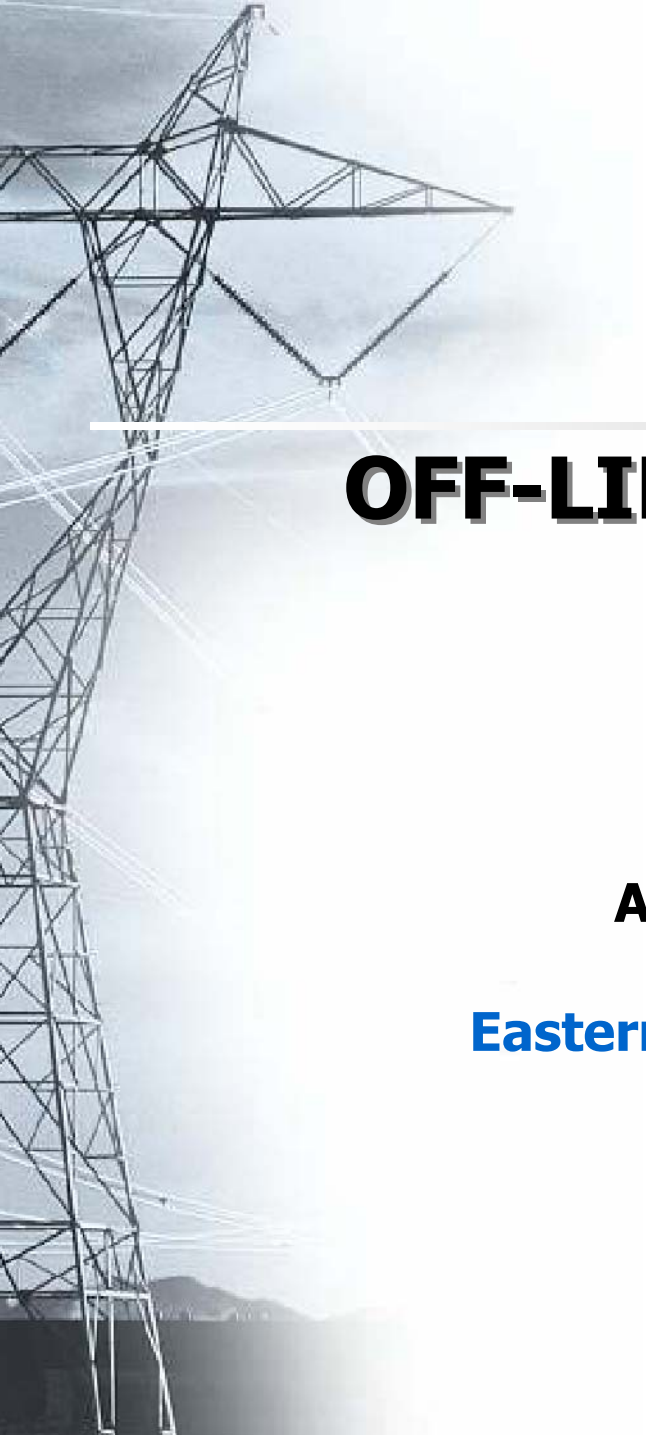

REPORT ON

OFF-LINE APPLICATIONS TASK TEAM (OLATT)

By

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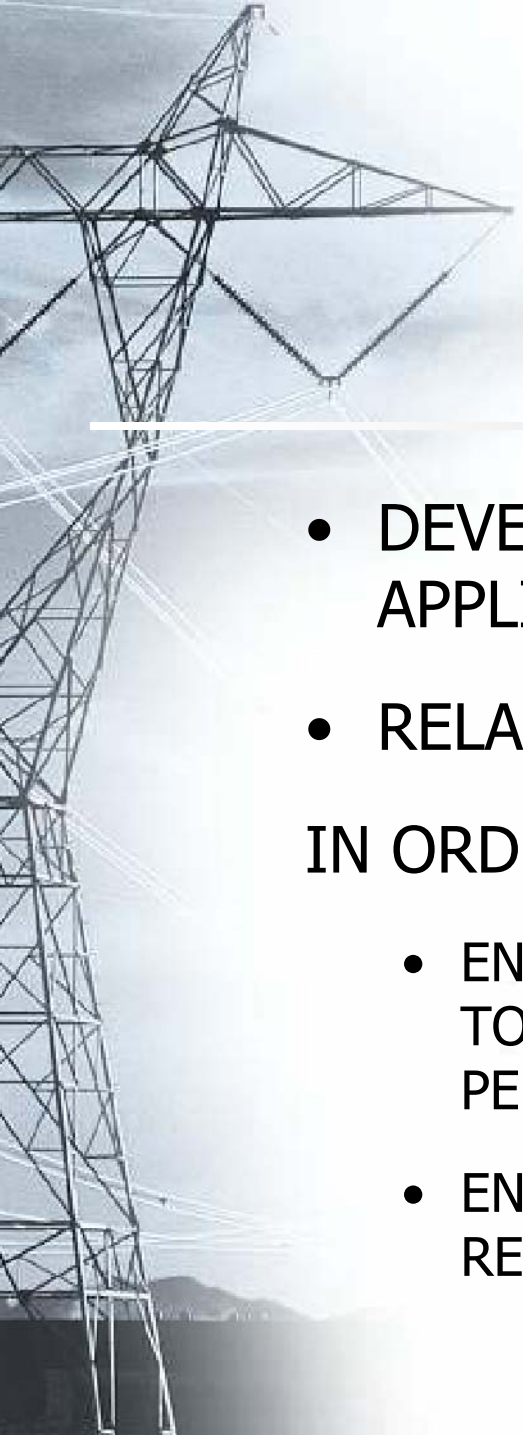
American Electric Power (AEP)

Eastern Interconnection Phasor Project
Working Group Meeting

January 22, 2004
Arlington, Virginia



SCOPE:

- DEVELOPMENT AND DEPLOYMENT OF APPLICATIONS OR TOOLS
- RELATED TRAINING

IN ORDER TO:

- ENABLE GRID PLANNERS, ANALYSTS AND OPERATORS TO SUPPORT THE ASSESSMENT OF POWER SYSTEM PERFORMANCE AND MODEL VALIDATION
- ENHANCE DECISION-MAKING RELATED TO BULK GRID RELIABILITY.

SHORT-TERM (2004) OBJECTIVES:

1) PREPARE A PRIORITIZED LIST OF APPLICATIONS FOR THE USE OF WIDE AREA MEASUREMENTS.

2) START DEPLOYING THE APPLICATIONS FROM 1). (FOCUS ON EXISTING APPLICATIONS DEPLOYED IN WECC.)

3) PROVIDE TRAINING

LONG -TERM OBJECTIVES:

1) CONTINUE TO DEPLOY EXISTING APPLICATIONS.

2) DEVELOP AND DELPOY NEW APPLICATIONS.

3) PROVIDE TRAINING.

4) INTEGRATE THE APPLICATIONS, AS PART OF COMMONLY-USED GRID RELIABILITY TOOLS.

ACTION PLAN:

1) PREPARE AN INVENTORY OF EXISTING WIDE AREA MEASUREMENT EQUIPMENT, TOOLS & TECHNIQUES USED BY TASK TEAM MEMBERS AND OTHER POTENTIAL EI PARTICIPANTS.

2) SURVEY TASK TEAM MEMBERS: WHICH TYPES OF APPLICATIONS ARE THEY INTERESTED IN?

3) DEVELOP AN INVENTORY OF SPECIFIC APPLICATIONS ALREADY DEPLOYED IN WECC.

4) SELECT THE APPLICATIONS FOR DEVELOPMENT.

5) DEVELOP AND DEPLOY APPLICATIONS FROM 4).

6) PROVIDE TRAINING.

FUTURE MEETINGS AND/OR CONFERENCE CALLS:

- COMMUNICATION WILL BE MAINLY THROUGH CONFERENCE CALLS.
- FACE-TO-FACE MEETING WILL BE HELD WHEN NECESSARY.

APPICATIONS BEING CONSIDERED BY OLATT:

- Parameter estimation for planning models
- Validation of models
- System trend analysis (e.g. change in oscillatory mode damping over time)
- Post disturbance analysis

How does WECC use Wide Area Measurement System (WAMS) data?

- Refinement of planning, operation, and control processes essential to best use of transmission assets.
- Analysis of system behavior, especially major disturbances
- Real-time observation of system performance
- Precise time-tagged system measurements, so operators can set limits for transmission line loading and stability.
- Cross calibration of WAMS measurement devices

SURVEY

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Information on the Dynamic Recording Device(s) (DRDs)

Number	Type	Vendor	Model	Location/ Voltage level	Year of Installation
1.	PMU	Macrodyne	G1960	Jackson's Ferry 765 kV	Dec 1999 Reinstalled in 2002
2.	PMU	Macrodyne	G1960	Kanawha River 345 kV	Dec 1999 Reinstalled in 2002
3.	PMU	Macrodyne	G1960	Rockport 765 kV	Nov 2003
4.	PMU	ABB	RES521	Orange 765 kV	Oct 2003
5.	PDC	AEP		Gahanna	Dec 2003

Data Capture and Storage Practices

DRD Type	Sampling Rate (samples per second)	Continuous or Triggered Measurements	Length of Storage
Macrodyne PMU	30	Continuous	25-day circular buffer
ABB PMU	30	Continuous	25-day circular buffer

Post processing tools used:
Dynamic System Identification (DSI) toolbox

Application of processed data (How the data is used and for what purpose?):
Analyses of system behavior (focusing on major system events such as generator trips, blackouts)

What specific off-line applications are you interested in?
Analyses of system behavior
Model Validation
Trending of oscillatory stability performance (e.g. damping of modes)