



SRP Synchrophasors From Value Proposition to Implementation

What is the issue?

Historically, utilities have resisted the development of new operations technology particularly in the space of identifying hidden system issues.

The operations question could well be:

"We have no problems operating the system now, why do we need this new technology?"

A synchrophasor-driven response could be:

"If you don't start monitoring dynamic system behavior such as oscillation or asset performance, problems may go unrecognized!"

The transition of utilities from historically static system awareness to one requiring dynamic system awareness, particularly with the shift **of Inverter Based Resource from system supportive to system critical resources**, has allowed for more open dialogue for new technology experimentation and acceptance. We have seen maturing synchrophasor applications such as oscillation monitoring, power plant model validation and dynamic system visualization to meet this shift.



What is the path to greater dynamic awareness?

Critical to have an organized approach to selling synchrophasor technology to utility management and engineers to successfully integrate synchrophasor applications.



Management Buy-In

Initial management interests develop through a high-level company benefits. The sales pitch for synchrophasor applications depends on managements inset perspective.



Develop a Roadmap

Bring together a cross-departmental team of engineer level synchrophasor enthusiasts. Hold gap analysis meetings with departments who can potentially benefit – AND LET THEM REVEAL THE GAPS. Build a list of potential applications, build a roadmap and vet that roadmap back with those departments.



Build Governance

Bring together a Governance team made up of those same management approached initially. This includes them in the synchrophasor application decision process.

Bring together a Business team from those same "synchrophasor enthusiasts" to recommend and work on implementation of applications.



Ease In End-Users

FIRST - Provide training courses on applications.

THEN – Bring applications to the user's desk.

MOST IMPORTANT – Train on synchrophasor technology to build user awareness and industry applications before bringing them into end-user's workflow.



Keep the Interest Hot

Keep management aware of recent synchrophasor application development. Meet with users frequently to collect feedback to update the value.



SRPs Vision Quest



The KEY to start the Quest is finding the Business Unit with **Open Vision**



Where has this Quest lead SRP?

SYNCHROWAVE OPERATIONS (NO REAL-TIME DECISIONS ALLOWED) – In Service

- Transmission Operator system awareness
- Transmission Engineer offline analysis and data extraction
- Distribution pilot to realize initial value of substation distribution PMUs
- **Driver**: Gap of real-time control room system dynamics situational awareness
- Part of SRP Synchrophasor Roadmap

BIGWOOD TSA/VSA AND NON-LINEAR STATE ESTIMATOR In Implementation

- Real-time Operator transient and voltage stability assessments
- RTCA backup/validation
- PMU-based state estimator for backup/validation
- **Driver**: Gap of real-time voltage and transient stability assessment







Where has this Quest lead SRP?

MANTRA OSCILLATION ANALYSIS TOOL – In Implementation

- Transmission Engineer online oscillation monitoring
- Transmission Engineer offline oscillation analysis
- **Driver**: Gap of system dynamic oscillatory mode monitoring
- Part of SRP Synchrophasor Roadmap



