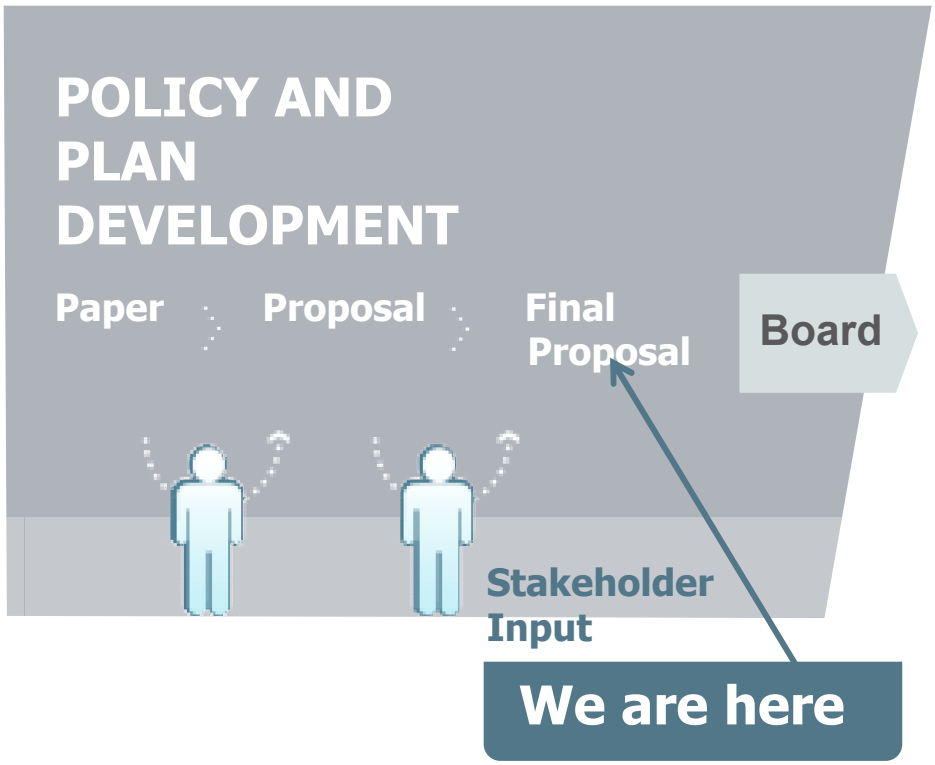
ISO Stakeholder Initiative Process For TPS



Agenda – May 20, 2011

ISO Planning Standards Stakeholder Conference Call

1. Introductions and Meeting Arrangements
2. Standards
    A. SF/GBA generation outage - retired
    B. Combined line and generator outage – no change
    C. Specific nuclear units – no change
    D. Combined cycle module as G-1 – added
    E. Voltage - added
    F. New transmission vs. involuntary load interruption – revised
3. Guidelines
    A. New Special Protection Systems – revised
4. Glossary and Other Stakeholder Comments
5. Next Steps and Schedule

California ISO
Shaping a Renewed Future

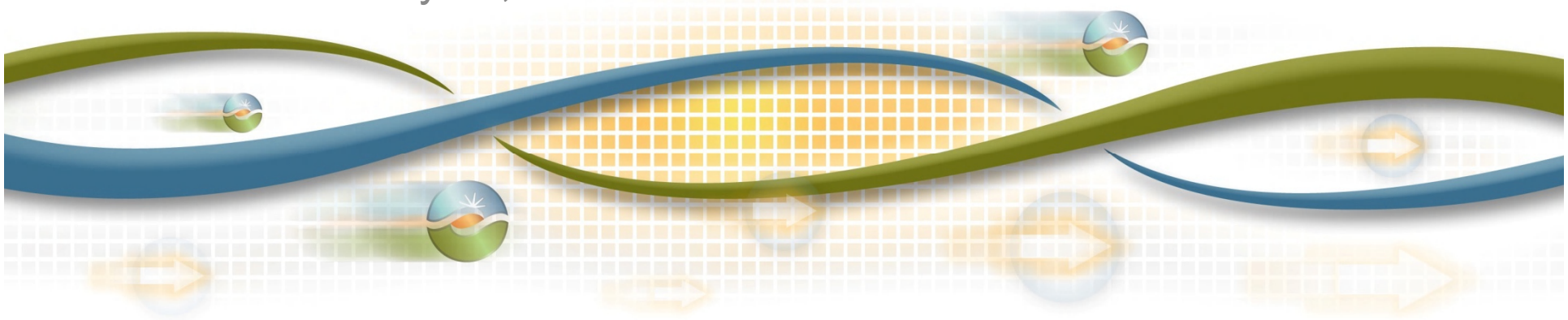
ISO Planning Standards

Catalin Micsa

Lead Regional Transmission Engineer

Stakeholder Meeting

May 20, 2011



Existing Standards and Criteria

During its planning activities ISO must :

- Follow all NERC Reliability Standards like

http://www.nerc.com/page.php?cid=2|20

  - Transmission Planning (TPL)
  - Nuclear Plant Interface Requirements (NUC-001)

- Follow all WECC Regional Criteria

http://www.wecc.biz/Standards/WECC%20Criteria/Forms/AllItems.aspx

- Follow ISO Planning Standards

New Structure and Documentation for the ISO Planning Standards

Standards:

- Combined Line and Generator Outage Standard
- Voltage
- Specific Nuclear Unit
- Loss of Combined Cycle Power Plant Module as a Single Generator Outage
- Planning for New Transmission versus Involuntary Load Interruption

Guidelines:

- New Special Protection Systems

Retirement of

San Francisco Greater Bay Area Generation Outage Standard:

- Eliminated requirements related to Hunters Point and Potrero
- San Francisco reliability is independent of generation requirement
- New transmission infrastructure has reduced the Greater Bay Area's overall dependence on generation
- Additional planned transmission infrastructure will further diminish the Greater Bay Area's overall dependence on generation

No stakeholder comments received

Some standards were not changed

Combined Line and Generator Outage Standard:

- One generator out of service followed by system readjustment and a single line outage should meet NERC TPL002 reliability standard for single contingencies

Specific Nuclear Unit Standards:

- Respect Appendix E of the Transmission Control Agreement regarding nuclear power plants

http://www.caiso.com/docs/09003a6080/25/a3/09003a608025a3bd.pdf

No stakeholder comments received

Old enforcement is now a standard

Loss of Combined Cycle Power Plant Module as a Single Generator Outage Standard:

- ISO has consistently enforced this standard
- Measure is based on historical data and “greater than 1 event over a 3 year period”
- Exceptions are possible
  - After 2 years of operation
  - Supported by historical data
  - Addressed on a case by case base only

Stakeholder comments:

- Add definition of Combine Cycle Power Plant Module - done

New standard is proposed

Voltage Standard:

- Common denominator is envisioned across ISO
- Low voltage and voltage deviation apply to load (including generator auxiliary load) buses
- High voltage apply to all buses
- Exceptions allowed if vetted through open process

Voltage level	Normal Conditions (TPL-001)		Contingency Conditions (TPL-002 & TPL-003)		Voltage Deviation	
	Vmin (pu)	Vmax (pu)	Vmin (pu)	Vmax (pu)	TPL-002	TPL-003
<= 200 kV	0.95	1.05	0.90	1.1	≤5%	≤10%
>= 200 kV	0.95	1.05	0.90	1.1	≤5%	≤10%
>= 500 kV	1.0	1.05	0.90	1.1	≤5%	≤10%

Stakeholder comments

Voltage Standard:

- Upper voltage too high at 1.1 pu - reduced to 1.05 pu
- Vmin needed for 500 kV since due to generator auxiliary loads - done
- Exceptions are allowed - done
- Impact of new standard – ISO estimates small since it is a least common denominator
- Elaborate on process for exceptions – done on a yearly bases and coordinated through regularly scheduled TPP stakeholder meetings
- Clarify that the per unit (pu) is based on nominal voltage – done

- All have been addressed

Revised standard

Planning for New Transmission versus Involuntary Load Interruption Standard:

- Continues to rely on NERC standards and WECC regional criteria
- New write-up and changes will address:
  - Caps amount of involuntary load interruption based on WECC self imposed reporting requirements
  - Establishes a maximum level for radial substations
  - Establishes minimum sizing of back-tie(s) for radial loads
  - Allows justification of transmission reinforcements through BCR calculation on a case by case basis

Planning for New Transmission versus Involuntary Load Interruption Standard

1. No single contingency with load drop above 250 MW

- Cap NERC TPL002 footnote for single contingencies
- Avoids WECC reporting requirements for single contingencies

2. All substations of 100 MW or more need to be looped

- Standardize PTOs substations design
- Does not preclude substations with less then 100 MW from being looped in

Planning for New Transmission versus Involuntary Load Interruption Standard

3. Minimum size for back-tie(s)

- Most stringent between 50% of peak load or 80% of the hours in the year (based on actual load shape for the area)
- Maintains a minimum level of back-tie(s) in order to assure a minimum level of service consistent across the system

4. Benefit to Cost Ratio > 1 may justify upgrades

- Allow elimination or reduction in load drop exposure if it has overall economic benefits
- BCR calculation to be supplied with the project through the open window and discussed in an open stakeholder process

Stakeholder comments

Planning for New Transmission versus Involuntary Load Interruption Standard:

- General concerns about magnitude and cost impact to ratepayers – addressed by downgrading to a guideline for the first year, if impact is great this standard can be changed next year
- Allow exceptions – not needed in the first year (guideline)
- Needs definition of “available back-tie” – under consideration
- Apply the 250 MW cap on category C as well and/or apply two different limits for category B (based on configuration) plus higher and different limits on category C outages (based on connecting voltage level – under further consideration and discussion maybe next year after the impact of current changes are available

This guideline was slightly modified

New Special Protection Systems Guideline:

- Small revisions to the existing guidelines
- Applies to new SPS for both load and generation
- Eliminated restriction on SPS for RMR units
- No changes to maximum arming amounts
- Increased the number of contingencies (single or double) that would trigger the operation of SPS from 4 to 6 local contingencies

Stakeholder comments

New Special Protection Systems Guideline :

- Open SPS performance review process – part of regularly scheduled TPP stakeholder meetings
- Frequency of existing involuntary load trip may not be increased as a result of a new generation addition – ISO believes that impact is small and can be addressed during the SPS performance review
- Involuntary load tripping should be last resort - done
- Refer to the WECC Remedial Action Scheme Design Guide – done
- Evaluate SPS on a case-by-case bases – ISO believes a guideline is required

Glossary

Here are a few examples:

- Bulk Electric System – all facilities under ISO control
- Development of load models – PTOs, UDCs and others
- Development of load forecast – CEC
- Timed allowed for manual readjustment – less than 30 minutes

Stakeholder comments:

- Keep NERC and WECC definition of Bulk Electric System – under legal review
- Change “Time allowed for manual readjustment” to facility ratings – ISO believes that we should hold our practices at or above what is required by and for our neighboring systems

Other stakeholder comments

- Explain why ISO needs to have any reliability standards
- Explain the need for each individual standard
- Add a “Critical T-1/G-1” standards as category B contingency
- Add a reactive margin criteria based on fixed MVAR quantity
- Add common “duct line” as credible C5 contingencies
- Include LCR and Deliverability Assessment under the Planning Standards
- Develop criteria for establishing uniform equipment rating criteria among PTOs
- Address modeling issues like: DG, DR or generator Pmin
- Add more time and iterations to this stakeholder process

Next Steps - Schedule

Overall timeline

- Post draft ISO Planning Standards April 25, 2011
- Stakeholder Meeting to discus changes May 2, 2011
- Submit comments by May 9, 2011
- Posting of second draft ISO Planning Standards May 13, 2011
- ISO Stakeholder conference call May 20, 2011
- Submit comments by May 27, 2011
- Finalize ISO Planning Standards June 2, 2011
- ISO Board of Governors June 29-30, 2011
- Implementation July 1, 2011

Your comments and questions are welcome.

For written comments, please send to: RegionalTransmission@caiso.com