



ITC thanks the California ISO for the opportunity to provide feedback in response to the 2015-2016 Policy Driven Assessment Results presented at the Stakeholder Meeting #3 on November 16th, 2015.

The Policy Driven Assessment Results based on the 33% RPS identified several violations that are being addressed by Special Protection Schemes (SPS). It also appears that when considering the 50% RPS that was recently passed into law the use of SPS will be heavily relied upon again. Although the use of SPS might be a lowest cost approach to addressing the issues, ITC notes that these solutions limit the flexibility of the grid and harm the deliverability of resources. Traditional transmission solutions offer significant advantages to maximize the reliable and robust operation of the transmission system.

ITC recommends the CAISO consider transmission alternatives that would eliminate or mitigate Remedial Action Schemes (RAS) that include SPS. This could be done for each individual violation currently identified in the 2015-2016 studies. This could also be addressed on a broader scale as all the SPSs throughout a given area, either planned or existing, are assessed for potential replacement by a transmission project or transmission projects.

For reference see the attached slides for the SPSs identified by CAISO.

RPS reliability results for Southern CA area: Lugo – Victorville 500 kV overload

Overloaded Facility	Contingency	Overload
Lugo-Victorville 500kV line	Eldorado-Lugo 500 and Lugo-Mohave 500	123.7 %

Mitigation

- Modify the Lugo – Victorville N-1 SPS and N-2 Safety Net to trip any RPS generation that materializes in this area

RPS Reliability Results for Southern CA Area – Eldorado 5AA bank contingency

Overloaded Facility	Contingency	Overload
Case divergence	Eldorado 500/230 kV 5AA transformer bank	-

Mitigation

- Modify the existing Ivanpah SPS to include the T-1 contingency of Eldorado 500/230 kV 5AA transformer bank to trip new generation

Conclusions

- Previously identified SPSs may need to be modified to accommodate new generation
- The mitigations recommended in 2014-2015 TPP and projects approved in prior planning cycles largely restore overall deliverability from the Imperial area to pre-SONGS retirement levels
- Generation recently operational or under construction is relying on some of that deliverability
- Deliverability constraint: Lugo-Victorville 500 kV overload (This overload was also observed in Southern CA reliability assessment in 2015-2016 TPP)

Deliverability Assessment Results for SCE Area – Desert Area

Overloaded Facility	Contingency	Flow
Lugo – Victorville 500kV	Lugo - Eldorado 500kV	111.87%

Desert Area Deliverability Constraint	
Constrained Renewable Zones	Riverside East, Imperial, Mountain Pass, Nevada C, non-CREZ (Big Creek/Ventura)
Total Renewable MW Affected	4566 MW
Deliverable MW w/o Mitigation	2700 ~ 3800 MW
Mitigation	Increase rating of the Lugo – Victorville 500kV line or install flow control devices to reduce flow on Lugo – Victorville 500kV line

Deliverability Assessment Results for SDG&E Area – Miguel 500/230 kV transformers

Overloaded Facility	Contingency	Flow
Miguel 500/230 kV #1	Miguel 500/230 kV #2	122%
Miguel 500/230 kV #2	Miguel 500/230 kV #1	122%

Constrained Renewable Zones	Baja, Imperial
Total Renewable MW Affected	1,000 MW
Mitigation	<p>Use 30 minute rating of transformers and SPS to trip generation at Imperial Valley and ECO/Boulevard East</p> <p>or</p> <p>Open parallel transformer and ECO-Miguel 500 kV line and rely on SPS associated with line outage</p>

Deliverability Assessment Results for SDG&E Area – Miguel-Bay Boulevard 230 kV line

Overloaded Facility	Contingency	Flow
Miguel-Bay Boulevard 230 kV	Miguel-Mission 230 kV #1 and #2	100%

Constrained Renewable Zones	Baja, Imperial
Total Renewable MW Affected	1,000 MW
Mitigation	New SPS to trip generation at Otay Mesa, ECO/Boulevard East, and Imperial Valley – identified in GIP studies

Deliverability Assessment Results for SDG&E Area – ECO-Miguel 500 kV line

Overloaded Facility	Contingency	Flow
ECO-Miguel 500 kV	Ocotillo-Suncrest 500 kV	100%
	Sycamore-Suncrest 230 kV #1 and #2	100%
	Imperial Valley-Ocotillo 500 kV	99%

Constrained Renewable Zones	Baja, Imperial
Total Renewable MW Affected	1,000 MW
Mitigation	SPS to trip generation at Imperial Valley and ECO/Boulevard East