



CTPG Stakeholder Meeting

4/20/10

Agenda

Meeting Opening/Logistics/Agenda	10:00 – 10:10	John Ruffin
Meeting Welcome/Introduction	10:10 – 10:20	Jim Shetler/Mo Beshir
CTPG Schedule Overview	10:20 – 10:30	Mike Deis
Phase 2 Study Input Assumptions	10:30 – 10:50	Mike Deis
Phase 2 Study Results	10:50 – 12:00	Jon Eric Thalman
Lunch	12:00 – 12:45	

Phase 2 Study Results Continued	12:45 – 1:15	Jon Eric Thalman
Phase 2 Stakeholder Input	1:15 – 2:15	Jon Eric Thalman
Proposed Phase 3 Study Plan	2:15 – 2:45	Mike Deis
Phase 3 Stakeholder Input	2:45 – 3:45	John Ruffin/Jon Eric Thalman/Mike Deis
Meeting Conclusion	3:45 – 4:00	Mo Beshir

CTPG SCHEDULE OVERVIEW – MIKE DEIS

Phase 2 Schedule – Key Dates

Date	Activity
January 20	Stakeholder Input Session
January 25	Stakeholder Input Session Conference Call
Thursdays	RETI Transmission Working Group Meeting
January 29	Draft Study Plan Posted
February 2	Draft Study Plan Conference Call
February 8	Study Plan Comments Due
February 10	Draft Final Phase 2 Study Plan Posted
March 3	Final Phase 2 Study Plan Posted
April 9	Draft Phase 2 Study Report Posted
April 20	Stakeholder Meeting
April 28	Study Report Comments Due
May 4	Final Phase 2 Study Report Posted

Phase 3 Schedule – Key Dates

Date	Activity
March 25	Stakeholder Input Session Conference Call
Thursdays	RETI Transmission Working Group Meetings
April 13	Draft Phase 3 Study Plan Posted
April 20	Stakeholder Meeting – Review Draft Phase 3 Study Plan
April 28	Study Plan Comments and Transmission Solutions Alternatives Due
May 4	Final Phase 3 Study Plan Posted
June 14	Draft Phase 3 Study Report Posted
Mid-June	Stakeholder Meeting
End-June	Study Report Comments Due
July 7	Final Phase 3 Study Report Posted

PHASE 2 INPUT ASSUMPTIONS REVIEW— MIKE DEIS

2020 Net Short

	CTPG Phase 1	RETI Phase 2A	CTPG Phase 2 RETI Heavy In State	CTPG Phase 2
Forecast Retail Load subject to California's renewable goals:	289,697	301,974	285,734	285,734
Renewable Portfolio Standard (RPS) Goal:	33%	33%	33%	33%
Renewable Portfolio Standard (RPS) Energy Requirement:	95,600	99,651	94,293	94,293
Existing and New Renewables				
Existing and New Renewables expected to be on line by end of 2009:	39,324	36,807	38,174	38,174
Miscellaneous renewable resource additions:	2,670	3,134	3,355	3,335
Total Existing and New Resource Additions	41,994	39,941	41,529	41,529
Net Short				
Net Short:	53,605	59,710	52,764	52,764
Identified Renewable Resource Additions:	55,535	95,536*	52,764	52,764
Total Renewable Energy Production:	97,530	135,477*	94,293	94,293
Identified Renewable Energy as a Fraction of Retail Sales:	33.7%	44.9%*	33%	33%

Phase 1/Phase 2 Renewable Portfolios

- Phase 1 Load Serving Entity/CTPG Net Short
 - CTPG Member Load Serving Entity Procurement Interests
- Phase 2 Generation Queue/RETI Net Short
 - CTPG Member Generation Interconnection Queue(s) Development Interest
- Phase 2 RETI Heavy In-State/RETI Net Short
 - Discounted Core + (70% Best Instate CREZ + 30% Best Out of State CREZ)

Phase 2 Renewable Portfolios

- Phase 2 North CA/Northwest/RETI Net Short
 - 2088MW installed capacity 68% Wind/32% Solar Generation from Northeastern CA/Northern NV
 - 1500MW installed capacity Wind/Hydro Generation from Pacific Northwest
 - 1508MW installed capacity Wind Generation from the Pacific Northwest
- Phase 2 Southwest/RETI Net Short
 - 3500MW installed capacity Solar from Arizona/Southern NV
- Phase 2 Owens Valley/RETI Net Short
 - 5000MW installed capacity Solar PV from the Owens

Phase 2 Renewable Energy Portfolios

Percent of Net Short By Scenario						
Scenario	Bio	Geo	Solar	Wind	In State	Out of State
LSE Procurement Interest (Phase 1)	2	11	49	38	79	21
Gen Queue Development Interest	1	21	44	34	92	8
RETI Heavy In-State	5	14	45	36	70	30
North/Northwest	<1	16	30	54	58	42
Desert Southwest	1	19	51	29	72	28
Owens Valley	1	18	55	26	92	8

System Stress Cases

- Case A: 2020 Northern CA adverse weather
 - 1-in-10 Northern CA + 1-in-2 Southern CA
- Case B: 2020 Southern CA adverse weather
 - 1-in-10 Southern CA + 1-in-2 Northern CA
- Case OTC: Once Through Cooling adverse weather case

Generation Re-Dispatch

- Economic (Heat Rate)
 - Re-Dispatched plants with highest heat rate first
 - 70% In-State and 30% Out of State
- Carbon Proxy
 - Fuel Type Re-Dispatch (Coal, Oil, and Gas)
 - 70% In-State and 30% Out of State

Phase 2 Study Results – Jon Eric Thalman

Phase 2 Study Results

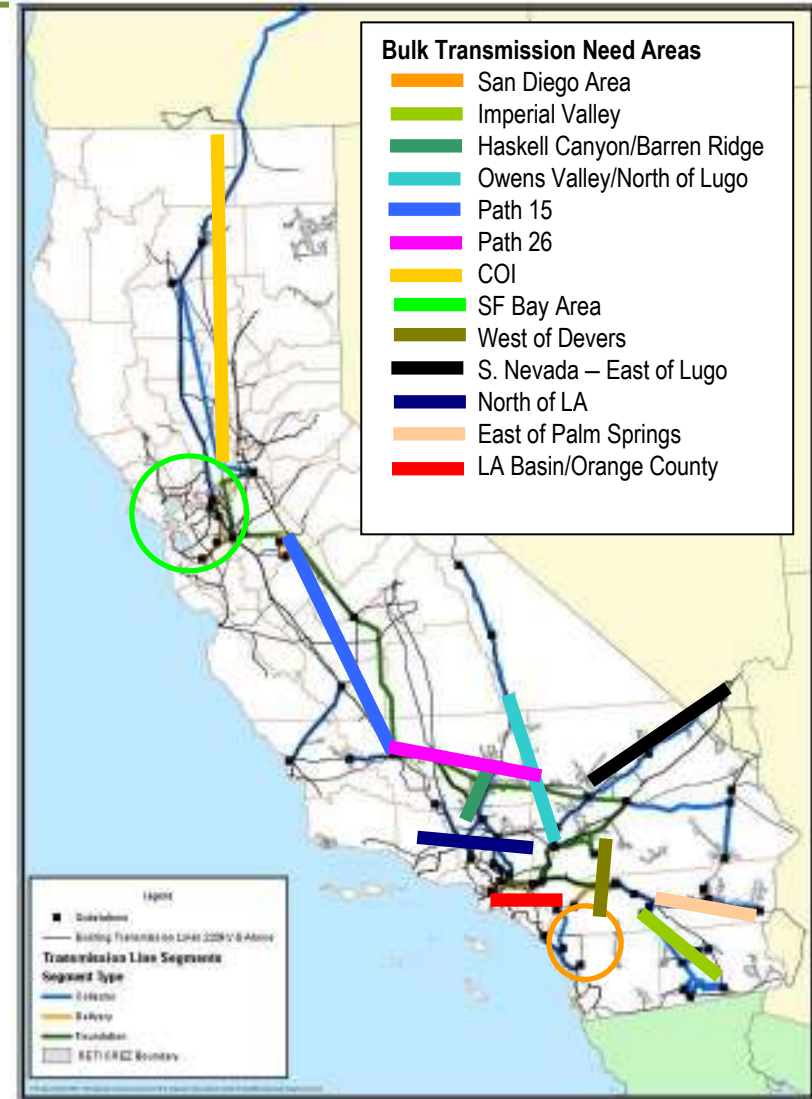
- Review of Study Result in two formats
 - High level Study Results by Scenario
 - Detailed Results by Area

Phase 2 Study Scenarios

CASE	PROCUREMENT PLAN	CREZ I/O	NET SHORT	RE-DISPATCH
A-Q	Queue	In-state	RETI	Econ Dispatch - 70/30
A _{SN} -Q	Queue	In-state	RETI	Econ Dispatch - 70/30
B-Q	Queue	In-state	RETI	Econ Dispatch - 70/30
B-CO ₂	Queue	In-state	RETI	CO ₂ Dispatch - 70/30
OTC	Utilities	In-state	CTPG	Econ Dispatch - 70/30
A-NW	Queue	Northwest	RETI	Econ Dispatch - 70/30
B-NW	Queue	Northwest	RETI	Econ Dispatch - 70/30
A _{SN} -SW	Queue	Southwest	RETI	Econ Dispatch - 70/30
B-SW	Queue	Southwest	RETI	Econ Dispatch - 70/30
B-OV	Queue	Owens Valley	RETI	Econ Dispatch - 70/30
A-RETI	RETI Core	RETI	RETI	Econ Dispatch - 70/30
A _{SN} -RETI	RETI Core	RETI	RETI	Econ Dispatch - 70/30
B-RETI	RETI Core	RETI	RETI	Econ Dispatch - 70/30

Phase 2 Study Results

- Across these thirteen scenarios over 100 individual bulk transmission elements were identified as needed to ensure compliance with applicable NERC performance standards. A compilation of these elements generally fall into the thirteen electrical need areas.



A-Q: In-State NorCal Peak

Path	A-Q
COI	3217 MW
PDCI	3094 MW
P15 (S-N)	4239 MW
P26 (N-S)	-572 MW
IPP	1789 MW



Bulk Transmission Needs

- North of Lugo
- Path 15
- Imperial Valley
- East of Palm Springs
- West of Devers
- LA/Orange County

A_{SN}-Q: In-State NorCal Peak S2N

Path	A _{SN} -Q
COI	-197 MW
PDCI	-586 MW
P15 (S-N)	7626 MW
P26 (N-S)	4026 MW
IPP	1738 MW



Bulk Transmission Needs

- San Diego Area
- Haskell Canyon/Barren Ridge
- Path 15
- Path 26
- West of Devers
- S. Nevada – East of Lugo
- North of LA

B-Q: In-State SoCal Peak

Path	B-Q
COI	3355 MW
PDCI	3098 MW
P15 (S-N)	1753 MW
P26 (N-S)	2202 MW
IPP	1789 MW



Bulk Transmission Needs

- San Diego Area
- Imperial Valley
- Haskell Canyon/Barren Ridge
- North of Lugo
- West of Devers
- S. Nevada – East of Lugo
- North of LA
- LA Basin/Orange County

B- CO₂: In-State SoCal Peak

Path	B-CO ₂
COI	3181 MW
PDCI	- MW
P15 (S-N)	1177 MW
P26 (N-S)	2114 MW
IPP	- MW

Bulk Transmission Needs

- San Diego Area
- Imperial Valley
- East of Palm Springs



OTC: Once Through Cooling

Path	OTC
COI	Various
PDCI	3100 MW
P15 (S-N)	Various
P26 (N-S)	Various
IPP	1854 MW



Bulk Transmission Needs

- Northern CA – potential voltage issues in SF Area
- Significant impact to S. California requiring resources and transmission solutions
- All three OTC cases demonstrate that OTC needs are independent of RPS needs

A-NW: Northwest NorCal Peak

Path	A - NW
COI	5278 MW
PDCI	3100 MW
P15 (S-N)	-35 MW
P26 (N-S)	3500 MW
IPP	1850 MW

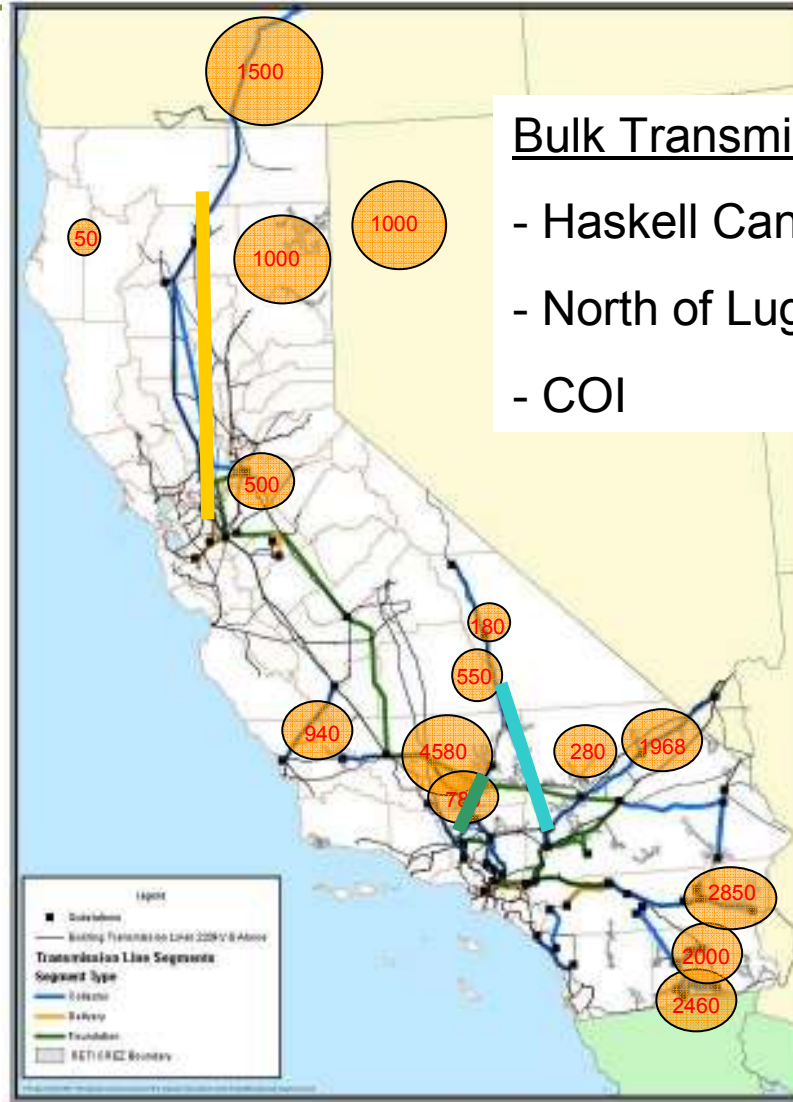


Bulk Transmission Needs

- Haskell Canyon/Barren Ridge
- North of Lugo
- COI

B-NW: Northwest SoCal Peak

Path	B-NW
COI	4985 MW
PDCI	3100 MW
P15 (S-N)	812 MW
P26 (N-S)	4663 MW
IPP	1800 MW



Bulk Transmission Needs

- Haskell Canyon/Barren Ridge
- North of Lugo
- COI

A_{SN} – SW: Southwest NorCal Peak S2N

Path	$A_{SN} - SW$
COI	-1216
PDCI	-586
P15 (S-N)	4913
P26 (N-S)	-4325
IPP	1737



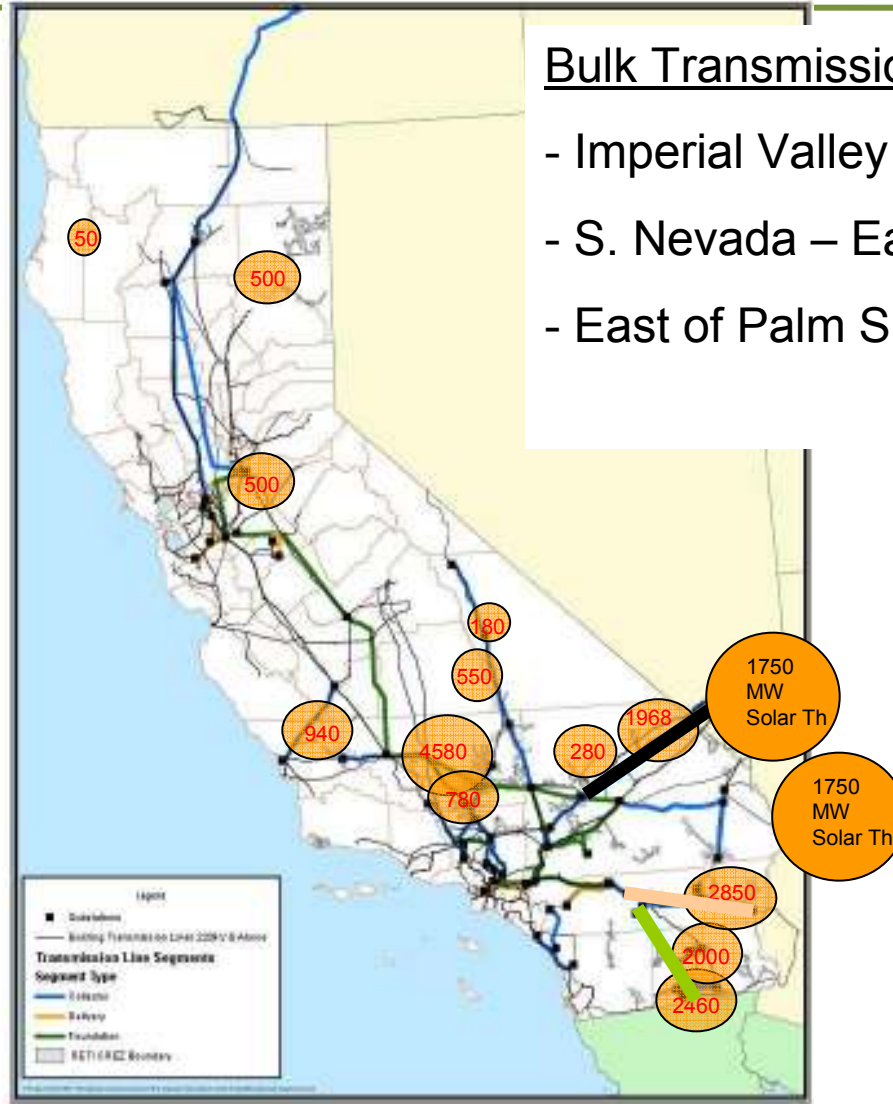
Bulk Transmission Needs

- San Diego Area
- Imperial Valley
- North of Lugo
- Path 15
- Path 26
- S. Nevada – East of Lugo

B-SW: Southwest SoCal Peak

Path	B-SW
COI	3365 MW
P15 (S-N)	997 MW
P26 (N-S)	2287 MW
WOR	8188 MW
EOR	5735 MW

- Bulk Transmission Needs
- Imperial Valley
 - S. Nevada – East of Lugo
 - East of Palm Springs



B-OV: Owens Valley SoCal Peak

Path	B-OV
COI	3246 MW
P15 (S-N)	1868 MW
P26 (N-S)	-2074 MW
WOR	6795 MW
EOR	4671 MW

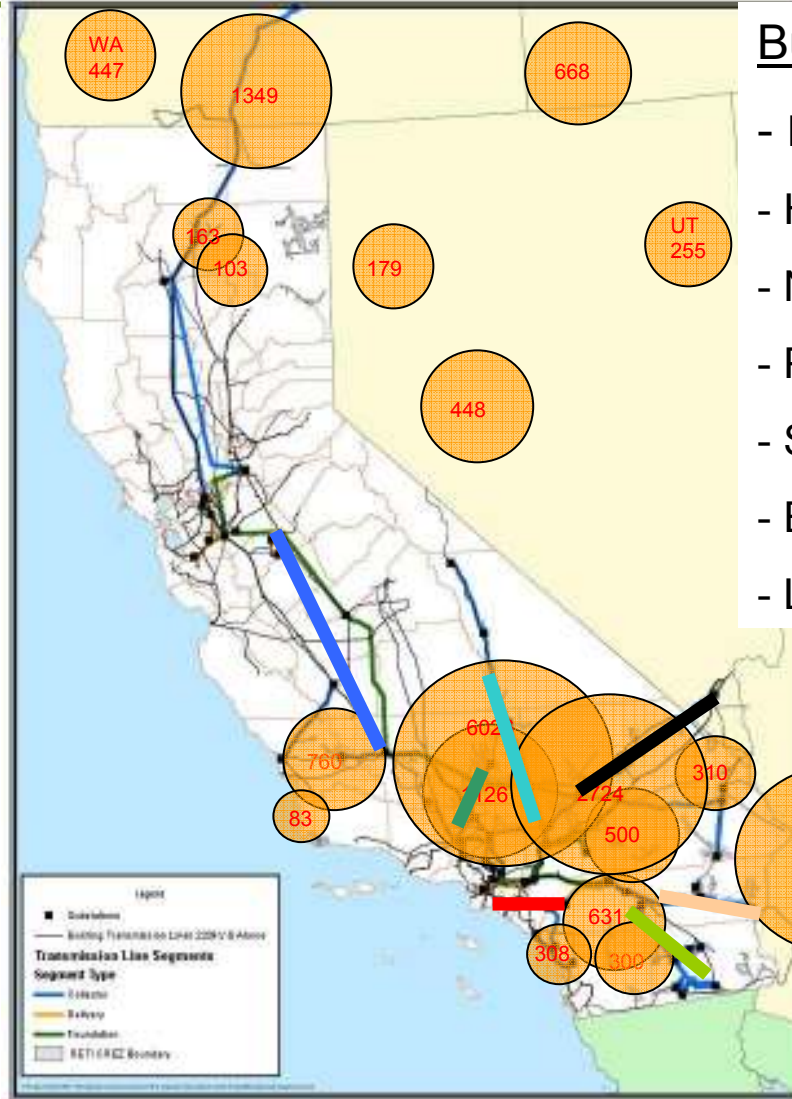
Bulk Transmission Needs

- North of Lugo
- Path 15
- West of Devers



A-RETI: RETI NorCal Peak

Path	A - RETI
COI	3688 MW
PDCI	3100 MW
P15 (S-N)	4561 MW
P26 (N-S)	-902 MW
IPP	1789 MW

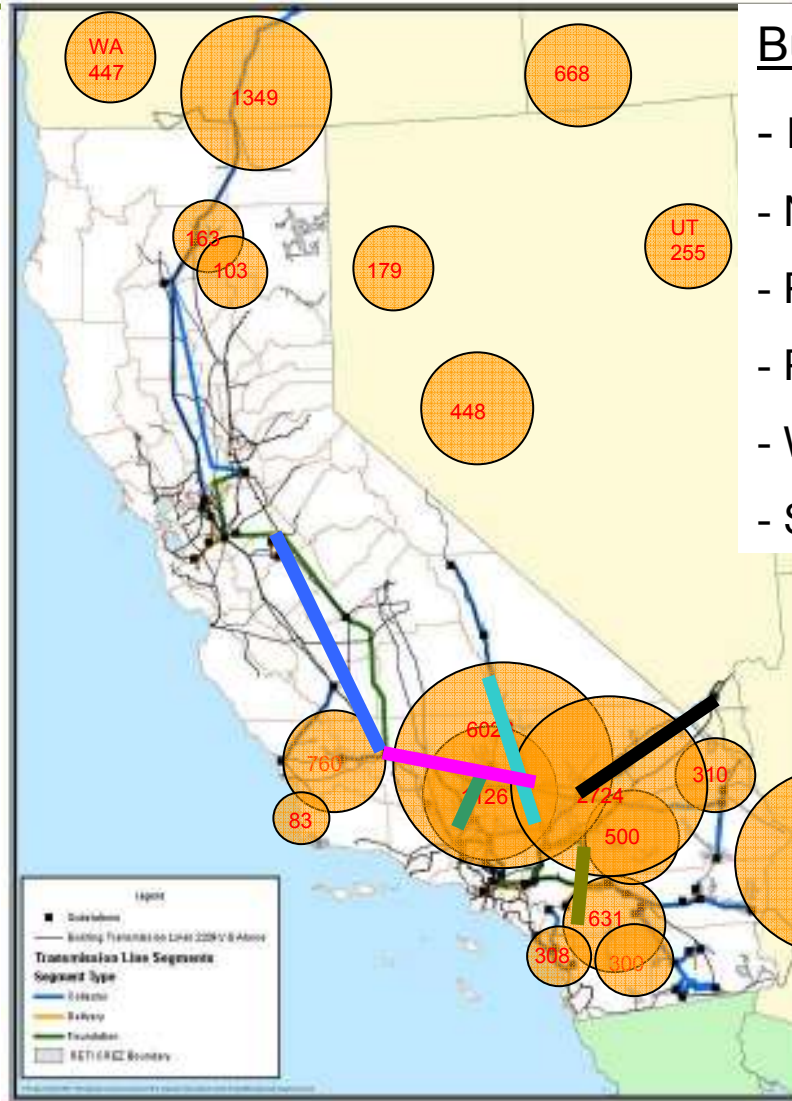


Bulk Transmission Needs

- Imperial Valley
- Haskell Canyon/Barren Ridge
- North of Lugo
- Path 15
- S. Nevada - East of Lugo
- East of Palm Springs
- LA Basin – Orange County

A_{SN}- RETI: NorCal Peak S2N

Path	A _{SN} - RETI
COI	-1217 MW
PDCI	-587 MW
P15 (S-N)	4913 MW
P26 (N-S)	-4325 MW
IPP	- MW

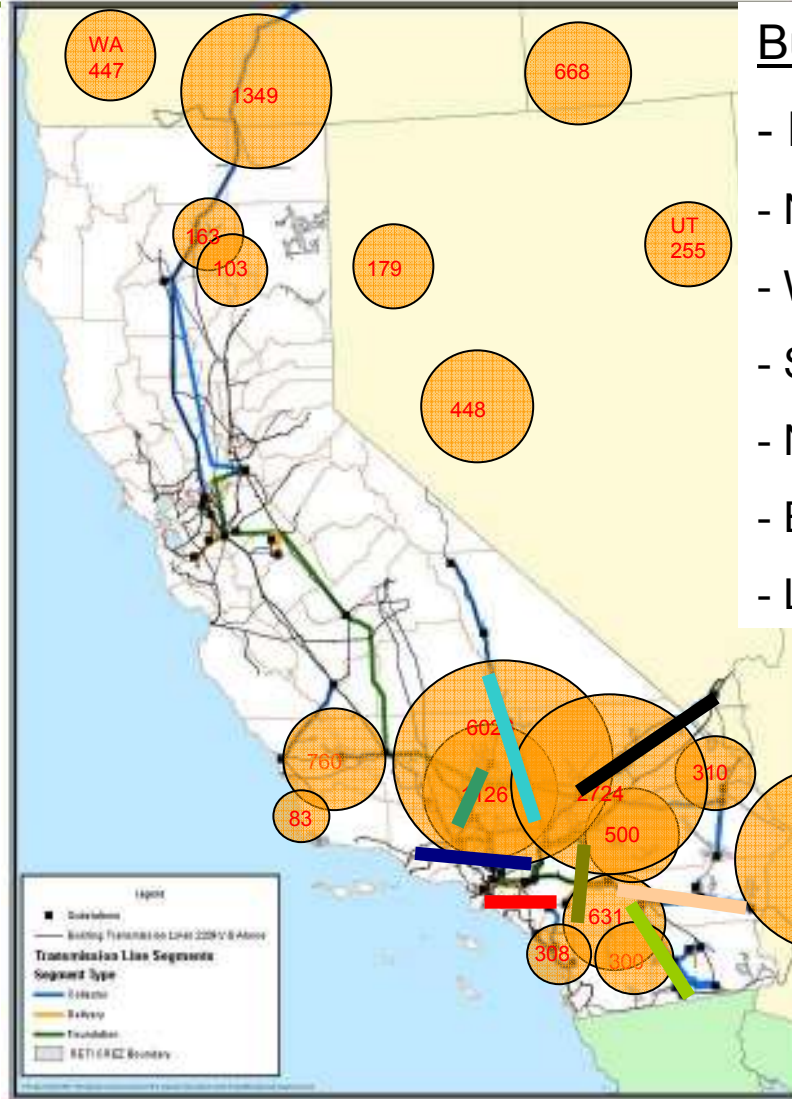


Bulk Transmission Needs

- Haskell Canyon/Barren Ridge
- North of Lugo
- Path 15
- Path 26
- West of Devers
- S. Nevada - East of Lugo

B-RETI RETI SoCal Peak

Path	B - RETI
COI	3654 MW
PDCI	3100 MW
P15 (S-N)	1861 MW
P26 (N-S)	2101 MW
IPP	1789 MW



Bulk Transmission Needs

- Imperial Valley
- North of Lugo
- West of Devers
- S. Nevada - East of Lugo
- North of LA
- East of Palm Springs
- LA Basin – Orange County

San Diego Area

	Bulk Transmission Needs	Mitigation	A-Q	ASN-Q	B-Q	B-CO2	OTC	A-NW	B-NW	ASN-SW	B-SW	B-OV	A-RETI	ASN-RETI	B-RETI
1	San Diego Area														
	CENTRAL 500/230 KV transformer #1 or #2	Third 500/230 kV transformer at Central substation				X				X	X				
	CENTRALS-SYCAMORE 230 kV CKT #1 or #2	230 kV Central-Sycamore Canyon #3 line				X				X	X				
	OTAYMESA - TJI-230 #1 230KV LINE	SPS (Transfer trip IV Gen and IV-ROA230 or OtayMesa-TJI 230kV lines)		X		X				X	X			X	
	SYCAMORE - MIGUEL/ SYCAMORE Tap 230 kV CKT #1	SPS close-in Tap at Miguel				X									
	SYCAMORE 230/138KV TRAN BANK-1	Build a new Sycamore - Penasquitos 230kV line		X								X	X	X	
	ECO - MIGUEL 500 kV	SPS (Transfer trip of IV Gen)								X	X				
	ESCNDIDO - TALEGA #1 & #2 230KV LINE	SPS (controlled load drop)		X		X				X	X		X		
	MIGUEL 500/230 KV transformer #1 or #2	SPS (Transfer trip IV Gen, cross trip 500/230 kV transformer #2 or #1 and IV-ROA230)	X	X	X	X				X	X	X			
	MIGUEL-MIGUELMP 500 ckt #1	New transmission to deliver generation out of IV area	X		X					X					
	OLD TOWN - OLDTWNT 230KV LINE	Reconductor		X										X	
	Mission/Miguel Tap - South Bay 230 KV CKT #1	Sycamore Canyon- Penasquitos 230Kv line		X	X	X					X	X		X	X

Imperial Valley

	Bulk Transmission Needs	Mitigation	A-Q	ASN-Q	B-Q	B-CO2	OTC	A-NW	B-NW	SW	B-SW	B-OV	A-RETI	RETI	B-RETI
2	Imperial Valley														
	IMPRLVLY - ROA-230 #1 230KV LINE	SPS (Transfer trip IV Gen and IV-ROA230 or OtayMesa-TJI 230kV lines)		X		X					X			X	
	IMPRLVLY 500/230 TRAN BANK-2 or BANK-1	Install 3rd 500/230kV Transformer Bank at IV	X	X										X	
	IMPRLVLY-CENTRALS 500 ckt #1	New transmission to deliver generation out of IV area	X		X					X	X		X		X
	IMPRLVLY - Q124 230 kV													X	
	ROA-230 230.0 IMPRLVLY 230.0 #1	Revised the existing SPS to trip more generation in IV area or reconfigure the system to loop-in the Sunrise to WDNFARM			X					X		X			X
	RUM-230 - ROA 231 230 kV	SPS (Transfer trip of IV Gen)	X							X	X				
	Upgrade existing Coachella – Mirage 230 kV line	Added to solve case	X		X					X		X	X	X	X
	New Hudson tap 230 kV substation	Added to solve case	X		X					X		X	X	X	X
	Two new Midway – Hudson tap 230 kV lines	Added to solve case	X		X					X		X	X	X	X
	New Bannister 230 kV substation	Added to solve case	X		X					X		X	X	X	X
	New El Centro to Bannister 230 kV line	Added to solve case	X		X					X		X	X	X	X
	Existing IV-EL Centro 230 kV line loops-in into IIDIV	Added to solve case	X												
	New IV-IIDIV-EL Centro 230 kV line	Added to solve case	X												
	New IIDIV 230 kV substation	Added to solve case	X												
	New Imperial Valley 500/230 kV bank #3	Added to solve case	X												
	IMPRLVLY - Q78 230 kV	Added to solve case	X											X	

Haskell Canyon/Barren Ridge & Owens Valley/North of Lugo

	Bulk Transmission Needs	Mitigation	A-Q	ASN-Q	B-Q	B-CO2	OTC	A-NW	B-NW	ASN-SW	B-SW	B-OV	A-RETI	ASN-RETI	B-RETI
3	Haskell Canyon/Barren Ridge														
	BARRENRD-HSKLLCYN 230kV #1	Construct BARRENRD-HSKLLCYN #4			X			X	X						
	HSKLLCYN - NRTHRDGE 230kV #1												X		
	HSKLLCYN - SYLMARLA #1 230KV LINE	Reconductor		X									X	X	
4	Owens Valley/North of Lugo														
	INYOKERN-KRAMER 230kV #1 or #2 LINE	SPS or upgrade north of Inyokern	X		X										
	KRAMER - KRAMER 500kV #1 or #2	Construct Kramer 500/230 kV Bank #3 or add SPS to trip new renewable gen	X										X		X
	KRAMER 500/230kV Bk #1	Revise existing SPS to trip north of Lugo generation			X										
	KRAMER-LUGO 230kV #1 or #2	Revise existing SPS to trip north of Lugo generation or build second 500 kV line out of Kramer substation	X		X										
	LUGO - VICTORVL 500 kV	Upgrade Terminal Equipment												X	
	NEW SUB 230 kV with +/- 200 Mvar synchronous condenser; New 230 kV line from NEW SUB to Inyokern and one new 230 kV collector line	Added to solve case	X		X			X	X	X		X	X	X	X
	New Inyokern 230 kV substation	Added to solve case	X		X			X	X	X		X	X	X	X
	Re-configure BLM WEST – Kramer 230 kV line to BLM WEST – Inyokern – Kramer 230 kV line, add second Kramer-Inyokern 230 kV line and remove Inyokern-Kramer 115 kV line	Added to solve case	X		X			X	X	X		X	X	X	X
	New Kramer 500 kV substation (upgrade from the existing 230 kV substation)	Added to solve case	X		X			X	X	X		X	X	X	X
	Two Kramer 500/230 kV transformers	Added to solve case	X		X			X	X	X		X	X	X	X
	New LLANO 500 kV switch station	Added to solve case	X		X			X	X	X		X	X	X	X
	Lugo – Vincent #2 500 kV line loops-in into LLANO 500 kV substation	Added to solve case	X		X			X	X	X		X	X	X	X
	New Cottonwood 500 kV substation & 3 500 kV subs..	Added to solve case	X					X	X	X		X		X	
	New Barren Ridge 500 kV substation, 2 500 kV subs	Added to solve case	X					X	X	X		X		X	
	New 500 kV Cottonwood-Barren Ridge #1 and #2 lines	Added to solve case	X					X	X	X		X		X	
	New 500 kV Barren Ridge-Vincent #1 and #2 lines	Added to solve case	X					X	X	X		X		X	
	New 500 kV Cottonwood-Kramer #1 and #2 lines	Added to solve case	X					X	X	X		X		X	
	New Kramer-Llano 500 kV line	Added to solve case	X					X	X	X		X		X	

Path 15 & Path 26

	Bulk Transmission Needs	Mitigation	A-Q	ASN-Q	B-Q	BC02	OTC	A-NW	B-NW	ASN-SW	B-SW	B-OV	A-RETI	ASN-RETI	B-RETI
5	Path 15														
	ARCO - MIDWAY 230 kV line #1	Reconductor	X				X								
	BELLOTA - COTTLE B #1 230KV LINE	Reconductor		X										X	
	BORDEN - GREGG 230 kV line #1	Reconductor	X	X	X		X					X	X	X	X
	COTTLE B - WARNERVL #1 230KV LINE	Reconductor		X										X	
	GATES - MIDWAY 230 kV line #1	Reconductor	X				X								
	HENRIETA 230/115KV TRAN BANK-3	Re-dispatch GWF generation		X											
	WARNERVL - WILSON #1 230KV LINE	Reconductor		X											
	WESTLEY - LOS BANOS 230 kV line #1	Reconductor	X	X			X					X	X	X	
	WILSON - STOREY 2 #1 230KV LINE	Reconductor		X											
	STOREY 1 - GREGG #1 230KV LINE	Reconductor		X										X	
	STOREY 1 - WILSON #1 230KV LINE	Reconductor		X										X	
	STOREY 2 - BORDEN #1 230KV LINE	Reconductor		X											
	TEMPLETON - MORRO BAY 230 kV line #1	Reconductor	X	X									X	X	
	Gregg 500kV sub with two 500/230kV banks	Added to solve case		X						X					
	Eastside 500kV sub with one 500/230kV bank	Added to solve case		X						X					
	Midway-Gregg 500kV DCTL	Added to solve case		X						X					
	Gregg-Eastside-Tesla/Eastside 500kV DCTL	Added to solve case		X						X					
6	PATH 26														
	MIDWAY - WIRLWIND #3 500KV Line	Build a new Midway - Kramer 500kV line		X					X					X	
	Whirlwind - Tc08Sc 230 kV line #1 (all 3 lines)	Install reactive power support to reduce Var flow											X		X
	WIRLWIND 500/230 TRAN BANK-2	Energize 3rd deliverability transformer		X											
	VINCENT - LLANO 500KV LINE	Build Midway - Kramer 500kV line		X											
	VINCENT 500/230kV banks	Energize spare Vincent 500/230 kV Bank										X			
	WHIRLWIND 500/230 kV #2 & #3	Needed to solve case	X		X			X	X	X		X	X	X	X
	MIDWAY- LAPALOMA#1 or #2 230KV LINE	Run-back or trip La Paloma generation		X											

COI

	Bulk Transmission Needs	Mitigation	A-Q	ASN-Q	B-Q	B-CO2	OTC	A-NW	B-NW	ASN-SW	B-SW	B-OV	A-RETI	RETI	B-RETI
7	COI														
	MAXWELL-TRACY 500kV ckt #1	COI upgrade						X	X						
	CPV STATION - CORTINA 230 kV LINE #1	Reconductor or Loop in Cortina with additional 230-kV transmission	X				X	X	X				X		
	OLINDA-MAXWELL 500kV ckt #1	COI upgrade						X	X						
	TABLE MT-VACA-DIX 500kV ckt #1	COI upgrade						X	X						
	ROUND MT-MALIN 500kV ckt #2	Increase rating of series caps sin MA-RM #2 line @ MA						X	X						
	ROUND MT-TABLE MT 500kV ckt #1 or #2	COI upgrade						X	X						

SF Bay Area

	Bulk Transmission Needs	Mitigation	A-Q	ASN-Q	B-Q	B-CO2	OTC	A-NW	B-NW	ASN-SW	B-SW	B-OV	A-RETI	ASN-RETI	B-RETI
8	SF BAY AREA														
	METCALF - MOSS LANDING 230 kV line #1 or #2	Run-back or trip Moss Landing generation	X	X									X		
	PITSBG D - DEC PTSB #1 or #2 230KV LINE	Run-back or trip DEC generation		X										X	
	TRACY #1& #2 500/230 kV Bank												X		
	VSC_PTSB 230/180KV TRAN BANK	Run-back transfer on Trans Bay Cable		X											

West of Devers & East of Lugo

	Bulk Transmission Needs	Mitigation	A-Q	ASN-Q	B-Q	B-CO2	OTC	A-NW	B-NW	ASN-SW	B-SW	B-OV	A-RETI	ASN-RETI	B-RETI
9	West of Devers														
	DEVERS-SANBRDNO 230kV #1	West of Devers upgrade	X	X	X							X		X	
	EL CASCO-DEVERS 230kV #1	West of Devers upgrade	X	X	X				X			X		X	
	VSTA-DEVERS 230kV #2	West of Devers upgrade	X		X									X	
10	S. Nevada - North of LA Corridor														
	ELDORDO - PISGAH #1 500KV LINE	Upgrade Series Capacitors		X	X					X	X		X	X	X

West of Devers & East of Lugo

	Bulk Transmission Needs	Mitigation	A-Q	ASN-Q	B-Q	B-CO2	OTC	A-NW	B-NW	ASN-SW	B-SW	B-OV	A-RETI	ASN-RETI	B-RETI
1 1	North of LA														
	PARDEE - SAUG TAP #1, #2 or #3 230KV LINE	Fourth 230 kV Line & Transformer		X											
	PARDEE-MOORPARK 230KV #2 or #3	Dispatch local generators	X		X								X		X
	PARDEE-S.CLARA 230KV #1	Dispatch local generators			X										X
1 2	East of Palm Springs														
	JHINDMWD - EAGLEMTN 230KV #1	Reconductoring or upgrade the rating											X		X
	JHINDMWD - JHINDSCE 230KV #r1	SPS (Runback Blythe Generatio)											X		X
	HAYFIELD - TOT198_1 230 kV	Trip TOT 198 and 199												X	
	JHINDSCE - MIRAGE #1 230KV LINE	Re-dispatch Blythe generation or Reconductor		X		X			X	X	X	X	X		X
1 3	LA Basin/Orange County														
	SERRANO-VILLA PK 230KV #1 or #2	Reconductoring, upgrade the rating, dispatch local generators, or build new transmission line into Western LA Basin	X		X								X		X
	VILLA PK-BARRE 230KV #1	Reconductoring, upgrade the rating, dispatch local generators, or build new transmission line into Western LA Basin			X								X		X
	VILLA PK-LEWIS 230KV #1	Reconductoring, upgrade the rating, dispatch local generators, or build new transmission line into Western LA Basin	X		X								X		X
	MESA CAL - LITEHIPE 230KV #1	Reconductoring, upgrade the rating, dispatch local generators, or build new transmission line into Western LA Basin													X
	BARRE - ELLIS #1 230KV LINE	Reconductoring, upgrade the rating, dispatch local generators, or build new transmission line into Western LA Basin	X	X	X								X	X	X
	CENTER S-DELANO 230KV #1	Reconductoring, upgrade the rating, dispatch local generators, or build new transmission line into Western LA Basin			X										X
	OLINDA - MIRALOME 230KV #1	Reconductoring, upgrade the rating, dispatch local generators, or build new transmission line into Western LA Basin													X

PHASE 2 STAKEHOLDER INPUT

JON ERIC THALMAN

PHASE 3 STUDY PLAN – MIKE DEIS

Phase 3 Renewable Portfolios

- RETI Best CREZ/RETI Net Short
 - No Discounted Core
 - RETI Best CREZs
 - 70% of Net Short from In-State Best CREZs
 - 30% of Net Short from Out-of-State Best CREZs
 - Westlands and Solano added to Best CREZs

Renewable Energy Portfolios

Percent of Net Short By Scenario						
Scenario	Bio	Geo	Solar	Wind	In State	Out of State
LSE Procurement Interest (Phase 1)	2	11	49	38	79	21
Gen Queue Development Interest	1	21	44	34	92	8
RETI Heavy In-State	5	14	45	36	70	30
North/Northwest	<1	14	21	65	58	42
Desert Southwest	1	19	51	29	76	24
Owens Valley	1	18	55	26	92	8
RETI Best CREZ	4	17	43	36	70	30

Phase 3 Renewable Portfolios

- North CA/Northwest/RETI Net Short
 - Significant unanticipated flow results were measured at the California-Oregon Border
 - Phase 3 will investigate methods that clarify these unexpected flows

Phase 3 Stress Cases

- Case A: 2020 Northern CA adverse weather
 - 1-in-10 Northern CA + 1-in-2 Southern CA
- Case B: 2020 Southern CA adverse weather
 - 1-in-10 Southern CA + 1-in-2 Northern CA
- Case F: California Autumn Light Load
 - September, 8AM
 - Wind and Solar Generation with Light Load

Phase 3 Generation Re-Dispatch

- Economic (Heat Rate)
 - Re-Dispatch plants with highest heat rate first
 - 70% In-State and 30% Out of State
- Generation Out-of-State Re-dispatch
 - Fuel Type Re-Dispatch (Coal, Oil, and Gas)
 - No predetermined In-State/Out-of-State ratio
 - Respect Local Generation Capacity Requirements and “Must-Run Generation”

Phase 3 Transmission Needs Alternative Analysis

- Stakeholder Transmission Alternatives
- CTPG request for transmission alternatives
- Information template posted to CTPG website

Transmission Needs Alternative Analysis

<u>NEED</u>	Number of the transmission need the provided alternative transmission solution will address.
<u>FROM</u>	Bus Number
<u>FNAME</u>	Bus Name
<u>FKV</u>	From Bus KV
<u>TO</u>	Bus Number
<u>TNAME</u>	Bus Name
<u>TKV</u>	To Bus KV
<u>CK</u>	Circuit ID, typically = 1
<u>SE</u>	Section, breaks down circuit further
<u>R-PU</u>	Resistance Per Unit
<u>X-PU</u>	Reactance Per Unit
<u>B-PU</u>	Susceptance (Capacitance) per unit
<u>MVA1</u>	Line Rating Summer Normal
<u>MVA2</u>	Line Rating Summer Emergency
<u>MVA3</u>	Line Rating Winter Normal
<u>MVA4</u>	Line Rating Winter Emergency
<u>LENGTH</u>	Line length in miles
<u>AREA</u>	Area number. If not know, please provide geographic description. Will be assigned by CTPG in PSLF software.
<u>ZONE</u>	Zone number. If not know, please provide geographic description. Will be assigned by CTPG in PSLF software.
<u>AF</u>	Area number from
<u>AT</u>	Area number to
<u>YI</u>	Year expected in-Service. Not included in PSLF model needed for information only.
<u>MI</u>	Month expected in-Service. Not included in PSLF model needed for information only.
<u>DESCRIPTION</u>	Detailed description of terminal equipment.

Transmission Needs Alternative Analysis

- Analysis Criteria
 - Does proposed alternative meet a transmission need?
 - How does the proposed alternative compare to the transmission solution identified in the CTPG studies?
 - Electrical Performance
 - High-level Cost
 - High-level Environmental
 - Descriptions of transmission alternatives are due by end of stakeholder comment period April 28, 2010

PHASE 3 STAKEHOLDER INPUT – JOHN RUFFIN/ JON ERIC THALMAN / MIKE DEIS



Questions?

Thank you for you input and
attendance
