



CTPG Stakeholder Meeting
2011 Work Plan
Phase II: Transmission Planning Studies
Draft Study Plan

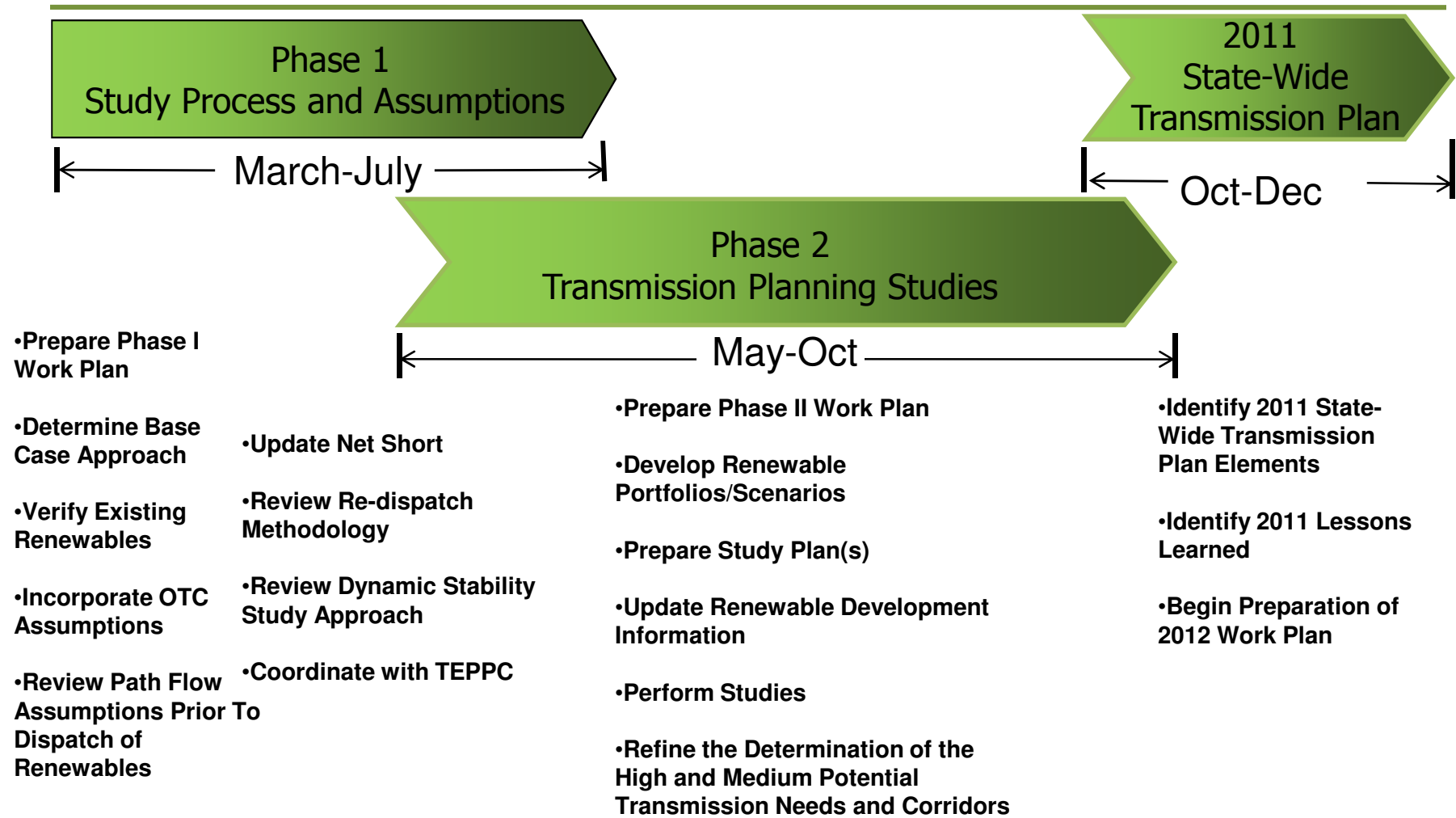
July 26, 2011

MEETING WELCOME – MO BESHIR
CTPG TECHNICAL STEERING COMMITTEE CHAIR

Agenda

Meeting Welcome and Agenda	9:00 – 9:05	Mo Beshir
Phase II, Study Scenarios		
✓ Scenarios Overview	9:05 – 9:10	Garry Chinn
✓ Pacific Northwest Import	9:10 – 9:15	Garry Chinn
✓ Northwest Nevada Import	9:15 – 9:20	Garry Chinn
✓ South to North Flow	9:20 – 9:25	Garry Chinn
✓ CPUC Public Policy	9:25 – 9:30	Garry Chinn
✓ Central California	9:30 – 9:35	Garry Chinn
✓ West-Of-River Import	9:35 – 9:40	Garry Chinn
Stakeholder Input	9:40 – 10:55	Mike Deis
Meeting Wrap-Up and Next Steps	10:55 – 11:00	Mo Beshir
Adjourn	11:00	

CTPG 2011 Work Plan



CTPG 2011 STUDY SCENARIOS – GARRY CHINN

Scenarios Overview

No.	Name	Description	Season Date Time	Path Flow Prior to Addition of Net Short ¹	Renewable Resources
1	Pacific Northwest Import	Wind imports from Pacific Northwest combined with hydro runoff.	spring (early June)	stress COI (n-s)	Out of State CPUC/POU discounted core RETI Best CREZs
2				foundation ²	
3	Northwest Nevada Import	Geothermal from Nevada & wind and solar from Northern California.	summer peak	stress COI (n-s)	Out of State CPUC/POU discounted core RETI Best CREZs
4				foundation ²	
5	South to North Flow	Determine transmission needs required during this time period generally characterized as light load with significant wind and morning solar generation. Paths 15 & 26 flows are south to north.	fall (Sep 9 AM)	foundation ²	Southern California CPUC/POU discounted core RETI Best CREZs
6	CPUC Public Policy	Updates cost constrained scenario: includes Eldorado-Ivanpah, 1,384 MW of DG, 25% of 2020 RPS is out of state and projects from CAISO 2010/11 Transmission Plan.	summer peak	foundation ²	CPUC/POU discounted core CPUC Public Policy
7	Central California	Large development of disturbed land with low environmental impact. Inject power at Panoche, Gates and Midway.	summer peak	foundation ²	CPUC/POU discounted core Central California gen queue RETI Best CREZs
8	West of River Import	High wind & solar imports from Wyoming, Utah, Nevada and Arizona to stress WOR. Inject power at Eldorado (50%), Palo Verde (37%) and N. Gila (13%).	fall (Sep 9 AM)	stress WOR (e-w)	Out of State CPUC/POU discounted core RETI Best CREZs
9		Same as above, except inject power at Eldorado (37%), Palo Verde (50%) and N. Gila (13%).			

1. Net Short of 45.1 TWh for all scenarios.

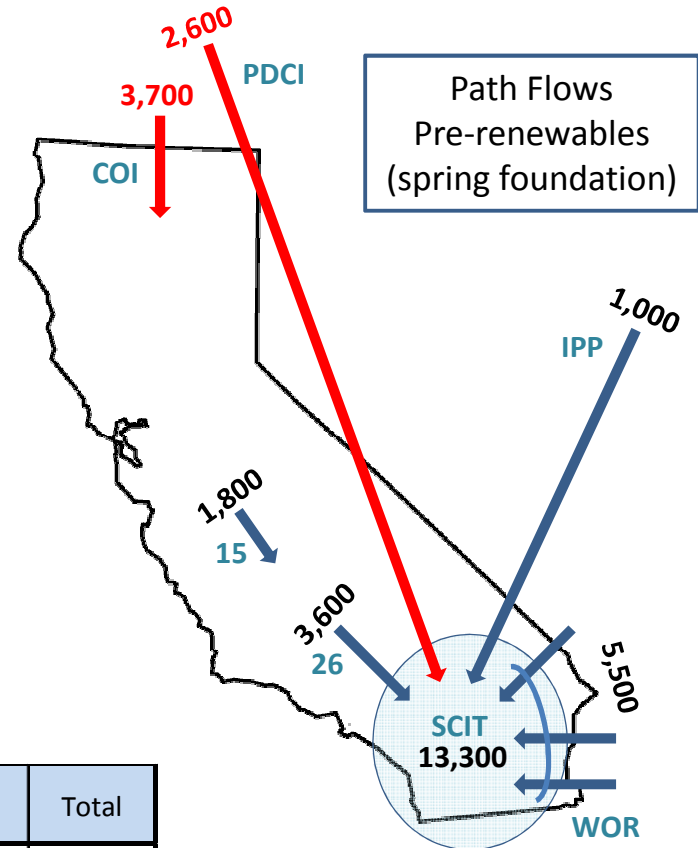
2. The foundation cases represent the generation dispatch pattern present in the WECC seed cases; i.e., in the foundation cases paths are not “stressed” prior to addition of the Net Short renewable resources.

1 & 2. Pacific Northwest Import

- Increased import from Pacific Northwest
 - Early June, 5PM
 - 2,500 MW of wind shaped by hydro at 50% capacity
 - approximately 80% capacity for large hydro
- Load: 2020 spring 48,518 MW
approximately 65% of summer peak
- Path flows pre-renewables:
 - Scenario 1. stress COI (4,800 n-s) & PDCI (3,100 n-s)
 - Scenario 2. spring foundation
- Net Short renewable resources:

	GWh	%
Discounted Core	23,017	51
Scenario Specific	10,950	24
RETI Best CA CREZs	11,164	25
Total	45,131	

	Wind	Solar Thermal	Solar PV	Bio	Geo	Total
Installed Capacity (MW)	7,283	2,712	4,432	200	342	14,969
Disptached (MW)	TBD	TBD	TBD	TBD	TBD	TBD
Annual Energy (GWh)	24,523	6,462	10,083	1,481	2,581	45,131

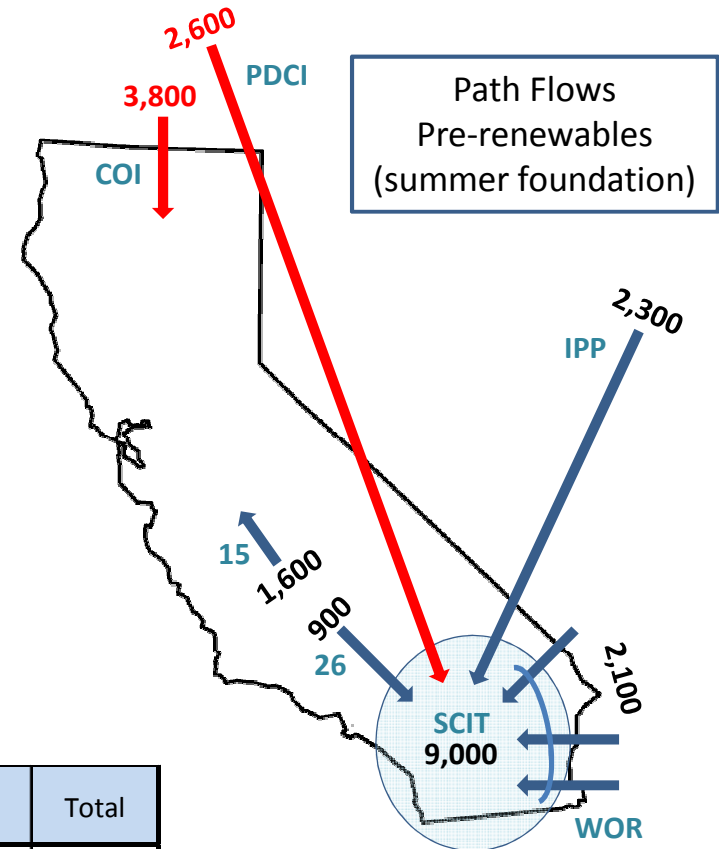


3 & 4. Northwest Nevada Import

- Renewables from NW NV / NE CA
 - July, 4PM
 - 750 MW geothermal from Northwest Nevada
 - 200 MW wind & 50 MW solar from Northeast California
- Load: 2020 summer peak 72,591 MW
1-in-10 in N. CA with 1-in-2 in S. CA
- Path flows pre-renewables:
 - Scenario 3. stress COI (4,800 n-s) & PDCI (3,100 n-s)
 - Scenario 4. summer foundation
- Net Short renewable resources:

	GWh	%
Discounted Core	23,017	51
Scenario Specific	6,345	14
RETI Best CA CREZs	15,769	35
Total	45,131	

	Wind	Solar Thermal	Solar PV	Bio	Geo	Total
Installed Capacity (MW)	5,425	2,795	5,423	212	1,213	15,068
Disptached (MW)	TBD	TBD	TBD	TBD	TBD	TBD
Annual Energy (GWh)	15,437	6,657	12,325	1,569	9,143	45,131

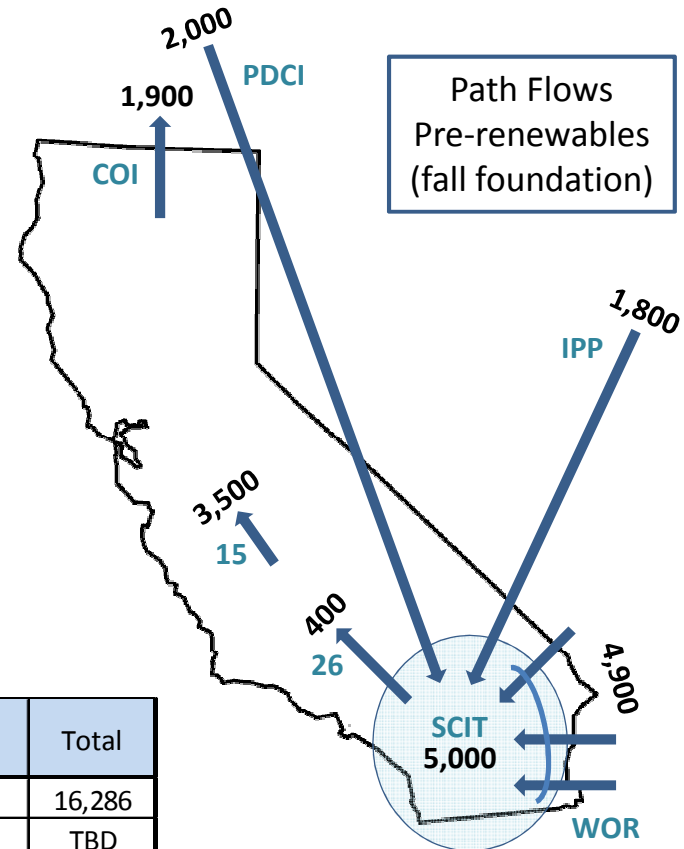


5. South to North Flow

- Investigate potential reliability issues during
 - light load fall morning: September, 9AM
 - high wind and morning solar in southern CA
 - Paths 15 and 26 flow south to north
- Load: 2020 fall 48,518 MW
approximately 65% of summer peak
- Path flows pre-renewables: fall foundation
- Net Short renewable resources:

	GWh	%
Discounted Core	23,017	51
Scenario Specific	-	-
RETI Best CA CREZs	22,114	49
Total	45,131	

	Wind	Solar Thermal	Solar PV	Bio	Geo	Total
Installed Capacity (MW)	5,749	2,918	6,752	229	639	16,286
Disptached (MW)	TBD	TBD	TBD	TBD	TBD	TBD
Annual Energy (GWh)	16,371	6,948	15,294	1,699	4,819	45,131

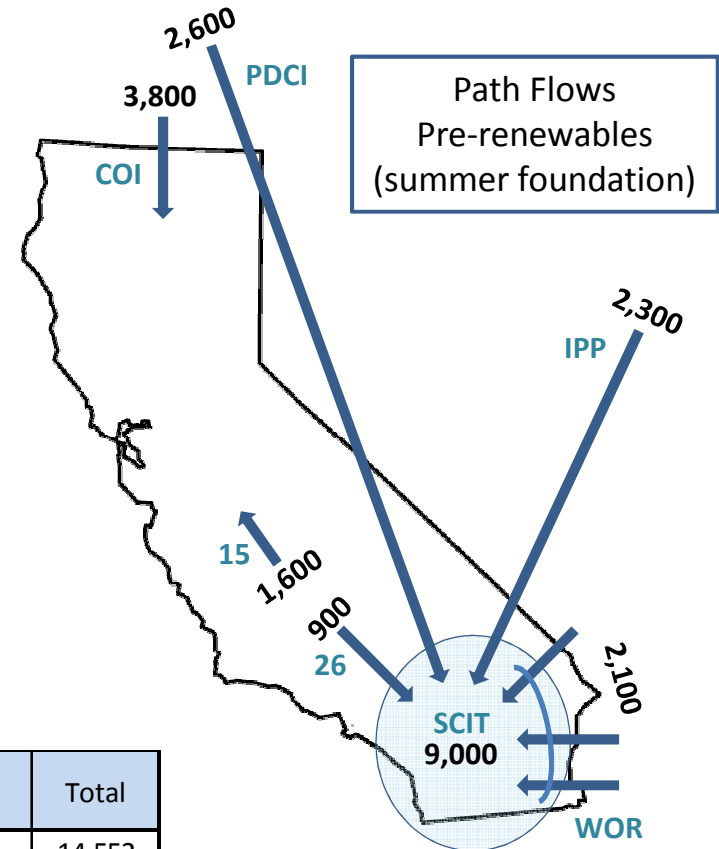


6. CPUC Public Policy

- CPUC revised “Cost Constrained” scenario
 - July, 4PM
 - 1,384 MW additional small scale solar PV
 - reflects CAISO 2010/11 Transmission Plan
 - 54,269 GWh of new renewables adjusted to CTPG Net Short of 45,131 GWh
- Load: 2020 summer peak 72,591 MW
1-in-10 in N. CA with 1-in-2 in S. CA
- Path flows pre-renewables: summer foundation
- Net Short renewable resources:

	GWh	%
Discounted Core	23,017	51
Scenario Specific	22,114	49
RETI Best CA CREZs	-	-
Total	45,131	

	Wind	Solar Thermal	Solar PV	Bio Sm Hydro	Geo	Total
Installed Capacity (MW)	7,551	2,502	3,111	371	1,017	14,552
Disptached (MW)	TBD	TBD	TBD	TBD	TBD	TBD
Annual Energy (GWh)	21,597	5,971	7,200	2,733	7,631	45,131

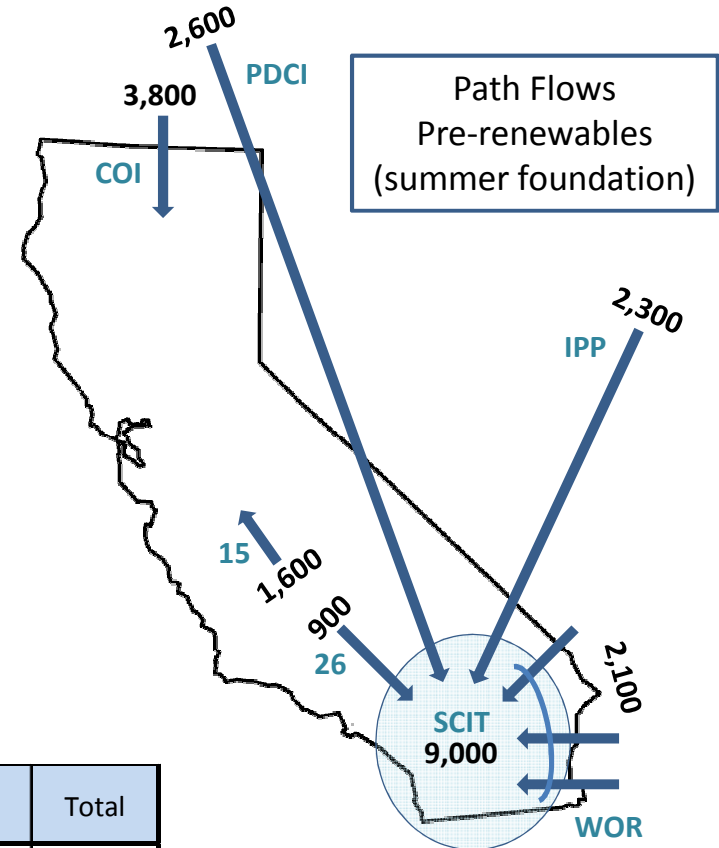


7. Central California

- Renewable development in central California
 - July, 4PM
 - large areas of disturbed land, low environmental impact
 - assume 50% success rate of CAISO gen queue
 - 4,916 MW solar, 130 MW wind & 8 MW bio
 - inject power at Panoche, Gates and Midway substations
- Load: 2020 summer peak 72,591 MW
1-in-10 in N. CA with 1-in-2 in S. CA
- Path flows pre-renewables: summer foundation
- Net Short renewable resources:

	GWh	%
Discounted Core	23,017	51
Scenario Specific	11,825	26
RETI Best CA CREZs	10,289	23
Total	45,131	

	Wind	Solar Thermal	Solar PV	Bio	Geo	Total
Installed Capacity (MW)	4,810	3,468	8,386	206	319	17,188
Disptached (MW)	TBD	TBD	TBD	TBD	TBD	TBD
Annual Energy (GWh)	13,641	8,230	19,334	1,523	2,402	45,131

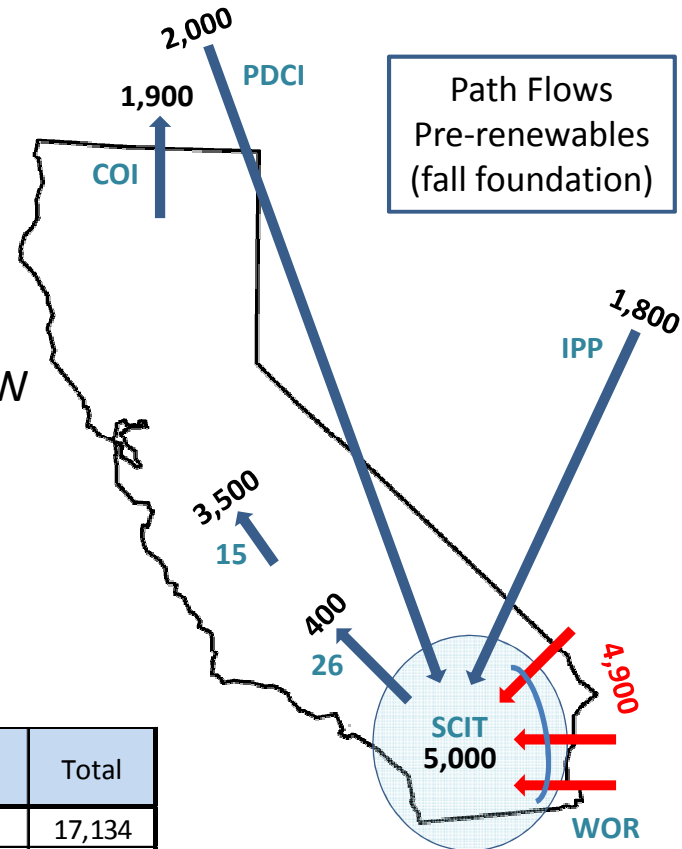


8 & 9. West of River Import

- Test high WOR imports
 - fall condition, historical WOR peak flows: September, 9AM
 - inject power at:
 - Scenario 8: Eldorado (50%) Palo Verde (37%) N. Gila (13%)
 - Scenario 9: Eldorado (37%) Palo Verde (50%) N. Gila (13%)
- Load: 2020 fall 48,518 MW
approximately 65% of summer peak
- Path flows pre-renewables: WOR e-w @ 7,250 MW
- Net Short renewable resources:

	GWh	%
Discounted Core	23,017	51
Scenario Specific	18,318	40
RETI Best CA CREZs	3,796	8
Total	45,131	

	Wind	Solar Thermal	Solar PV	Bio	Geo	Total
Installed Capacity (MW)	7,197	4,621	4,994	180	142	17,134
Disptached (MW)	TBD	TBD	TBD	TBD	TBD	TBD
Annual Energy (GWh)	20,271	10,921	11,532	1,335	1,073	45,131



STAKEHOLDER INPUT – MIKE DEIS

MEETING WRAP-UP AND NEXT STEPS – MO BESHIR

Next Steps

- Written stakeholder comments are due by August 5th, 2011
- CTPG Draft Phase II Study Report will be posted by approximately the end of September
- CTPG Stakeholder meeting to review the Draft Phase II Study Report will be in early October (In-person TBD, location TBD)
- Next CTPG Executive Committee Meeting, September 1, 2011 (San Francisco)



Thank you for your input