Arizona Corporation Commission
DOCKETED ORIGINAL

FEB - 8 2007

DOCKETED BY

0000066470

57

BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF SOUTHERN CALIFORNIA EDISON COMPANY AND ITS ASSIGNEES IN CONFORMANCE WITH THE REQUIRMENTS OF ARIZONA REVISED STATUTES SECTIONS 40-360.03 AND 40-360.06 FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING CONSTRUCTION OF A 500 kV ALTERNATING CURRENT TRANSMISSION LINE AND RELATED FACILITIES IN MARICOPA AND LA PAZ COUNTIES IN ARIZONA ORIGINATING AT THE HARQUAHALA GENERATING STATION SWITCHYARD IN WESTERN MARICOPA COUNTY AND TERMINATING AT THE DEVERS SUBSTATION IN RIVERSIDE COUNTY, CALIFORNIA.	CASE NO. 130 DOCKET NO. L-00000A-06-0295-00130 **NOTICE OF FILING** **and** **MOTION TO ADMIT ADDITIONAL EXHIBIT**

Commission Staff ("Staff") hereby submits this Notice of Filing of additional information.

In November 2006, Los Angeles Department of Water and Power ("LADWP") submitted a status report to Southwest Area Transmission ("SWAT") regarding a project called "Green Path North." This project will have an effect on the power flow of PVD2. A copy of the LADWP power point presentation is attached hereto.

Staff hereby moves for the admission of this presentation as Staff Exhibit S-42.

RESPECTFULLY SUBMITTED this 8th day of February, 2007.

AZ CORP COMMISSION
DOCUMENT CONTROL

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Original and twenty-five (25) copies of the foregoing filed this 8th day of February, 2007 with:

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LOS ANGELES DEPARTMENT OF WATER & POWER

CITIZENS ENERGY CORPORATION
a non-profit energy company

GREEN PATH NORTH PROJECT (GPN)

A Status Report to
Southwest Transmission Expansion Planning
San Diego, CA
November 17, 2006

by Tim Wu
Los Angeles Department of Water and Power

GREEN PATH PROJECT

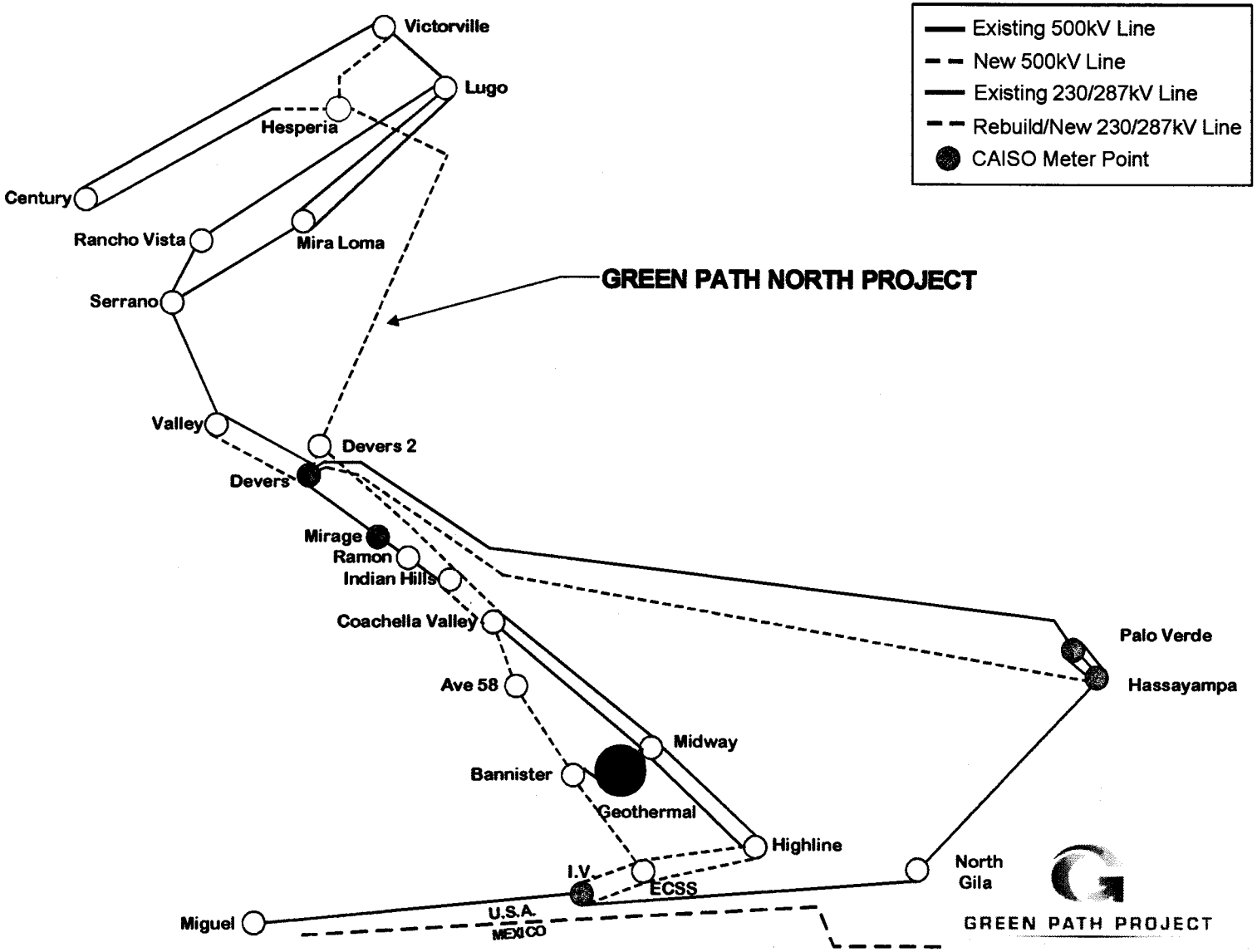
- Base Case Development
- Plan-of-Service
- Major Path Flow Assumptions
- Load Flow Summary
- One-Line Diagram
- Non-Simultaneous Study Results
  - Power Flow
  - Transient Stability
  - Post-Transient Voltage

Plan-of-Service

- GPN Non-simultaneous Rating is at 1200 MW
- New Hesperia 500/287kV substation
- New 500kV line from Devers II to Hesperia with 70% series compensation (85 miles)
- New Indian Hills 500/230kV substation
- New 500 kV line from Indian Hills to Devers II (30 miles)
- Upgrade 17 miles of one single-circuit from Hesperia to Victorville from 287kV to 500 kV
- Re-route one existing Victorville-Century 287 kV line to Hesperia-Century 287 kV Line

GREEN PATH PROJECT

Green Path North



Base Case Development

- Starting with the 2010 Heavy Autumn non-simultaneous post-PVD2 and EOR Upgrade case approved by the WATS/WECC Peer Review Group
- Mohave Generating Plant is assumed off-line for worst-case scenarios
- 3 base cases were developed:
  - Case A: Pre-Project 2010 HA
  - Case B: Post-Project 2010 HA
  - Case C: Post-Project 2010 HA with Lugo-RV looped-in, as a sensitivity case.

Major Path Flow Assumptions

Major Path	Path Rating	Case A	Case B	Case C
EOR	10500 *	10502	10506	10499
WOR	11823	9908	10045	9978
M-V	3000 (S-N)	1330 (S-N)	1324 (S-N)	1389 (S-N)
IPPDC	1920	1853	1853	1853
PDCI	3100	970	970	970
Vict-Lugo	2400 (V-L)	1021	1292	364
COI	4800 (N-S)	2861	2866	2851
Sylmar Tie	1600	-192	-377	-377
IID-SCE	600	400	532	502
SCIT	18886	12357	12390	12365
PV West		5236	5295	5383

* Anticipated combined EOR rating

GREEN PATH PROJECT

Non-Simultaneous Study Results

- Power Flow
- Transient Stability
- Post-Transient Voltage

Power Flow Summary (N-0)

Transfer Level	Pre-project (A)	Post-project (B)
PVD1	1678	1828
PVD2	1683	1816
WOD	3300	2790
GPN		1206
SOL	1718	1810
Victorville-Lugo	1021	1292

GREEN PATH PROJECT

Power Flow Results

(N-1)				
Outage	Circuit Overload	Area	Case A	Case B
HASSAYAMPA-N.GILA	USNAF-ELTERMIN 92kV	**8**	**126%**	**133%**
	USNAF-DIXIELAN 92kV	**8**	**122%**	**129%**
	DIXIELAN-DIXPRI2 92kV	**8**	**185%**	**196%**
N.GILA-IV w/SPS	IVPS-ELCENTSW 230kV	**8**	**120%**	**110%**

GREEN PATH PROJECT

Power Flow Results

(N-1)				
Outage	Circuit Overload	Area	Case A	Case B
IV-Miguel w/ SPS	PENSQTOS-ENCINA 230 kV	**22**	**99%**	**98%**
	SAMPSON-DIVISION 69 kV	**22**	**100%**	**100%**
	RAMON-MIRAGE 230 kV	**8**	**121%**	**119%**
	COCHELLA-RAMON 230 kV	**8**	**114%**	**110%**
	RTAP2-TRP1 92kV	**8**	**119%**	**145%**
	LEATHERS-MIDWAY 92kV	**8**	**<90%**	**106%**

GREEN PATH PROJECT

Power Flow Results

(N-1)				
Outage	Circuit Overload	Area	Case A	Case B
DEVERSLA-IH500	RAMON-MIRAGE	**8**	**<90%**	**113% ***
	COACHELLA-RAMON	**8**	**<90%**	**108%***

* Over normal ratings of 986 A and 976 A, respectively

GREEN PATH PROJECT

Power Flow Analysis

(N-2)				
Outages	Circuit Overload	Area	Case A	Case B
VISTA-SANBRNO SANBERNO-ETIWANDA	VSTA-DEVERS Line 1	**24**	**104%**	**<90%**
COACHELLA-INDIAN HILLS 1& 2	RAMON-MIRAGE	**8**	N/A	**107% ***
	COACHELLA-RAMON	**8**	N/A	**107% ***
COACHELLA-DEVERS & COACHELLA-RAMON	AVE92-INDHL92	**8**	**130%**	**92%**
	DIXIELAN-DIXPRI2	**8**	**107%**	**98%**

* Over normal ratings of 986 A and 976 A, respectively

GREEN PATH PROJECT

Power Flow Analysis

(N-2)				
Outages	Circuit Overload	Area	Case A	Case B
DEVERS-VALLEYSC 1&2 **w/o SCE's Load Tripping**	DEVERS-VSTA Line 2	**24**	**111%**	**<90%**
	VSTA-DEVERS Line 1	**24**	**118%**	**<90%**
	DEVERS-OAK VALLY	**24**	**116%**	**<90%**
	SANBERNO-DEVERS	**24**	**128%**	**<90%**

*

GREEN PATH PROJECT

Power Flow Analysis

(N-2)				
Outages	Circuit Overload	Area	Case A	Case B
VICTORVILLE-CENTURY 1& 2	STJOHN-ATWATER	**26**	**101% ***	**N/A**
CENTURY-VICTORVILLE& CENTURY-HESP	STJOHN-ATWATER	**26**	**N/A**	**104%***

* Limited by disconnect switches ratings

GREEN PATH PROJECT

Transient Results

(N-1)	Case A			Case B		
		Possible violations			Possible violations	
Description	**Stable**	**MORC1**	**MORC2**	**Stable**	**MORC1**	**MORC2**
Navajo-Crystal	Yes	None	None	Yes	None	None
Crystal-McCullough	Yes	None	None	Yes	None	None
Mead-Perkins	Yes	None	None	Yes	None	None
Moenkopi-Eldorado	Yes	None	None	Yes	None	None
Eldorado-Lugo	Yes	None	None	Yes	None	None
PV-Devers	Yes	None	None	Yes	None	None
Hassayampa-NGila	Yes	None	None	Yes	None	None
IV-NGila	Yes	None	None	Yes	None	None
IV-Miguel-RAS	Yes	None	None	Yes	None	None
Devers-Valley	Yes	None	None	Yes	None	None
PDCI	Yes	None	None	Yes	None	None
Devers-Hesperia	**N/A**	**N/A**	**N/A**	Yes	None	None

GREEN PATH PROJECT

* Need further investigations

Transient Stability Results

(N-2)	Case A			Case B		
		Possible violations			Possible violations	
Description	**Stable**	**MORC1**	**MORC2**	**Stable**	**MORC1**	**MORC2**
IPP Bipole	Yes	None	None	Yes	None	None
McCullugh-Victorvl	Yes	None	None	Yes	None	None
Lugo-Mira Loma	Yes	None	None	Yes	None	None
Lugo-Vincent-slg	Yes	None	None	Yes	None	None
PV-Westwing-slg	Yes	None	None	Yes	None	None
Cryst-McC & HA-Md	Yes	None	None	Yes	None	None
PV/Harquaha-Devers	Yes	None	None	Yes	None	None
PV Units 2&3	Yes	None	None	Yes	None	None
SONGS Units 1&2	Yes	None	None	Yes	None	None
Path 42 w/ SPS	Yes	None	None	Yes	None	None
Devers-Valley	Yes	None	None	Yes	None	None
Coachella-Indian Hills	**N/A**	**N/A**	**N/A**	Yes	None	None

Post-Transient Voltage Results

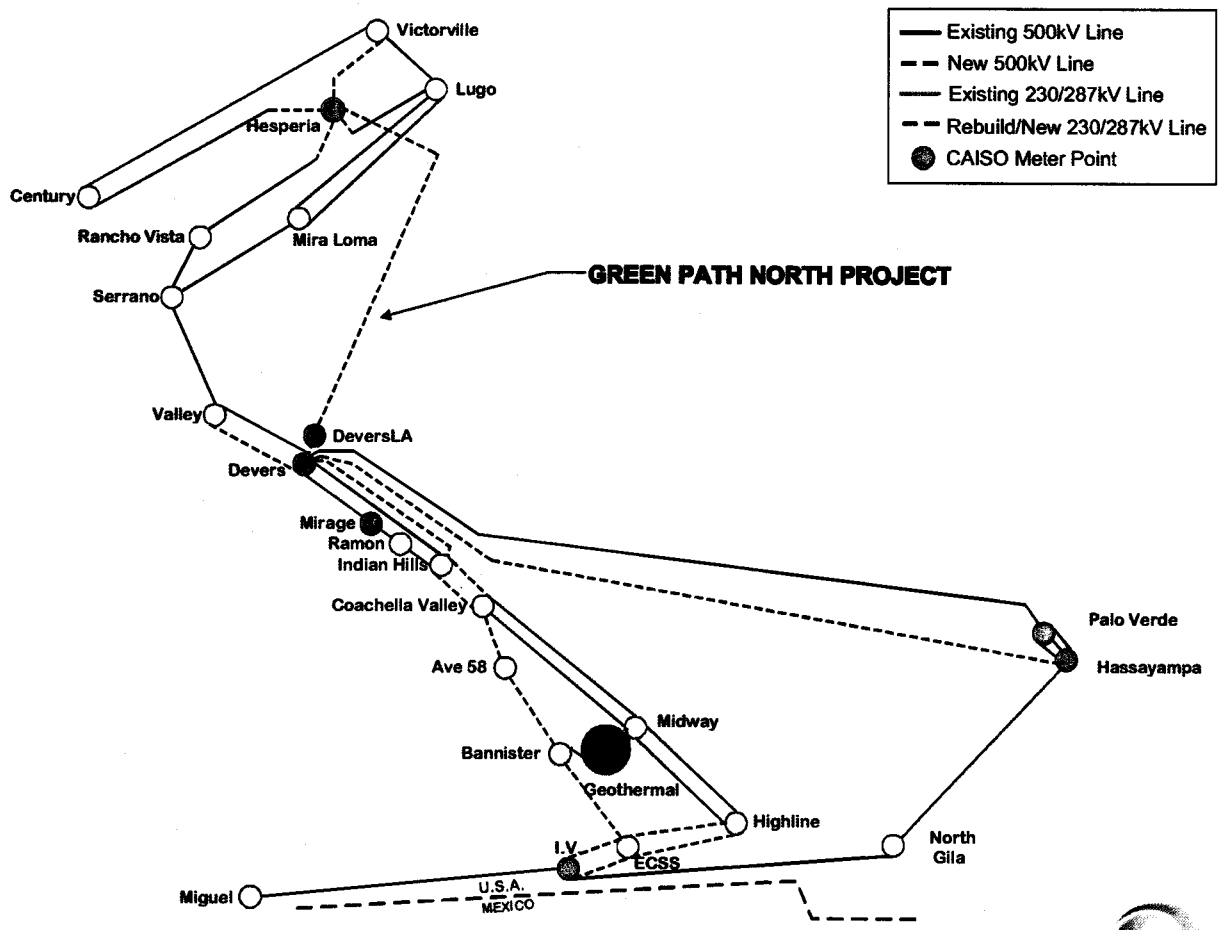
(N-1)	Case A	Case B
Description	**ΔV > 5%**	**ΔV > 5%**
Navajo-Crystal	None	None
Crystal-McCullough	None	None
Mead-Perkins	None	None
Moenkopi-Eldorado	None	None
Eldorado-Lugo	None	None
PV-Devers	None	None
Hassayampa-NGila	**None**	None
IV-NGila	**None**	None
IV-Miguel-RAS	**None**	None
Devers-Valley	None	None
Harquaha-Devers	None	None
Devers-Hesperia (GPN)	**N/A**	None
Hesperia-Rancho Vista	**N/A**	**N/A**
Lugo-Hesperia	**N/A**	**N/A**

GREEN PATH PROJECT

Post-Transient Voltage Results

(N-2)	Case A	Case B
Description	**ΔV > 10%**	**ΔV > 10%**
IPP Bipole	None	None
McCullough-Victorville	None	None
Lugo-Mira Loma	None	None
Lugo-Vincent	None	None
PV-Westwing	None	None
Crystal-McC & H.Allen-Mead	None	None
Pv/Harquahala-Devers w/ SPS	None	None
PV Units 2&3	None	None
SONGS Units 1	None	None
Path 42 w/ SPS	None	None
Devers-Valley w/ SPS	None	None
Coachella-Indian Hills	**N/A**	None

Hesperia Lugo Tie Sensitivity



GREEN PATH PROJECT

Major Path Flow Assumptions

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IPPDC	1920	1853	1853	1853
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COI	4800 (N-S)	2862	2866	2851
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IID-SCE	600	398	532	502
SCIT	18886	12353	12390	12365
PV West		5238	5295	5383

* Anticipated combined EOR rating

GREEN PATH PROJECT

Power Flow Summary (N-0)

Transfer Level	Pre-project (A)	Post-project (B)	w/Tie to Lugo (C)
PVD1	1678	1828	1879
PVD2	1683	1816	1862
WOD	3300	2782	2430
GPN		1206	1631
SOL	1718	1810	1382
Victorville-Lugo	1021	1292	364
Hesperia-Rancho Vst			881
Hesperia-Lugo			725

Power Flow Results

(N-1)					
Outage	Circuit Overload	Area	Case A	Case B	Case C
HASSAYAMPA-N.GILA	USNAF-ELTERMIN 92kV	**8**	**126%**	**133%**	**121%**
	USNAF-DIXIELAN 92kV	**8**	**122%**	**129%**	**117%**
	DIXIELAN-DIXPRI2 92kV	**8**	**185%**	**196%**	**176%**
N.GILA-IV w/SPS	IVPS-ELCENTSW 230kV	**8**	**120%**	**110%**	**106%**

GREEN PATH PROJECT

Power Flow Results

(N-1)					
Outage	Circuit Overload	Area	Case A	Case B	Case C
IV-Miguel w/ SPS	PENSQTOS-ENCINA 230 kV	**22**	**99%**	**98%**	**98%**
	SAMPSON-DIVISION 69 kV	**22**	**100%**	**100%**	**100%**
	RAMON-MIRAGE 230 kV	**8**	**121%**	**119%**	**110%**
	COCHELLA-RAMON 230 kV	**8**	**114%**	**110%**	**103%**
	RTAP2-TRP1 92kV	**8**	**119%**	**145%**	**143%**
	LEATHERS-MIDWAY 92kV	**8**	**<90%**	**106%**	**<90%**

GREEN PATH PROJECT

Power Flow Analysis

(N-2)					
Outages	Circuit Overload	Area	Case A	Case B	Case C
VISTA-SANBRNO SANBERNO-ETIWANDA	VSTA-DEVERS Line 1	**24**	**104%**	**<90%**	**<90%**
COACHELLA-INDIAN HILLS 1& 2	RAMON-MIRAGE	**8**	N/A	**107% ***	**106% ***
	COACHELLA-RAMON	**8**	N/A	**107% ***	**106% ***
COACHELLA-DEVERS & COACHELLA-RAMON	AVE92-INDHL92	**8**	**130%**	**92%**	**<90%**
	DIXIELAN-DIXPRI2	**8**	**107%**	**98%**	**<90%**

* Over normal ratings of 986 A and 976 A, respectively

Power Flow Analysis

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Outages	Circuit Overload	Area	Case A	Case B	Case C
DEVERS-VALLEYSC 1&2 **w/o SCE's Load Tripping**	DEVERS-VSTA Line 2	**24**	**111%**	**<90%**	**<90%**
	VSTA-DEVERS Line 1	**24**	**118%**	**<90%**	**<90%**
	DEVERS-OAK VALLY	**24**	**116%**	**<90%**	**<90%**
	SANBERNO-DEVERS	**24**	**128%**	**<90%**	**<90%**

GREEN PATH PROJECT

Power Flow Analysis

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Outages	Circuit Overload	Area	Case A	Case B	Case C
VICTORVILLE-CENTURY 1& 2	STJOHN-ATWATER	**26**	**101% ***	**N/A**	**N/A**
CENTURY-VICTORVILLE& CENTURY-HESP	STJOHN-ATWATER	**26**	**N/A**	**104%***	**104%***

* Limited by disconnect switches ratings

GREEN PATH PROJECT

Transient Results

(N-1)	Case A			Case B			Case C		
		Possible violations			Possible violations			Possible violations	
Description	**Stable**	**MORC1**	**MORC2**	**Stable**	**MORC1**	**MORC2**	**Stable**	**MORC1**	**MORC2**
Navajo-Crystal	Yes	None	None	Yes	None	None	Yes	None	None
Crystal-McCullough	Yes	None	None	Yes	None	None	Yes	None	None
Mead-Perkins	Yes	None	None	Yes	None	None	Yes	None	None
Moenkopi-Eldorado	Yes	None	None	Yes	None	None	Yes	None	None
Eldorado-Lugo	Yes	None	None	Yes	None	None	Yes	None	None
PV-Devers	Yes	None	None	Yes	None	None	Yes	None	None
Hassayampa-NGila	Yes	None	None	Yes	None	None	Yes	None	None
IV-NGila	Yes	None	None	Yes	None	None	Yes	None	None
IV-Miguel-RAS	Yes	None	None	Yes	None	None	Yes	None	None
Devers-Valley	Yes	None	None	Yes	None	None	Yes	None	None
PDCI	Yes	None	None	Yes	None	None	Yes	None	None
Devers-Hesperia	**N/A**	**N/A**	**N/A**	Yes	None	None	Yes	None	None
Hesperia-RV	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	Yes	None	None
Lugo-Hesperia	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	No*		

* Need further investigations

Transient Stability Results

(N-2)	Case A			Case B			Case C		
		Possible violations			Possible violations			Possible violations	
Description	**Stable**	**MORC1**	**MORC2**	**Stable**	**MORC1**	**MORC2**	**Stable**	**MORC1**	**MORC2**
IPP Bipole	Yes	None	None	Yes	None	None	Yes	None	None
McCullugh-Victorvl	Yes	None	None	Yes	None	None	Yes	None	None
Lugo-Mira Loma	Yes	None	None	Yes	None	None	Yes	None	None
Lugo-Vincent-slg	Yes	None	None	Yes	None	None	Yes	None	None
PV-Westwing-slg	Yes	None	None	Yes	None	None	Yes	None	None
Cryst-McC & HA-Md	Yes	None	None	Yes	None	None	Yes	None	None
PV/Harquaha-Devers	Yes	None	None	Yes	None	None	Yes	None	None
PV Units 2&3	Yes	None	None	Yes	None	None	Yes	None	None
SONGS Units 1&2	Yes	None	None	Yes	None	None	Yes	None	None
Path 42 w/ SPS	Yes	None	None	Yes	None	None	Yes	None	None
Devers-Valley	Yes	None	None	Yes	None	None	Yes	None	None
Coachella-Indian Hills	**N/A**	**N/A**	**N/A**	Yes	None	None	Yes	None	None

Post-Transient Voltage Results

(N-1)	Case A	Case B	Case C
Description	**ΔV > 5%**	**ΔV > 5%**	**ΔV > 5%**
Navajo-Crystal	None	None	None
Crystal-McCullough	None	None	None
Mead-Perkins	None	None	None
Moenkopi-Eldorado	None	None	None
Eldorado-Lugo	None	None	None
PV-Devers	None	None	None
Hassayampa-NGila	None	None	None
IV-NGila	None	None	None
IV-Miguel-RAS	None	None	None
Devers-Valley	None	None	None
Harquaha-Devers	None	None	None
Devers-Hesperia (GPN)	**N/A**	None	None
Hesperia-Rancho Vista	**N/A**	**N/A**	None
Lugo-Hesperia	**N/A**	**N/A**	None

Conclusions

- At the proposed non-simultaneous rating of 1200 MW and with the identified mitigations, GPN has demonstrated acceptable system performance and met all the WECC/NERC planning criteria.
- GPN could relieve the post-DPV2 West-of Devers congestion by ~ 500 MW.
- GPN could eliminate the required load tripping scheme for the loss of 2 Devers-Valley lines (~ 1575 MW)
- GPN could reduce the required load tripping scheme for the loss of PVD1&2 lines (~ 50%)
- GPN with Lugo Tie could yield added benefits to the system

Project Milestone Schedule

STEP Presentation on New Plan of Service	7/24/06
WATS/WECC Project Review Group meeting	10/17/06
WATS/WECC Project Review Group approved GPN non-simultaneous rating at 1200 MW	11/6/06
STEP Presentation	11/17/06
WATS/WECC Project Review Group meeting	12/12/06
Complete WECC Rating & Reliability Assessment	02/07
Complete Environmental Studies/Permitting	06/08
Start Construction	03/09
Complete Construction	10/10
Commission & Operation	11/10

GREEN PATH PROJECT

LOS ANGELES DEPARTMENT OF WATER & POWER

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