



CALIFORNIA ISO

California Independent
System Operator

SDG&E Valley-Rainbow Project

**Presentation
to
Grid Reliability/Operations Committee**

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Background

- SDG&E's 1999 Expansion Plan for 2000-2004 indicated multiple criteria violations to the ISO Grid Planning Criteria in 2004.
 - Reinforcements to existing 230 KV system will be exhausted
 - New 500 KV transmission facilities will be needed
 - Separate study was performed to address major reliability need
 - The study was conducted in an open stakeholder process
- As an extension of the 1999 Plan, SDG&E's Northern 500kV Study identified the preferred transmission alternative among 4 alternatives to mitigate the criteria violations.

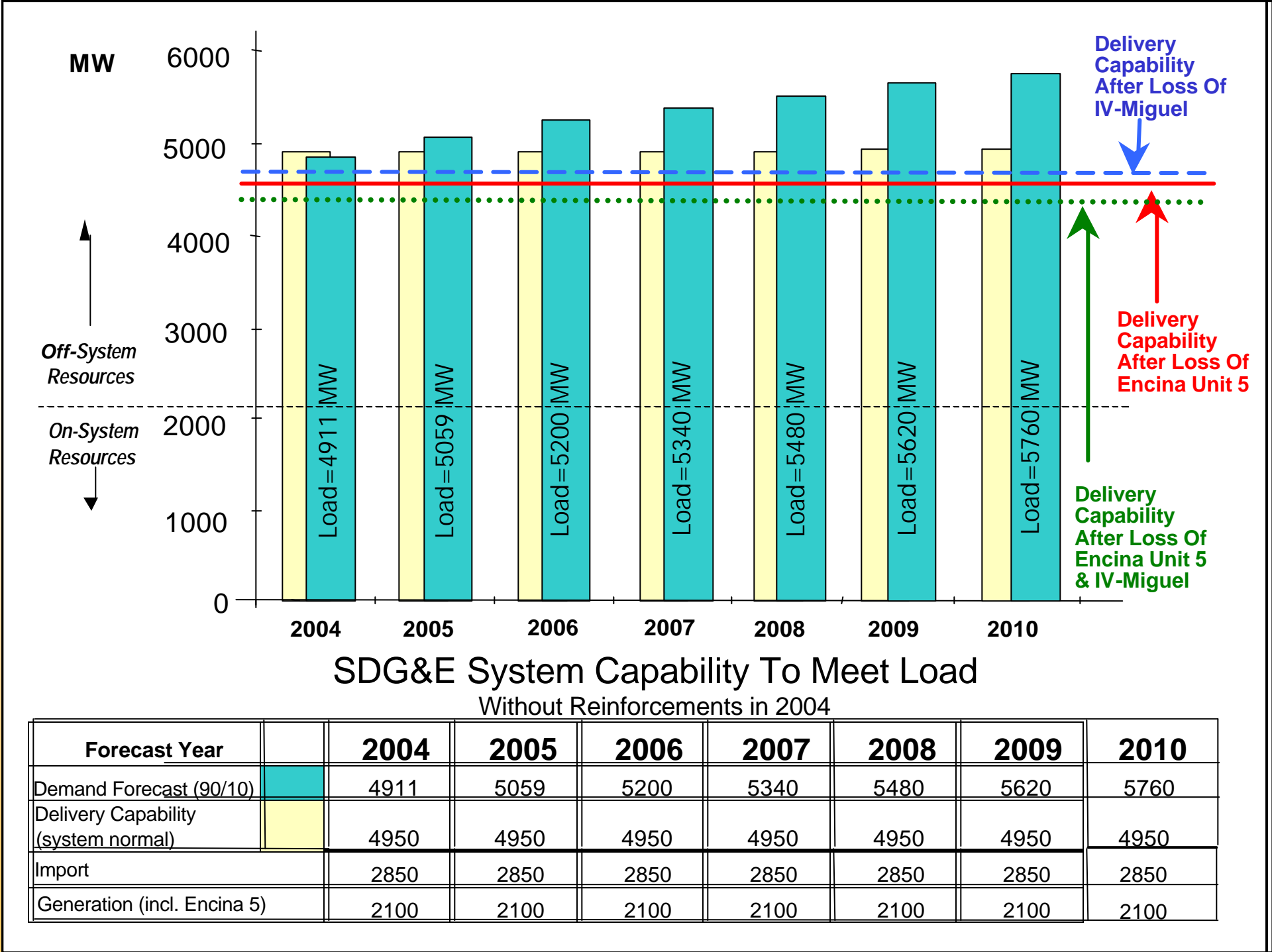


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Seeking Board Action to

- Approve SDG&E's Expansion Plan for 2004.
- Support SDG&E's full recovery of all prudently incurred project development costs.
- Request that SDG&E begin a study to address long-term reliability needs.
- Decide on whether to pursue a competitive solicitation.



MW

6000

5000

4000

3000

2000

1000

0

Off-System Resources

On-System Resources

2004

2005

2006

2007

2008

2009

2010

SDG&E System Capacity To Meet Load

Without Reinforcements in 2004

Forecast Year	2004	2005	2006	2007	2008	2009	2010
Demand Forecast (90/10)	4911	5059	5200	5340	5480	5620	5760
Delivery Capability (system normal)	4950	4950	4950	4950	4950	4950	4950
Import	2850	2850	2850	2850	2850	2850	2850
Generation (incl. Encina 5)	2100	2100	2100	2100	2100	2100	2100

Delivery Capability After Loss Of IV-Miguel

Delivery Capability After Loss Of Encina Unit 5

Delivery Capability After Loss Of Encina Unit 5 & IV-Miguel

Load=4911 MW

Load=5059 MW

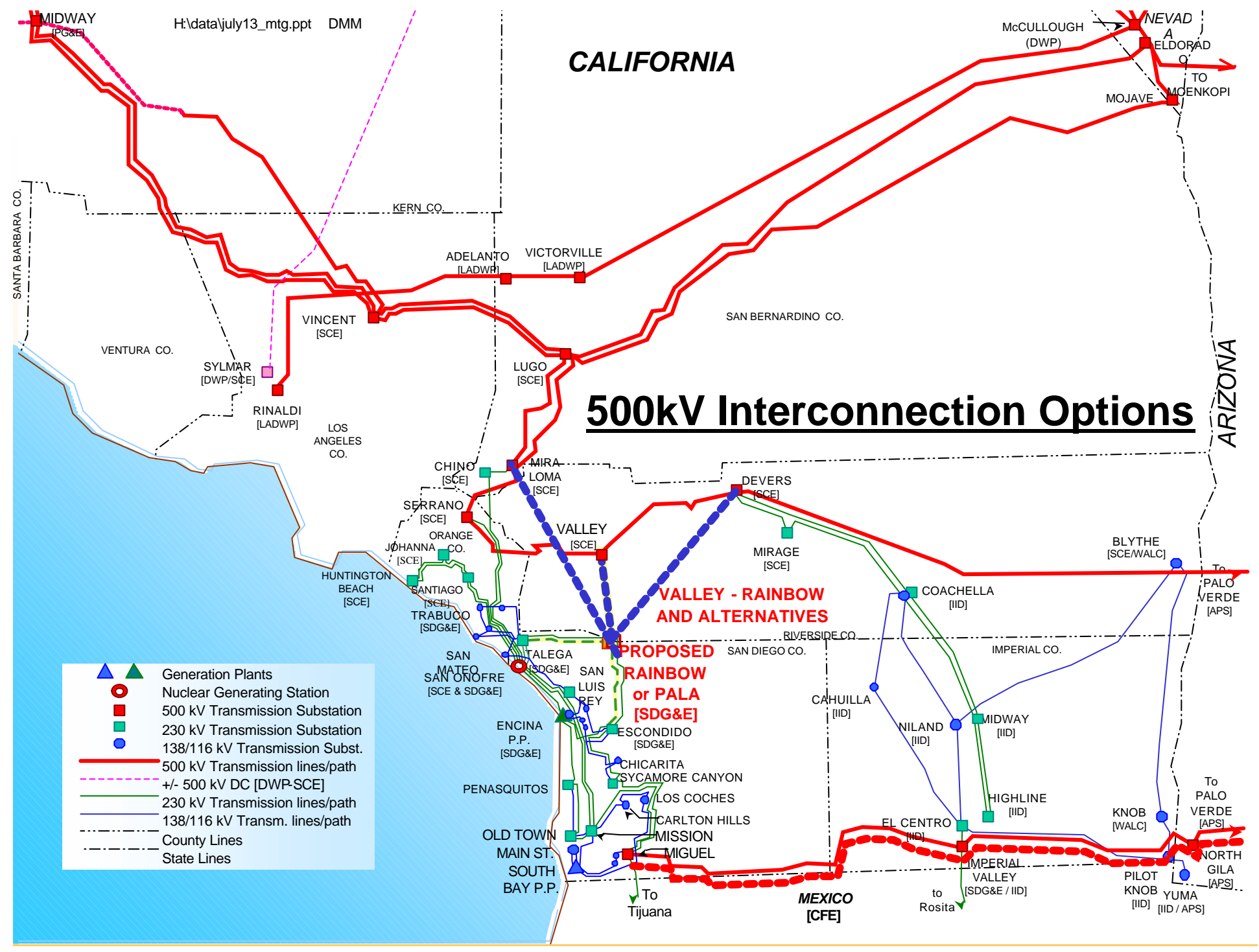
Load=5200 MW

Load=5340 MW

Load=5480 MW

Load=5620 MW

Load=5760 MW



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CALIFORNIA

ARIZONA

MEXICO [CFE]

SANTA BARBARA CO.

VENTURA CO.

KERN CO.

ADELANTO [LADWP]

VICTORVILLE [LADWP]

VINCENT [SCE]

SYLMAR [DWP/S&E]

RINALDI [LADWP]

LOS ANGELES CO.

CHINO [SCE]

MIRA LOMA [SCE]

VALLEY [SCE]

SAN BERNARDINO CO.

DEVERS [SCE]

MIRAGE [SCE]

SERRANO [SCE]

ORANGE CO.

JOHANNA [SCE]

HUNTINGTON BEACH [SCE]

SANTIAGO [SCE]

TRABUCO [SDG&E]

SAN MATEO [SCE & SDG&E]

SAN ONOFRE [SDG&E]

ENCINA P.P. [SDG&E]

PENASQUITOS

OLD TOWN

MAIN ST.

SOUTH BAY P.P.

TULE

SAN LUIS REY

ESCONDIDO [SDG&E]

CHICARITA

SYCAMORE CANYON

LOS COCHES

CARLTON HILLS

MISSION

MIGUEL

RIVERSIDE CO.

SAN DIEGO CO.

CAHUILLA [IID]

NILAND [IID]

MIDWAY [IID]

HIGHLINE [IID]

EL CENTRO [IID]

IMPERIAL VALLEY [SDG&E / IID]

to Rosita

to Tijuana

to Palo Verde

to Rosita

to Rosita

to Rosita

to Rosita

to Rosita

to Rosita

to Rosita

to Rosita

to Rosita

to Rosita



Comparison of Alternatives

	Valley - Rainbow	Devers - Rainbow	Mira Loma - Rainbow	Second SWPL
Total Import Capacity into San Diego	3600 MW	3600 MW	3600 MW	4200 MW ²
Increase in Import Capacity	750 MW	750 MW	750 MW	1350 MW ²
Approximate Mileage	40	95	113	280
Construction Difficulties	low/medium	medium/high	high	very high
Timing	2004	2005-6	2006-7	2006-8
Planning Cost Estimate (Per Unit) ¹	1.00 - 1.47	1.48 - 2.05	1.64 - 2.24	2.97 - 3.61
Ranking	1	2	3	4

1 - Project cost is divided by the cost of the lowest-cost project; low to high range of per unit values reflects ROW uncertainties and other variables.

2 - Increase up to 1350 MW based on preliminary analysis with third 500/230 KV bank at Miguel substation.



Stakeholder Positions

- No opposition expressed on need to mitigate reliability requirements beginning in 2004.
- No opposition expressed on Valley-Rainbow Project as preferred transmission alternative.
- Sponsors of non-wires alternatives should have opportunity to bid in a competitive solicitation.



Options

- Option 1
 - Do not approve project
 - **Pros:** Would reduce capital expenditures
 - **Cons:** Would negatively impact reliability
- Option 2
 - Approve project with no competitive solicitation
 - **Pros:** In practice, would avoid the difficulties of comparing transmission and generation absent more thoughtful consideration
 - **Cons:** Would in theory foreclose opportunity for potential savings of non-wire alternatives
- Option 3
 - Approve project with competitive solicitation
 - **Pros:** Would in theory help ensure lowest-cost solution is selected
 - **Cons:** In practice, would face the difficulties of comparing transmission and generation absent more thoughtful consideration
- Option 4
 - Approve project and defer decision on competitive solicitation
 - **Pros:** Would provide for continued project development while allowing further development of ISO's position on competition between transmission and generation projects
 - **Cons:** None identified