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# Summer 2005 Electricity Supply and Demand Outlook

## Resource Assumptions

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## Overview

- Summer 2005 Monthly Electricity Outlooks
  - Statewide, CA ISO, NP26 and SP26
- Resource Assumptions
- Impact of Northwest Hydro Conditions
- SP26 + NP26 Tables  $\neq$  CA ISO Table



## 2005 Detailed Monthly Electricity Outlook California Statewide

Line	June	July	August	September
1 Existing Generation <sup>1</sup>	53,808	53,718	54,773	54,902
2 Retirements (Known)	-850			
3 Retirements (High Risk)	-1,192			
4 High Probability CA Additions	1,952	1,055	129	1
5 Forced Outages	-3,500	-3,500	-3,500	-3,500
6 Zonal Transmission Limitation <sup>2</sup>	-800	-800	-800	-800
7 Net Interchange <sup>3</sup>	12,921	12,921	12,921	12,921
8 <b>Total Supply (MW)</b>	<b>62,339</b>	<b>63,394</b>	<b>63,523</b>	<b>63,524</b>
9 1-in-2 Summer Temperature Demand (Normal)	54,900	57,365	57,913	57,015
10 Projected Resource Margin (1-in-2)*	17.3%	13.3%	12.2%	14.4%
11 1-in-10 Summer Temperature Demand (Hot)	58,667	61,003	61,885	60,937
12 Projected Resource Margin (1-in-10)*	7.9%	4.9%	3.3%	5.3%
13 MW needed to meet 7.0% Reserve	0	1,045	1,860	844
14 Surplus MW above 7.0% Reserve	400	0	0	0

<sup>1</sup> Dependable capacity by station includes 1,080 MW of stations located South of Miguel

<sup>2</sup> Values provided by CA ISO.

<sup>3</sup> 2005 estimate of the following Net Imports: DC Imports 2,000 MW, SW Imports 2,500 MW, NW Imports (COI) 4,000 MW, North of Miguel 400 MW, LADWP Control Area Imports 2,834 MW, IID Imports 184 MW and Dynamic Resources 1,003 MW. Imports supplying own reserves are in bold text.

\* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - Imports with own reserves)/(Demand - Imports with own reserves))-1



## 2005 Detailed Monthly Electricity Outlook CA ISO Control Area

Line	June	July	August	September
1 Existing Generation <sup>1</sup>	45,969	45,457	46,512	46,641
2 Retirements (Known)	-530			
3 Retirements (High Risk)	-1,192			
4 High Probability CA Additions	1,210	1,055	129	1
5 Forced Outages	-2,800	-2,800	-2,800	-2,800
6 Zonal Transmission Limitation <sup>2</sup>	-800	-800	-800	-800
7 Net Interchange <sup>3</sup>	9,303	9,303	9,303	9,303
8 <b>Total Supply (MW)</b>	<b>51,160</b>	<b>52,215</b>	<b>52,344</b>	<b>52,345</b>
9 1-in-2 Summer Temperature Demand (Normal)	45,085	47,004	47,134	46,679
10 Projected Resource Margin (1-in-2)*	16.5%	13.5%	13.4%	14.8%
11 1-in-10 Summer Temperature Demand (Hot)	48,323	50,384	50,526	50,043
12 Projected Resource Margin (1-in-10)*	7.1%	4.4%	4.3%	5.5%
13 MW needed to meet 7.0% Reserve	0	1,115	1,138	621
14 Surplus MW above 7.0% Reserve	35	0	0	0

<sup>1</sup> Dependable capacity by station includes 1,080 MW of stations located South of Miguel

<sup>2</sup> Values provided by CA ISO.

<sup>3</sup> 2004 CA ISO estimates DC Imports of 1,500 MW, Path 26 2,700 MW, SW Imports 2,500 MW, Dynamic 1,003 MW and CEC estimate of LADWP Imports of 1,000 MW. 2005 estimate increases DC transfer capability by 500 MW, Path 26 by 300 MW, North of Miguel by 400 MW and Northwest (minus SMUD) 2400 MW. Imports supplying own reserves are in bold text.

\* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - Imports with own reserves)/(Demand - Imports with own reserves))-1



## 2005 Detailed Monthly Electricity Outlook CA ISO Northern Region (NP26)

Line	June	July	August	September
1 Existing Generation	25,883	25,086	25,661	25,661
2 Retirements (Known)				
3 Retirements (High Risk)	-1,046			
4 High Probability CA Additions	249	575		
5 Forced Outages	-1,600	-1,600	-1,600	-1,600
6 Zonal Transmission Limitation <sup>1</sup>	0	0	0	0
7 Net Interchange <sup>2</sup>	2,400	2,400	2,400	2,400
8 Total Supply (MW)	25,886	26,461	26,461	26,461
9 1-in-2 Summer Temperature Demand (Normal)	20,839	21,289	21,003	20,233
10 Projected Resource Margin (1-in-2)*	27.4%	27.4%	29.3%	34.9%
11 1-in-10 Summer Temperature Demand (Hot)	22,230	22,710	22,405	21,584
12 Projected Resource Margin (1-in-10)*	18.4%	18.5%	20.3%	25.4%
13 MW needed to meet 7.0% Reserve in NP26	0	0	0	0
14 Surplus MW above 7.0% Reserve in NP26	2,267	2,329	2,655	3,534

<sup>1</sup> Values provided by CA ISO.

<sup>2</sup> 2004 estimates based on CA ISO provided levels of NW and SMUD interchange values during June-July 2004 and assuming flows are S-N on Path 26.

\* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - Imports with own reserves)/(Demand - Imports with own reserves))-1

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## 2005 Detailed Monthly Electricity Outlook CA ISO Southern Region (SP26)

Line	June	July	August	September
1 Existing Generation <sup>1</sup>	20,086	20,371	20,851	20,980
2 Retirements (Known)	-530			
3 Retirements (High Risk)	-146			
4 High Probability CA Additions	961	480	129	1
5 Forced Outages	-1,200	-1,200	-1,200	-1,200
6 Zonal Transmission Limitation <sup>2</sup>	-800	-800	-800	-800
7 Net Interchange <sup>3</sup>	9,903	9,903	9,903	9,903
8 Total Supply (MW)	28,274	28,754	28,883	28,884
9 1-in-2 Summer Temperature Demand (Normal)	24,782	26,275	26,691	27,001
10 Projected Resource Margin (1-in-2)*	18.5%	12.2%	10.5%	8.9%
11 1-in-10 Summer Temperature Demand (Hot)	26,667	28,273	28,721	29,054
12 Projected Resource Margin (1-in-10)*	7.7%	2.1%	0.7%	-0.7%
13 MW needed/(Excess) to meet 7.0% Reserve in SP26	0	1,085	1,435	1,791
14 Surplus MW above 7.0% Reserve in SP26	153	0	0	0

<sup>1</sup> Dependable capacity by station includes 1,080 MW of stations located South of Miguel

<sup>2</sup> Values provided by CA ISO.

<sup>3</sup> 2004 CA ISO estimates DC Imports of 1,500 MW, Path 26 2,700 MW, SW Imports 2,500 MW, Dynamic 1,003 MW and CEC estimate of LADWP imports of 1,000 MW. 2005 estimate increases DC transfer capability by 500 MW, Path 26 by 300 MW and North of Miguel by 400 MW. Imports supplying own reserves are in bold text.

\* Does not reflect uncertainty for "Net Interchange" or "Forced Outages" which can result in significant variation in Resource Margin. Calculated as ((Supply - Imports with own reserves)/(Demand - Imports with own reserves))-1

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## Line 1: Existing Generation

	SP26	NP26	TOTAL
<b>CA ISO Control Area</b>			
Merchant Thermal	12,902	12,792	25,694
Municipal Thermal	377	529	906
IOU Retained	2,996	2,343	5,339
Qualifying Facilities	2,764	2,803	5,567
Derated Hydro	1,047	7,416	8,463
<b>TOTAL CA ISO</b>	<b>20,086</b>	<b>25,883</b>	<b>45,969</b>
Non-CA ISO Municipal	5,845	1,994	7,839
<b>STATEWIDE TOTAL</b>	<b>25,931</b>	<b>27,877</b>	<b>53,808</b>

- As of August 1, 2004
- Non-CA ISO includes thermal and hydro

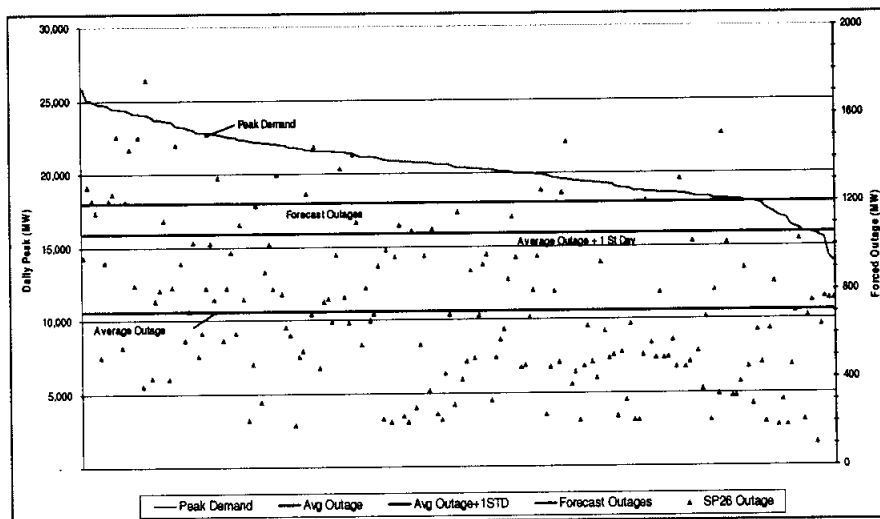


## Lines 2-4: Additions and Retirements

<b>CA ISO Control Area</b>					
<b>SP26</b>			<b>NP26</b>		
<b>Additions</b>			<b>Additions</b>		
<b>Name</b>	<b>MW</b>	<b>Expected Online Date</b>	<b>Name</b>	<b>MW</b>	<b>Expected Online Date</b>
Etiwanda 3	320	9/9/2004	Aggregated Renewable	1	1/1/2005
Aggregated Renewable	2	1/1/2005	Fresno Cogen Expansion	21	2/28/2005
Big Bear	8	1/31/2005	Pico Power	141	3/15/2005
Clearwater Cogen	30	1/31/2005	Kings River Peaker	86	6/1/2005
Paramont	2	1/31/2005	Metcalf	575	6/30/2005
Anaheim	2	2/15/2005		<b>824</b>	
Pastoria Phase 1	240	3/31/2005			
Restart Mothballed Plants	175	5/1/2005			
Magnolia ISO Control Area	142	5/25/2005			
Ramco	40	6/1/2005			
Pastoria Phase 2	480	6/30/2005			
Malburg	129	7/31/2005			
Aggregated Renewable	1	8/31/2005			
	<b>1,571</b>				
<b>Retirements</b>			<b>Retirements (High Risk)</b>		
<b>Name</b>	<b>MW</b>	<b>Date</b>	<b>Name</b>	<b>MW</b>	<b>Date</b>
Long Beach (Known)	-530	12/31/2004	Pittsburg 7	-720	12/31/2004
Coolwater 1/2 (High Risk)	-146	12/31/2004	Morro Bay 1/2 (mothball)	-326	
	<b>-676</b>			<b>-1,046</b>	



## Line 5: Forced Outages (SP26)



## Line 6: Zonal Transmission Limitations

- Capacity contained in line 1 that is unable to serve load due to transmission constraints.
- Most from 1,080 MW of contracted generation in Mexico that cannot be fully delivered into CA ISO



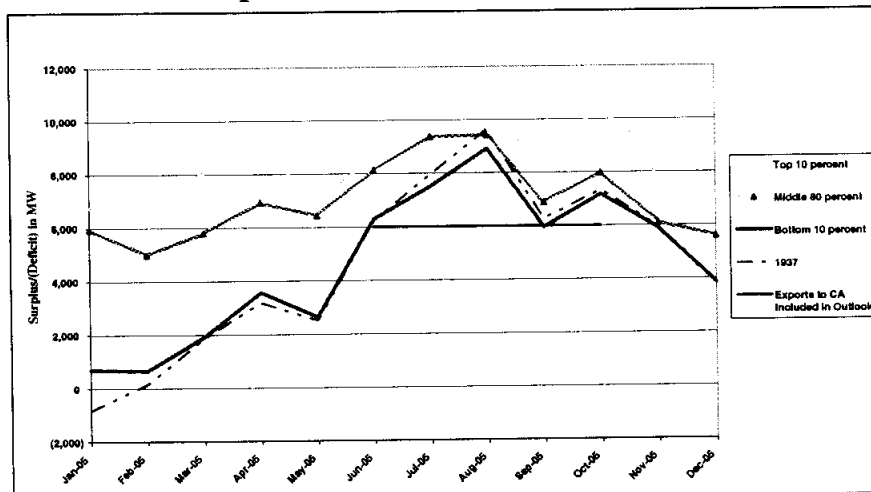
## Line 7: Net Interchange

SP26 Net Interchange	
Path 26	3,000
Net of DC Line	2,000
Net SW Imports	2,900
Net Dynamics	1,003
Net LADWP Control Area Imports	1,000
<b>Total</b>	<b>9,903</b>
NP26 Net Interchange	
Path 26	-
Net NW Imports	4,000
Net SMUD Exports	(1,600)
<b>Total</b>	<b>2,400</b>

- Based on CA ISO metered data.
- Nets out exports
- SP26 includes increases of:
  - Pacific DC Line 500 MW
  - Path 26 300 MW
  - Miguel 400 MW
- LADWP imports include CA ISO municipal portion of Intermountain Power



## BPA Forecast of Northwest Regional Surplus/Deficit by Water Year



Source: Bonneville Power Administration 2003 Pacific Northwest Loads and Resources Study, July 2004



## NP26 and SP 26 Tables Do Not "Add Up" to CA ISO Table

Line	SP26	NP26	Total of SP and NP 26	CA ISO	Difference
	August	August	Forecasts	August	
1 Existing Generation <sup>1</sup>	20,851	25,661	46,512	46,512	0
2 Retirements (Known)			0		0
3 Retirements (High Risk)			0		0
4 High Probability CA Additions	129		129	129	0
			0		0
5 Forced Outages <sup>2</sup>	-1,200	-1,600	-2,800	-2,800	0
6 Zonal Transmission Limitation <sup>2</sup>	-800	0	-800	-800	0
7 Net Interchange <sup>3</sup>	9,903	2,400	12,303	9,303	3,000 *
8 Total Supply (MW)	28,883	26,461	55,344	52,344	3,000
					0
9 1-in-2 Summer Temperature Demand (Normal)	26,691	21,003	47,694	47,134	561
10 Projected Resource Margin (1-in-2)*	10.5%	29.3%		14.3%	0
					0
11 1-in-10 Summer Temperature Demand (Hot)	28,721	22,405	51,126	50,526	600
12 Projected Resource Margin (1-in-10)*	0.7%	25.4%		4.3%	
13 MW need/(Excess) to meet 7.0% Reserves	1,435	(2,656)	-1,221	1,138	-2,358
					3,000
					642
					-800
					42
					-42
					0

\* The outlook for NP26 assumes no exports to SP26 as NP peaks in June or July and SP peaks in late Aug or early Sep.