

Nightmare on "M" Street

Brought to you
by

Lack of Transmission?

Or

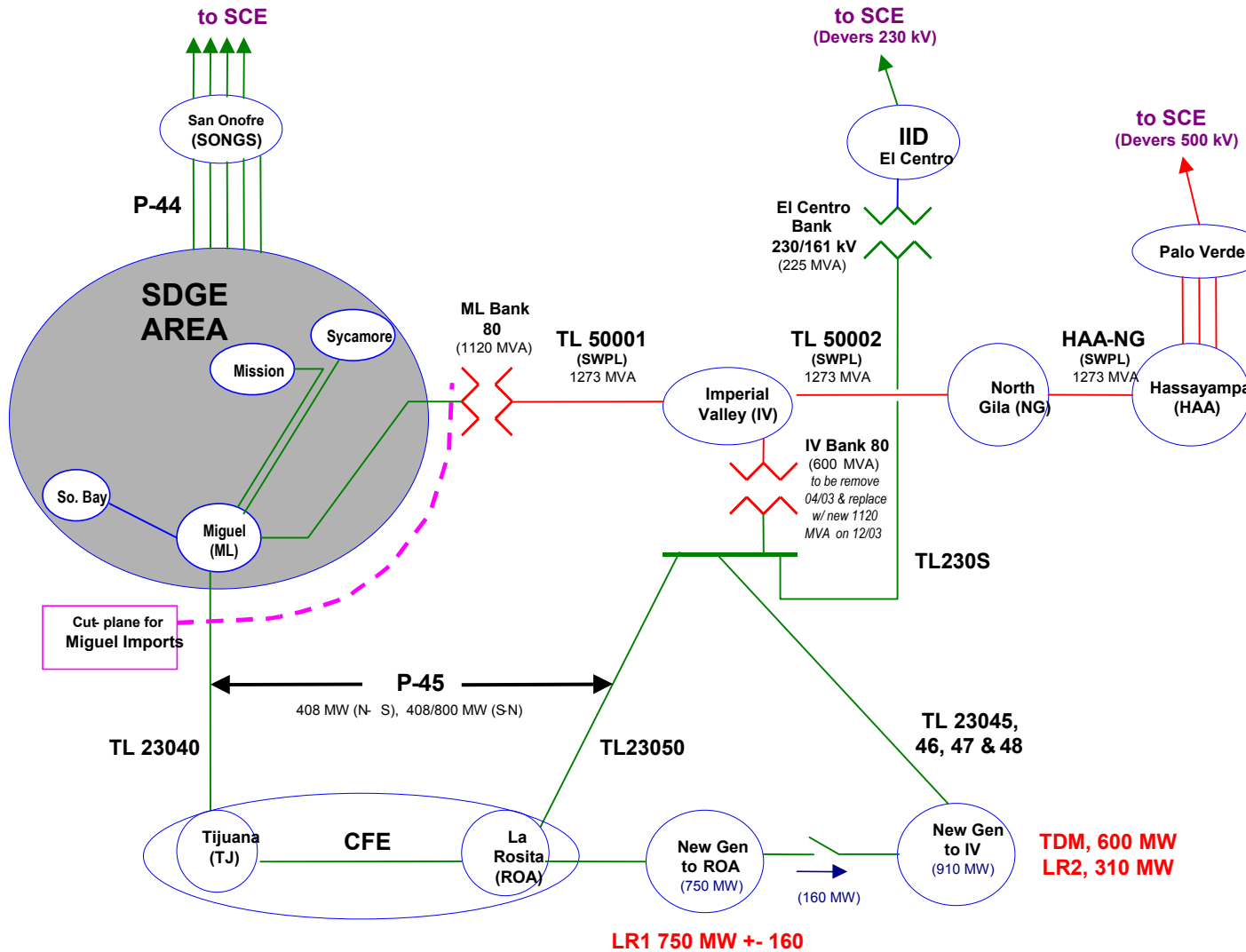
Abundance of Generation?

Or

Market Rules ?



The Basics



Total 5200 MW of new generation. 1600 MW new generation online and additional 2600 MW expected online this summer and 1000 MW this winter

TDM, 600 MW
LR2, 310 MW

LR1 750 MW +/- 160

(THE NEW GENERATIONS)

Mexicali, Mexico

Hassayampa, Arizona

New Generation in the impacted region

Located near Mexicali, Mexico

TDM (Termoelectrica de Mexicali) (Sempra) – 600 MW (connected to Imperial Valley)

LR2 (La Rosita Expansion Project) (Intergen) – 310 MW + 160 MW (connected to Imperial Valley)

LR1 (Ciclo Combinado Mexicali) (Intergen) – 750 MW (-160 MW) (connected to La Rosita, CFE)

Located near Hassayampa, Arizona

Gila River – 1000 MW + 1000 MW (end of 2003)

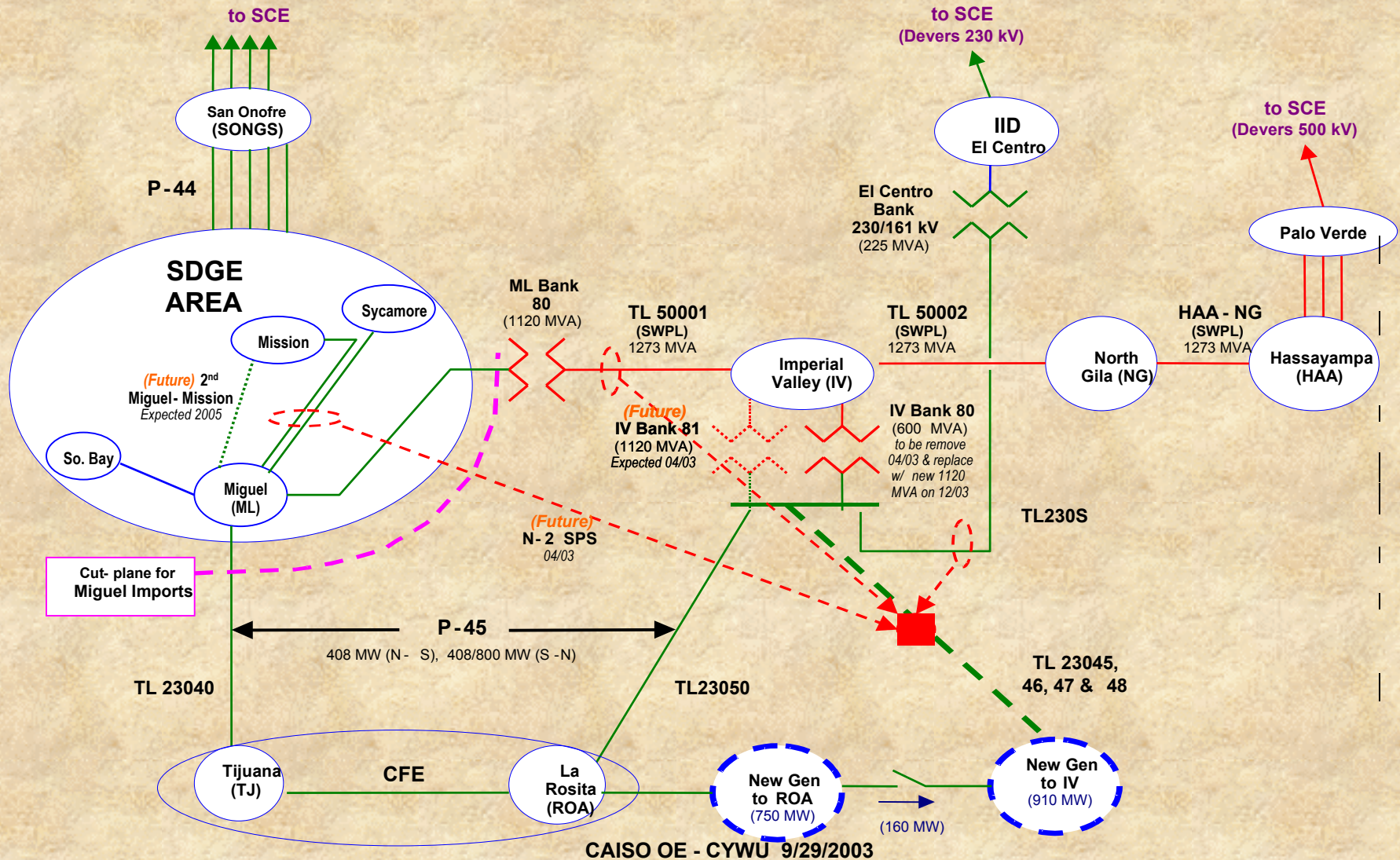
Mesquite – 600 MW

Harquahala – 1000 MW

Existing: Red Hawk – 1000 MW

Arlington Valley – 600 MW

The Bright Side: What Have We Planned Upgrades and SPSs in the region

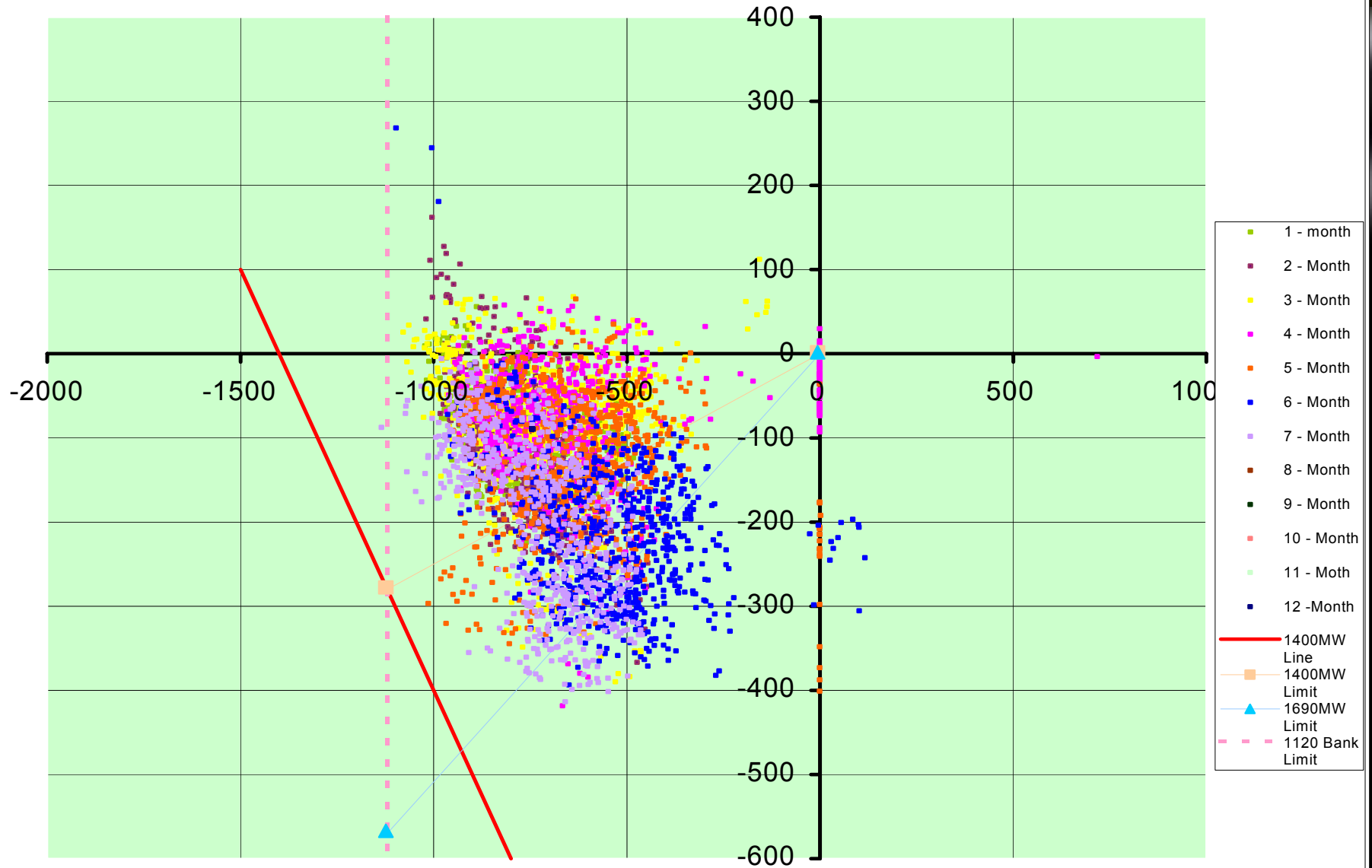


CAISO OE - CYWU 9/29/2003

Assumptions for Miguel Import

Hourly Miguel Import Components (1/1/-7/31/2003)

TJUANA .23040 CFE TI1_AGC_MW2 .AV

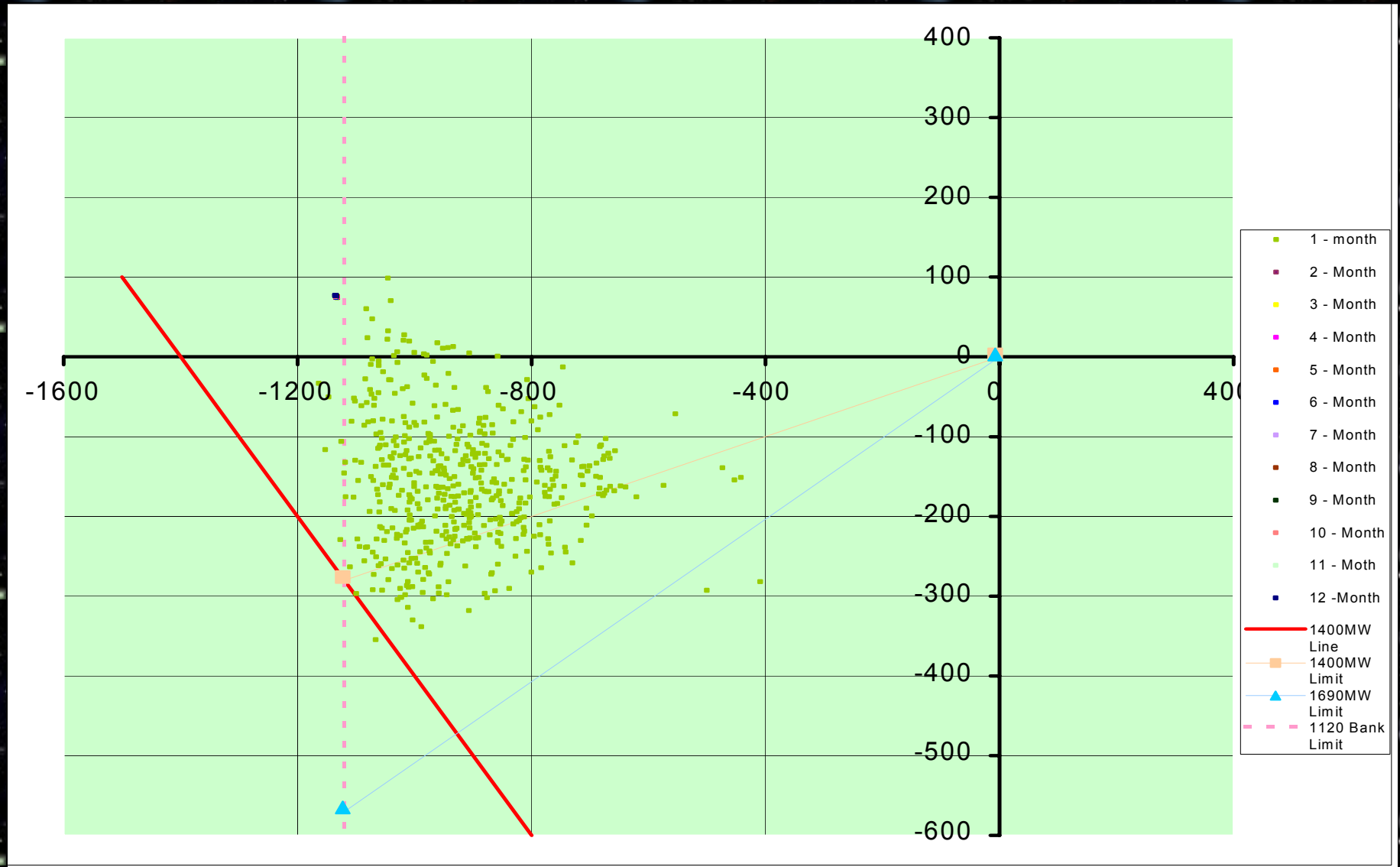


MIGUEL .50001_LIN_MW5 .AV

Conservative Estimate?

Hourly Miguel Import Components (8/1/-8/22/2003)

TJUANA_23040_CFE_T11_AGC_MW2_AV



MIGUEL_50001_LIN_MW5_AV

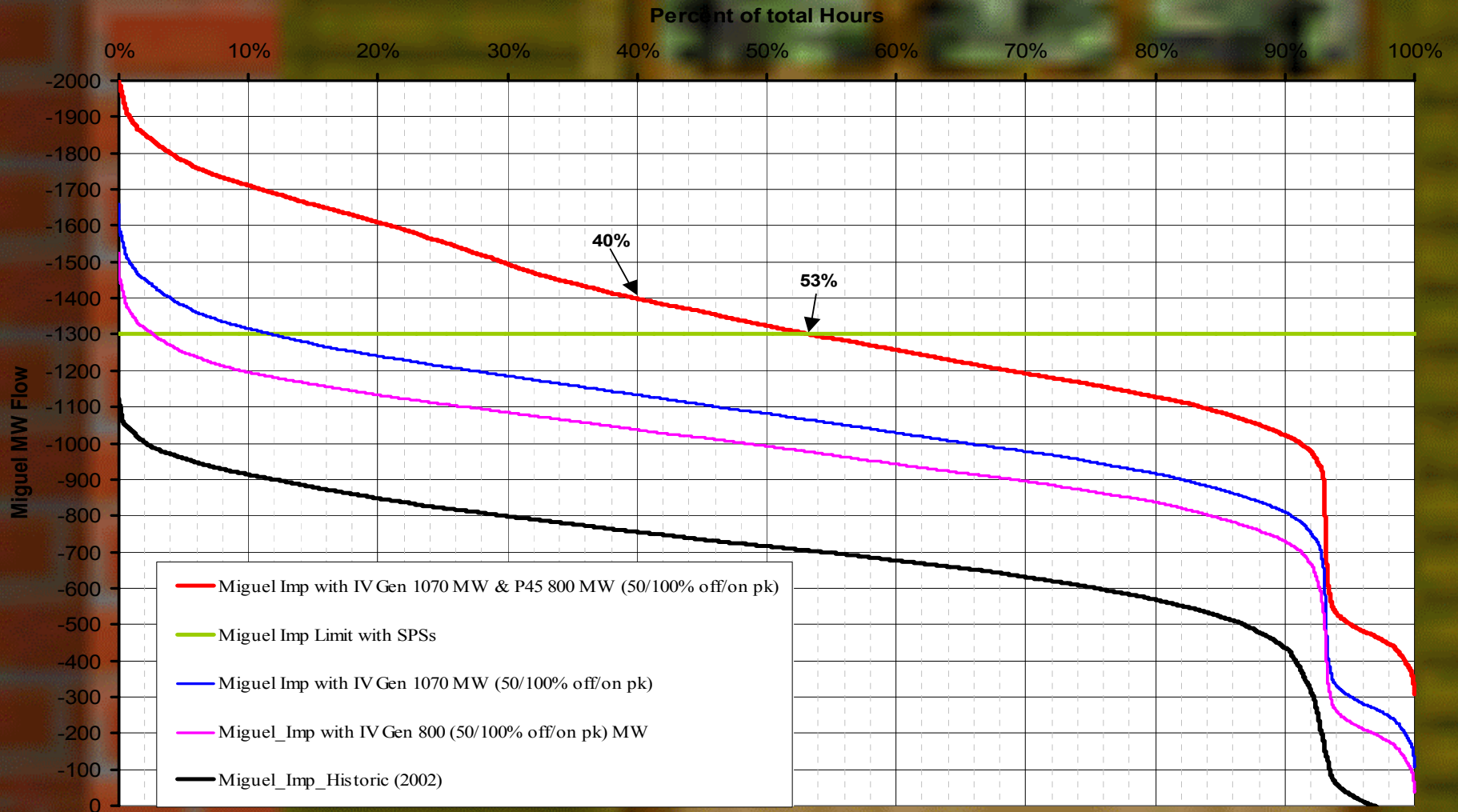
Estimated Frequency of Congestion

(HOW OFTEN IT GOT HAUNTED)

Miguel Import Estimates

(Based on 2002 Historic Flow Data)

(IV GEN & P45 Export @ 50% off peak & 100 % on-peak)



Where it is haunting us since August?

Ran Out of Local Gen to Mitigate

to SCE

San Onofre (SONGS)

P-44

Overloading OT Banks SDGE AREA

Overloading 640

ML Bank 80 (1120 MVA)

TL 50001 (SWPL)

Overloading Miguel Bank

to SCE (Devers 230 kV)

IID El Centro

El Centro Bank 230/161 kV (225 MVA)

Overloading 230S

to SCE (Devers 500 kV)

Overloading PV-Devers

Palo Verde

HAA-NG (SWPL)

Hassayampa (HAA)

Overloading SWPL

New Gen (6500 MW)

Overloading 13815

Mission

Overloading 13809

for imports

Miguel (ML)

Imperial Valley (IV)

TL 50002 (SWPL)

IV Bank 80 (600 MVA)

TL230S

TL 23040

P-45

TL23050

TL 23045, 46, 47 & 48

Tijuana (TJ)

CFE

La Rosita (ROA)

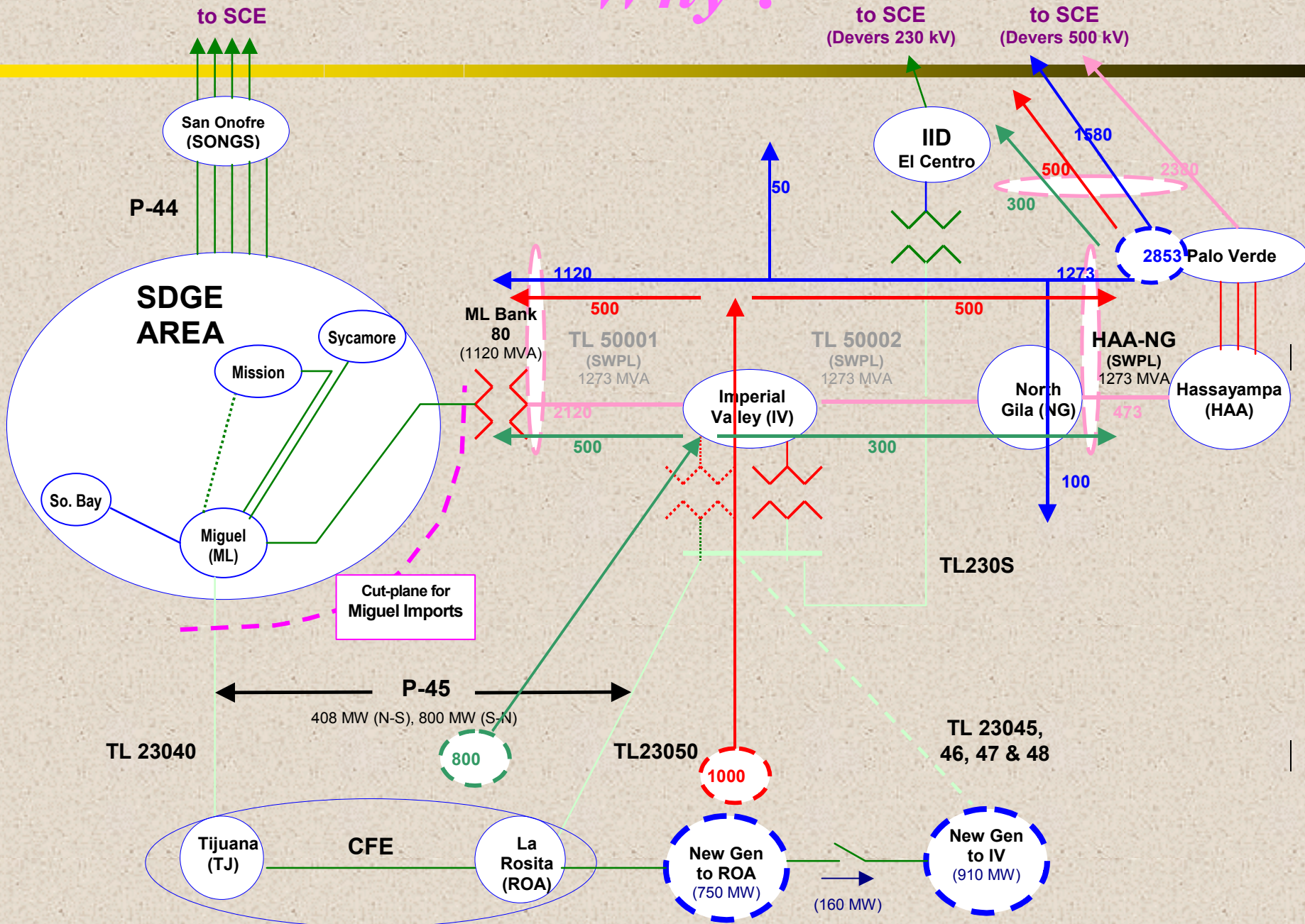
Overloading ROA-RUM

New Gen to ROA (750 MW)

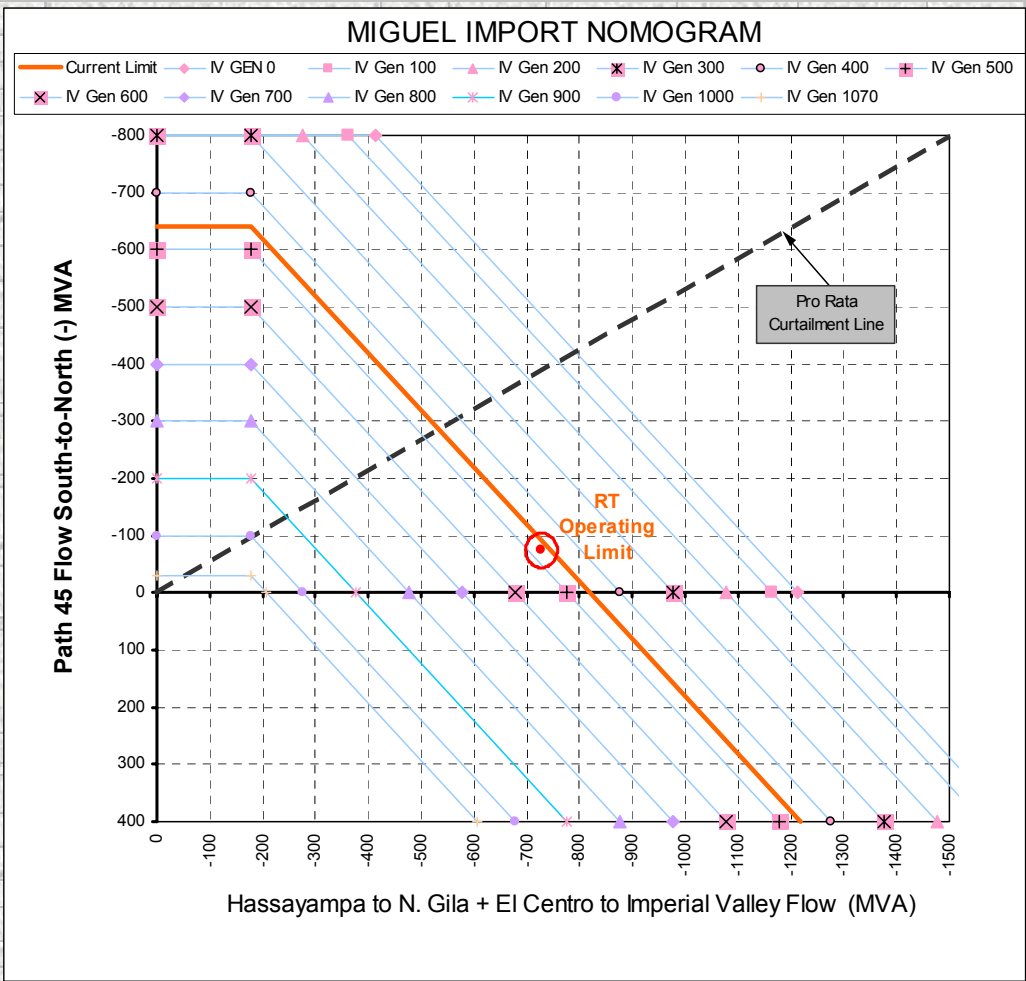
(160 MW)

New Gen to IV (910 MW)

Why ?



How We Handle in Real Time - Miguel Import Nomogram



Press F9 to Update

Operating Point		Hard Limits
HS/NG + 230S	-728	-1500 MW
Path 45	-74	-800 MW
Miguel Bank 80	-1103	-1120 MW
TL230S	126	225 MW
Total IV Gen	458	1070 MW
IV Gen on SPS	458	
IV Gen + Path 45	532	1100 MW
		Display Color Scheme
Current Miguel Import	1130	Calculated Real Time EMS Data
Miguel Dynamic Import Limit	1164	Calculated Data
Enter Miguel Import Limit from the SDG&E Daily Conclusions		EMS Data
1100 MW		Manual Input
Estimated Flow on Hassayampa - N. Gila Line for loss of Palo Verde - Devers Line (mitigate not to exceed 1700 amps or -1540 MVA @ Hassayampa)		
1441 Amps	-1310 Mva	
PV-Devers Line Loading		Limits
MW	1691	1728 MW
AMPS	1841	1900 Amps

- No Critical Equipment out
- 23040 out
- 23050 out
- 50001 Line/Mg Bank 80 out
- SPS (N-1 50001) out
- SPS (N-2 23021/23022) out
- IV Bank 80 or 81 Out
- TDM SPS Out
- LR2 SPS Out

How Often We Mitigate?

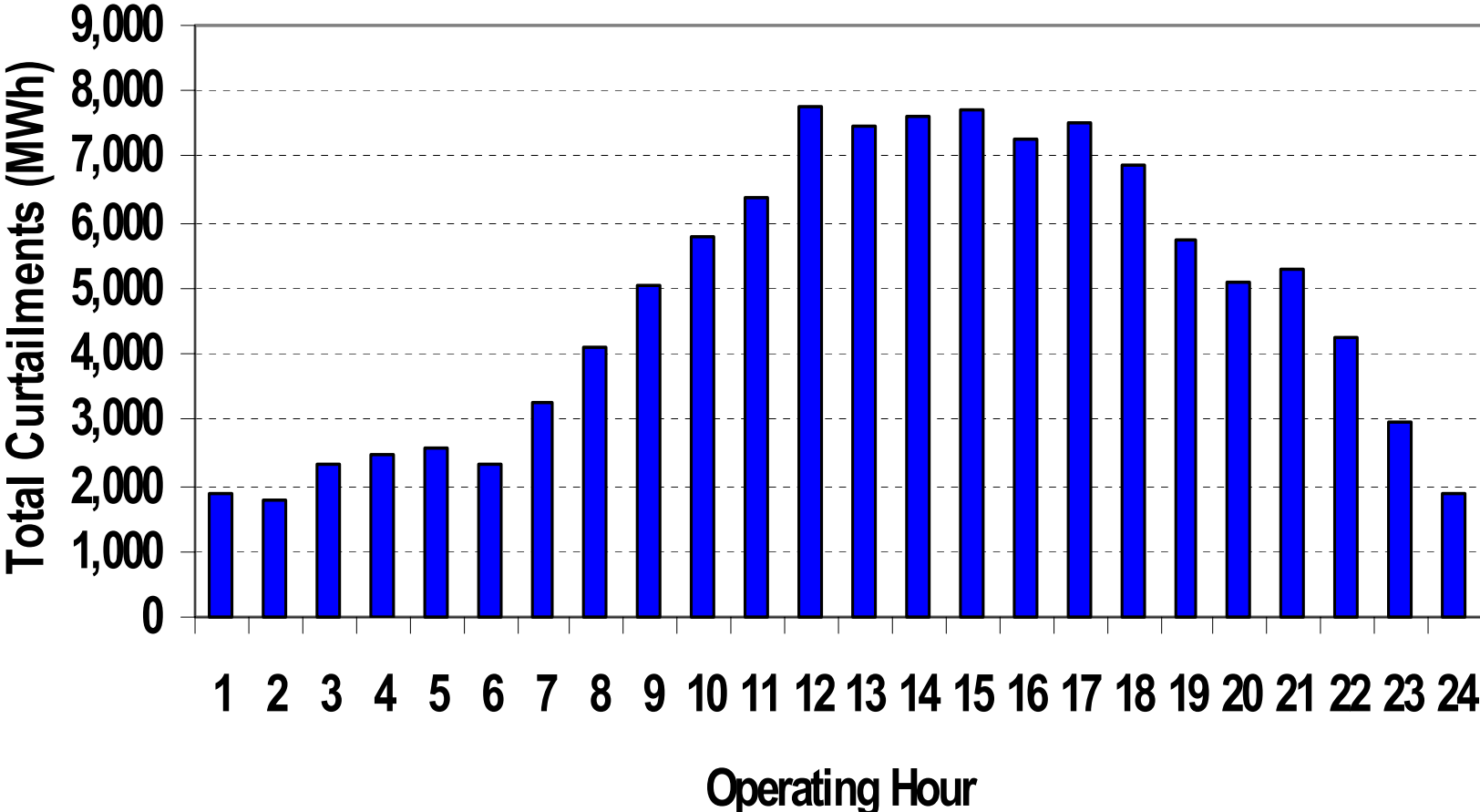
Day and Night – midnight, 3am, 9am, 1pm, 7 pm, you name it.

Every day – including weekends

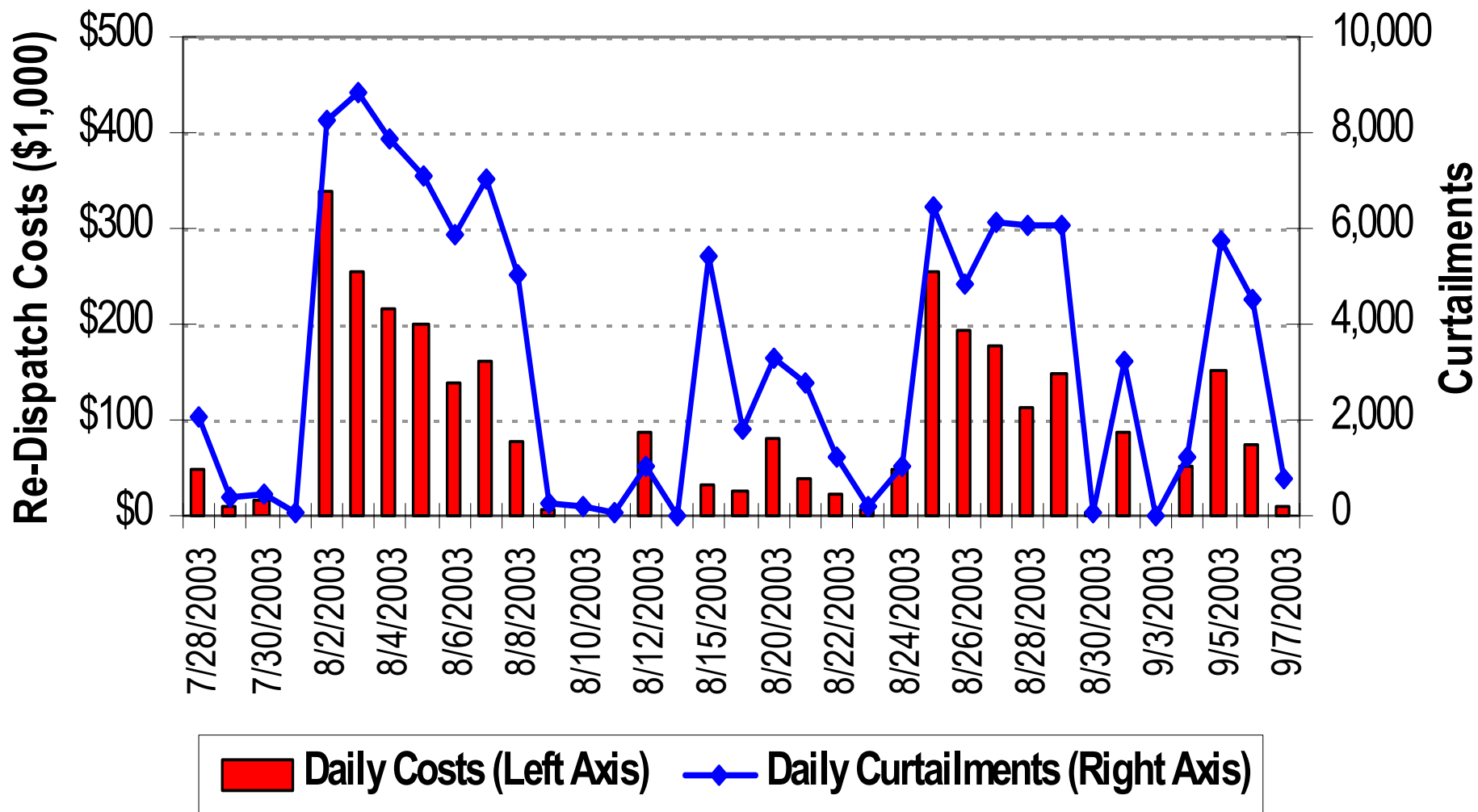
Peak Load Condition or Off-peak Load Conditions

N-0, N-1, N-2 considerations

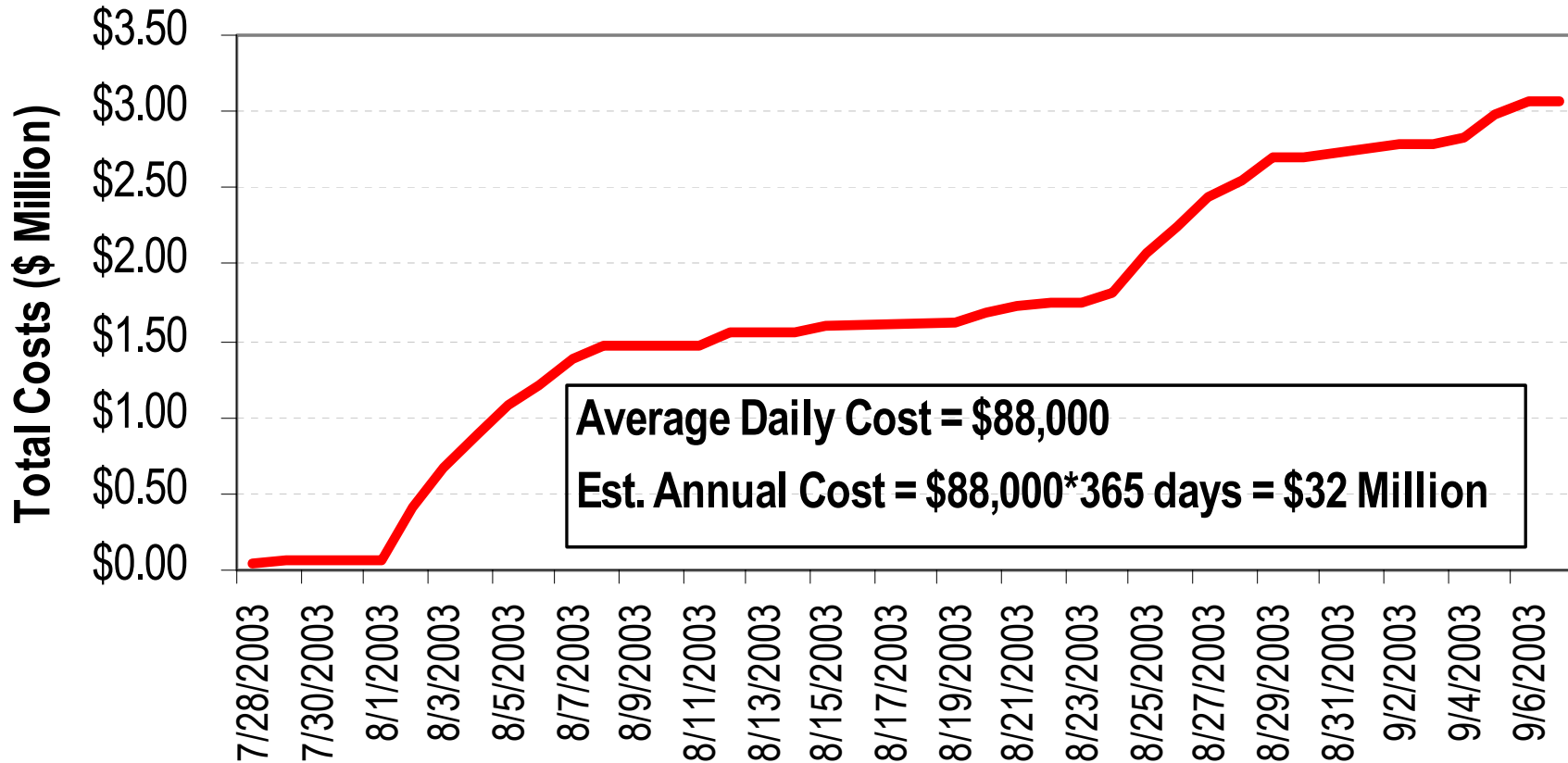
Total Curtailments for Mexican Generatin Units (July 28 -September 9, 2003)



Daily Re-Dispatch Costs and Curtailments



Cumulative RT Re-Dispatch Cost* for Mexican Generation (July 28 - Sep 7, 2003)



*** RT Re-Dispatch Cost = (MCP - Dec Ref. Prc.)*Dec MW**



Do we need new transmission?

Do we need Market Rules Improvements ?

Better Be Quick !