Campus Quick Facts

With a daily population of over 45,000, UC San Diego is the size and complexity of a small city.

As a research and medical institution, we have two times the energy density of commercial buildings

11 million sq. ft. of buildings, $250M/yr of building growth

Self generate 80% of annual demand

- 30 MW natural gas Cogen plant
- 2.8 MW of Fuel Cells contracted
- 1.2 MW of Solar PV installed, additional 2 MW planned

UC San Diego Operates a 42 MW_{peak} Microgrid

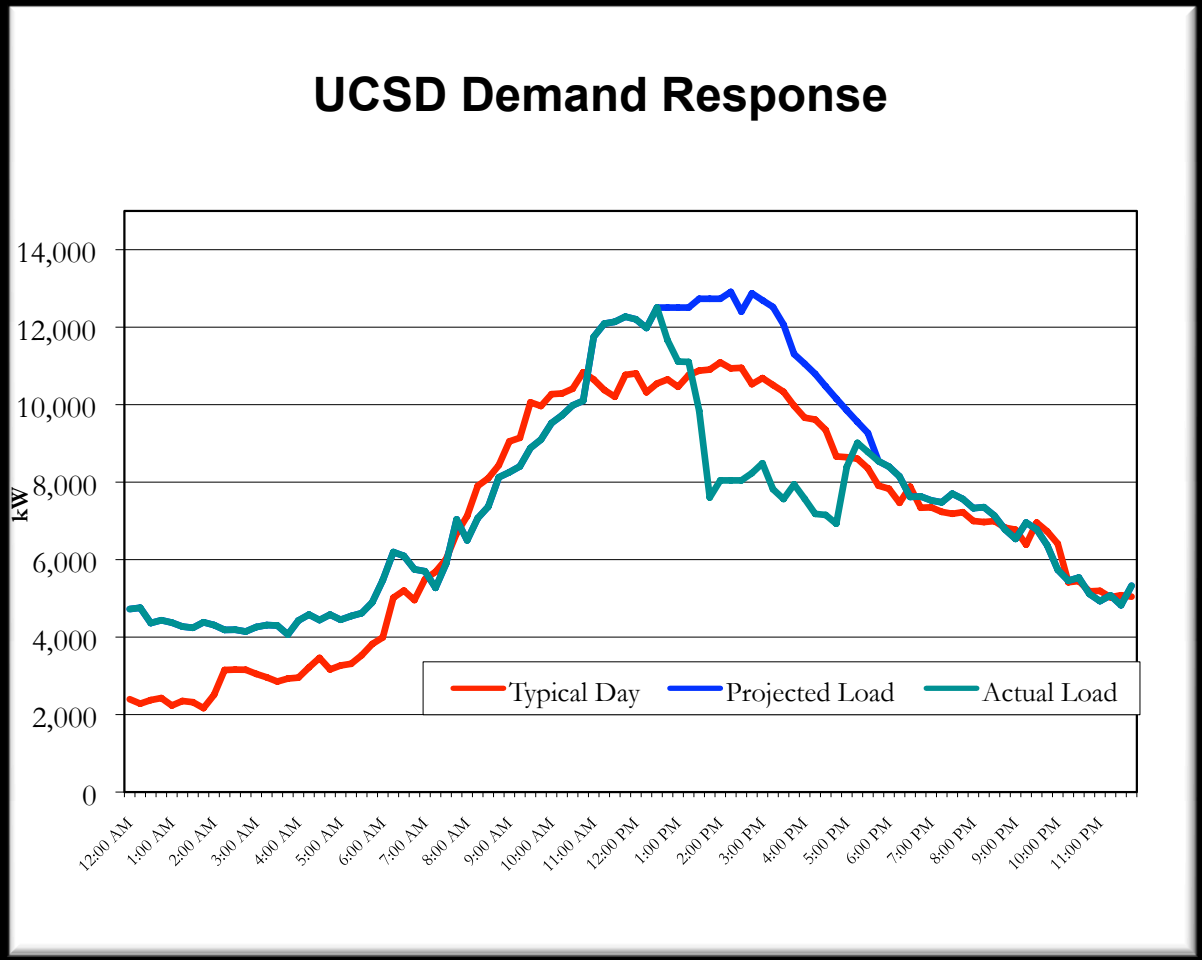
Demand Response in Action

10:53 am – SDG&E declares a Demand Response Event for today; Please review your energy reduction procedures and reduce your load during the hours noted below:

Event Start Time: 2:00 PM PDT

Event End Time: 5:00 PM PDT

Program Name: Capacity Bidding Program



Demand Response Actions

- **Central Plant Activity**
  - Shut down electric chilling
  - Increase generation if available
- **Automatic Control of MetaSys Non-Critical Room Temperature Setpoints**
  - Forces zones T-stats into standby & unoccupied mode
  - Static pressure setpoint setback
- **Voluntary Conservation Encouraged**
  - Campus community to shutdown all non-critical electrical devices

Metasys - Navigation

West Maintenance
Scripps Inst of Oceanography | Server Rooms
Jacobs School of Engineering
East Campus | East Maintenance
Cold Boxes & Environmental Rooms
All Items | Central Utilities Plant

- UCSD
  - User Views
  - Summary Definitions
  - FM-ADX
  - NAE-01 MPB
  - NAE-02 Cal IT
  - NAE-03 Cal IT
  - NAE-04 Cal IT
  - NAE-05 EBU3B
  - NAE-06 EBU3B
  - NAE-07-EMERSVCS
  - ! NAE-08 Pharm
  - NAE-09 Pharm
  - NAE-10 Bio Med Lib
  - !? NAE-11 Stein
  - NAE-12 Urey Hall
  - ! NAE-13 AP&M
  - ! NAE-14 AP&M
  - NAE-17 Otterson
  - NAE-18 Otterson
  - NAE-19 BSB
  - NAE-20 SDSC
  - ! NAE-21 Mayer
  - NAE-22 Mayer
  - NAE-23 Music
  - NAE-24 SDSC
  - !? NAE-25 Robert Paine Center
  - NAE-26 Mayer
  - NAE-27 Mayer
  - ! NAE-28 Mayer
  - !? NAE-29 McGill
  - NAE-30 CMG
  - NAE-31 CMRR
  - ! NAE-32 Urey Hall
  - NAE-33 Urey Hall
  - ! NAE-34 TeleMed Lower Level
  - ! NAE-35 TeleMed 1&2nd Flr
  - NAE-36 Speiss Hall
  - NAE-37 Cal IT

Metasys - Navigation

West Maintenance
Scripps Inst of Oceanography | Server Rooms
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Cold Boxes & Environmental Rooms
All Items | Central Utilities Plant

- NAE-37 Cal IT
- NAE-38 Sverdrup
- ! NAE-40 TeleMed 3rd Flr
- ! NAE-41 TeleMed Roof
- !? NAE-42 North Torrey Pines
- ! NAE-43 North Torrey Pines
- ! NAE-44 Nierenberg Hall
- ! NAE-45 Pac Hall
- NAE-46 Pac Hall
- NAE-47 Pac Hall
- ! NAE-48 Pac Hall
- ! NAE-49 Pac Hall
- NAE-50 Pac Hall
- ! NAE-51 Pac Hall
- NAE-52 Warren Lecture Hall Bsmt
- ! NAE-54 CMM WEST
- NAE-53 Literature Building
- !? NAE-55 Warren Lecture Hall
- NAE-56 GALB HALL
- !? NAE-57 Bonner Hall
- ! NAE-58 H&SS
- NAE-59 MTF
- ! NAE-60 Vaughn Hall
- NAE-61 EBU3A
- NAE-62 EBU3A
- NAE-64 BSB
- NAE-63 EBU3A
- ! NAE-65 BSB
- NAE-66 BSB
- NAE-67 BSB
- ! NAE-68 BSB
- !? NAE-69 NSB
- NAE-70 NSB
- NAE-71 NSB
- ! NAE-72 SME
- ! NAE-73 SME
- NAE-74 SME
- NAE-75 SDSC
- NAE-76 CSB
- NAE-77 CRB

Metasys - Navigation

West Maintenance
Scripps Inst of Oceanography | Server Rooms
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Cold Boxes & Environmental Rooms
All Items | Central Utilities Plant

- NAE-85 Stein 2nd fl
- NAE-86 Stein 3rd fl
- NAE-88 Sverdrup
- ! NAE-89 OTTERSON
- NAE-90 OTTERSON
- NAE-91 McGill
- ! NAE-91 CMME
- NAE-92 CMME
- NAE-93 CMME
- NAE-94 CMME
- NAE-95 CMME
- NAE-97 SIO Library
- ! NAE-98 Hubbs
- ! NAE-99 Mandeville
- NAE-100 CMME
- ! NAE-101 CMMW
- NAE-102 CMMW
- ! NAE-103 Node B
- NAE-104 AP&M
- NAE-105 Mandeville
- ! NAE-107 Bonner Hall
- NAE-108 Bonner Hall
- ! NAE-109 Bonner Hall
- NAE-110 Bonner Hall
- ! NAE-116 Mayer
- ! NAE-118 York Hall N
- ! NAE-119 York Hall S
- NAE-120 EBU1
- NAE-121 EBU1
- NAE-122 EBU1
- ! NAE-123 EBU1
- ! NAE-125 Galbraith Hall
- NAE-126 Hubbs
- ! NCE-96 ECCP
- × NIE-95
- × NIE-96 EMS Complex
- NIE-97
- NIE-98
- NIE-99 CUP Systems

Metasys

Item Edit View Action Insert Tools Query Help

CUP Logout Exit

West Maintenance
Scripps Inst of Oceanography | Server Rooms
East Maintenance | Jacobs School of Engineering
Cold Boxes & Environmental Rooms | East Campus
All Items | Central Utilities Plant

- Central Utilities Plant
  - Chillers
  - Towers
  - TES
  - Secondary Chiller Water
  - Campus Load Shed
    - UCSD Load Shed
    - Zone Load Shed
    - CHW DP Reset
    - MTW DP Reset
    - MTW Temp Reset
  - This Folder Is Not In Use
  - Boilers

UCSD Load Shed

Graphic | Focus

Edit 103.61%

UCSanDiego

UCSD Load Shed

Johnson Controls

Load Shed	
CHW DP Reset	Inactive
MTW DP Reset	Inactive
MTW Temp Reset	Inactive

Load Shed	
Lab Loadshed Cmd	Occupied
Loadshed Occupied Cmd Stage 1	Occupied
Loadshed Standby Cmd Stage 2	Occupied
AHU Load Shed	Inactive

Server: 6/13/2013 08:08 AM PDT

Metasys

Item Edit View Action Insert Tools Query Help

CUP Logout Exit

West Maintenance

Scripps Inst of Oceanography | Server Rooms

Jacobs School of Engineering

East Campus | East Maintenance

Cold Boxes & Environmental Rooms

All Items | Central Utilities Plant

- Central Utilities Plant
  - Chillers
    - WC 1
    - WC 2
    - WC 3
    - WC 5
    - WC 6
    - WC 7
    - WC 8
    - Pumps
  - Towers
  - TES
  - Secondary Chiller Water
  - Campus Load Shed
    - UCSD Load Shed
    - Zone Load Shed
    - CHW DP Reset
    - MTW DP Reset
    - MTW Temp Reset
  - This Folder Is Not In Use
  - Boilers

Zone Load Shed

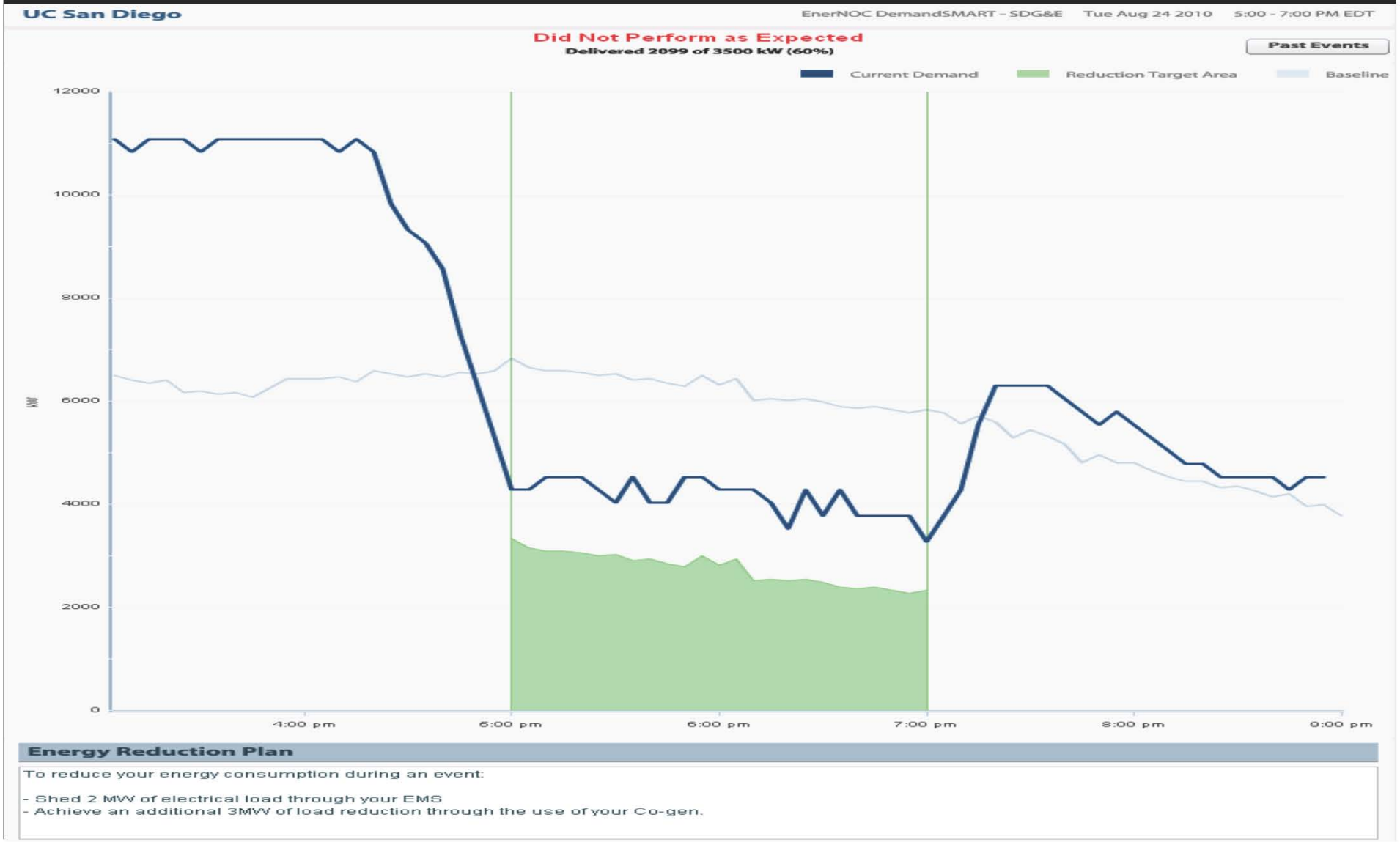
Summary

Status	Item	Value	Description
	BSB Lab Load Shed Command	Occupied	
	BSB Office Load Shed Comma...	Occupied	
	NSB Lab Load Shed Command	Occupied	
	NSB Office Load Shed Comma...	Occupied	
	Bio Med Lib Load Shed Comm...	Occupied	
	CAL IT Office Load Shed Com...	Occupied	Master CAL IT Office Load Shed Command
	CAL IT Lab Load Shed Comm...	Occupied	
	CSB Load Shed Command	Occupied	
	CRB Load Shed Command	Occupied	
	EMERSVCS Load Shed Comm...	Occupied	
	Galb Hall Load Shed Command	Occupied	
	Literature Load Shed Command	Occupied	
	MAYER Lab Load Shed Comm...	Occupied	
	MAYER Office Load Shed Com...	Occupied	
	Pac Hall Lab Load Shed Com...	Occupied	
	Pac Hall Office Load Shed Co...	Occupied	
	Urey Hall Load Shed Command	Occupied	
	Robert Paine Center Load She...	Occupied	
Value cannot be read	SAS Load Shed Command		
	Warren Lecture Hall Load She...	Occupied	
	PharmSci Lab Load Shed Co...	Occupied	
	Otterson Load Shed Command	Occupied	
	Giesel Lib Load Shed Comma...	Occupied	
	Vaughn Hall Load Shed Com...	Occupied	
	Music Load Shed Command	Occupied	
	Paper Canyon Load Shed Co...	Occupied	
	AP&M Load Shed Command	Occupied	
	CMG Load Shed Command	Occupied	
	CMMR Load Shed Command	Occupied	
	EBU3B Load Shed Command	Occupied	
	SIO Load Shed Command	Occupied	
	H&SS Load Shed Command	Occupied	
	MTF Load Shed Command	Occupied	
	Brain Imaging Load Shed	Off	
	SERF Load Shed	Off	
	Leichtag Load Shed	Off	
	EBU2 Load Shed	Off	
	Center Hall Load Shed	Off	

Server: 6/13/2013 08:14 AM PDT

Central Plant Equipment

Demand Response Economics

- Capacity Payments are Preferred
- Energy Payments don't add up to much
- Baseline Calculations can skew results
- Penalties are a non-starter
- California cannot use Back-up Diesel Generators

Baseline Calculation Issue