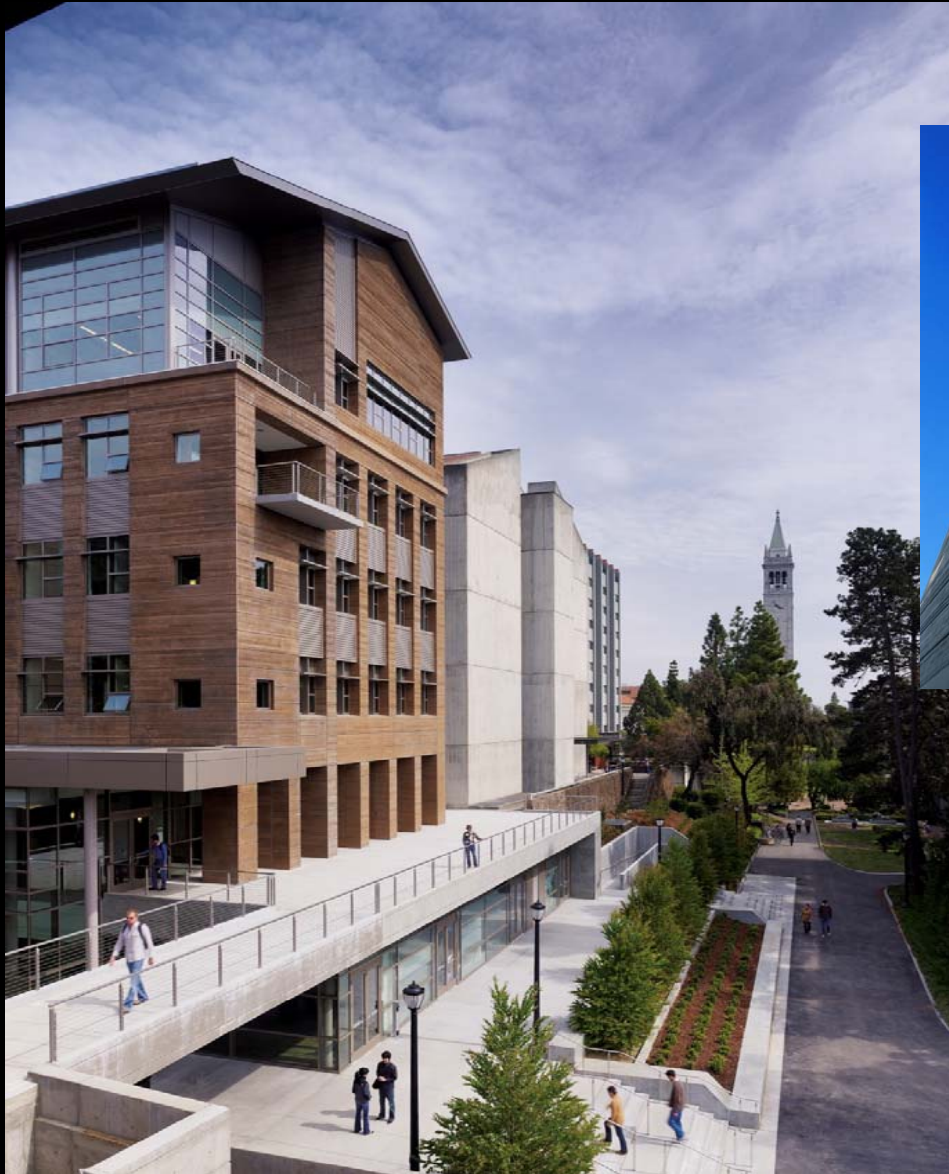


Sutardja Dai Hall “A Living Laboratory”

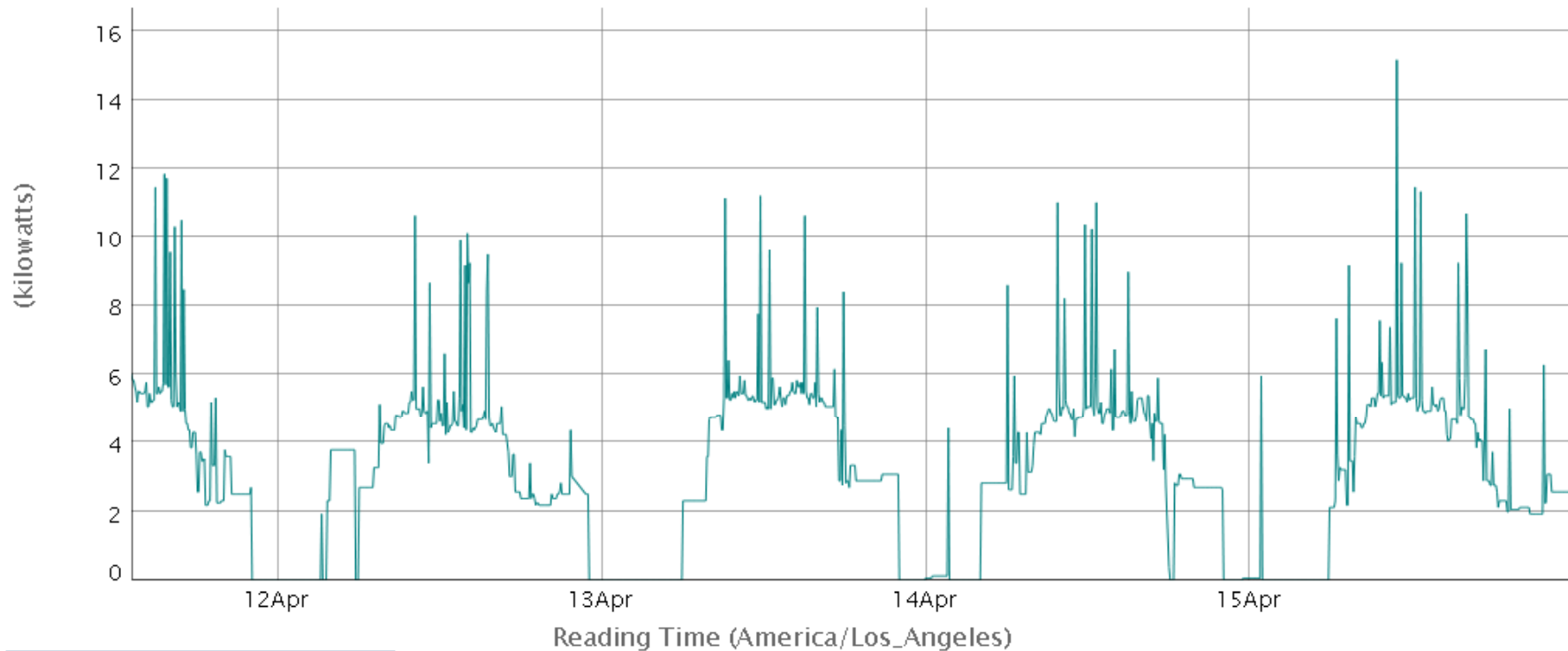


Domenico Caramagno
Facilities Manager
Center for Information Technology in
the Interest of Society
(CITRIS)
April 21st 2011

3rd Floor Lighting Data

Monday April 11th thru Friday April 15th 2011

sMAP Archive Plotting Engine



Sutardja Dai Hall BACnet

data/SDH.PXCM-06/sensor/SDH.DEM.CL43A.DEMAND

Monday April 11, 2011 00:00:00

Saturday April 16, 2011 00:00:00

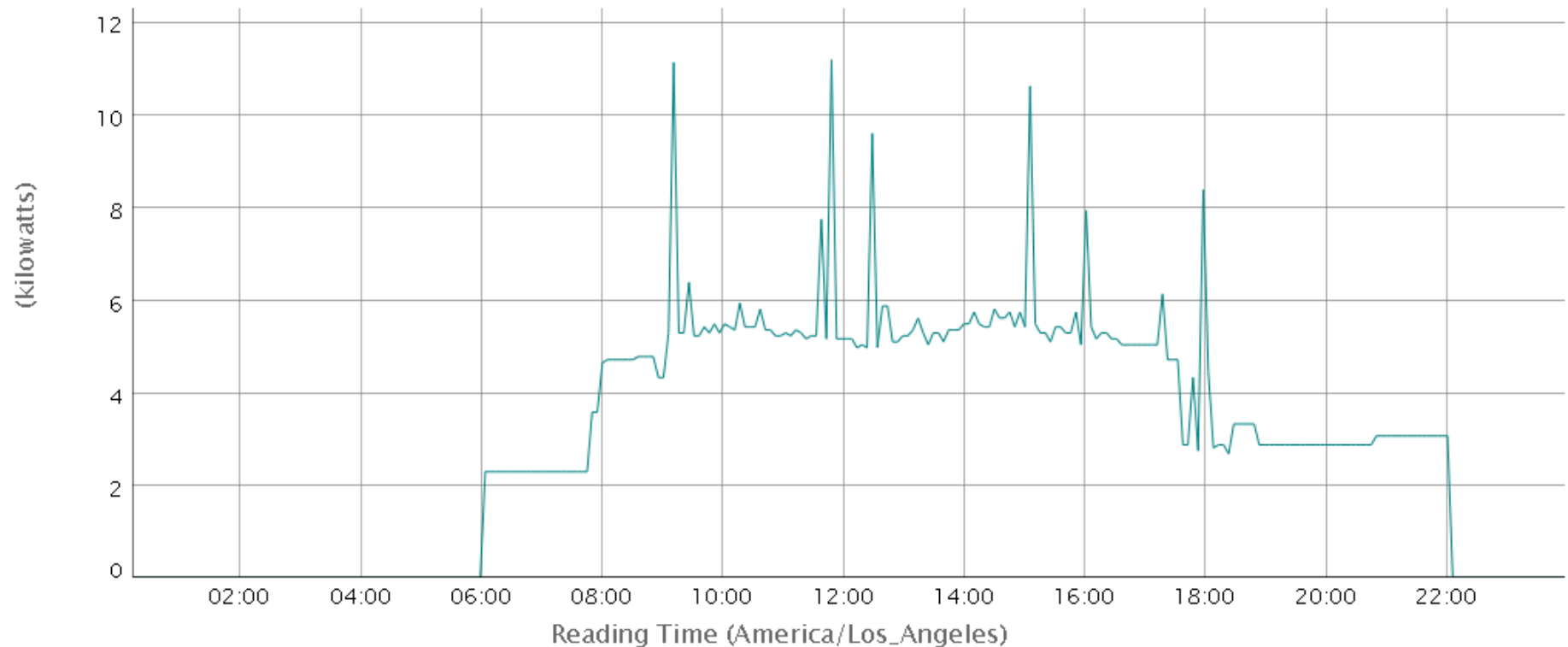
now | reset

Plot

3rd Floor Lighting Data

Wednesday April 13th 2011

sMAP Archive Plotting Engine



Sutardja Dai Hall BACnet

data/SDH.PXCM-06/sensor/SDH.DEM.CL43A.DEMAND

Wednesday April 13, 2011 00:11:01

Wednesday April 13, 2011 23:59:01

now | reset

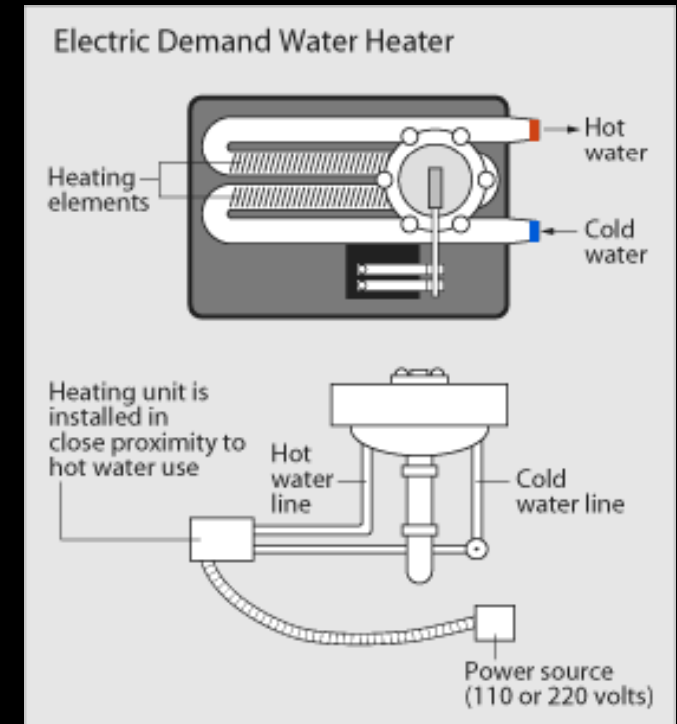
Plot

Eemax EX60T "Thermostatic" Electric Tankless Water Heater



Specifications:

- Volts 277V
- KW 6.0kW
- Amps 22A
- Rise at 0.5 GPM 81°F
- Rise at 0.75 GPM 55°F
- Rise at 1.0 GPM 41°F
- Rise at 1.5 GPM 27°F
- Wire Size AWG 10
- Dimensions 10.75" x 5.25" x 2.125"
- Weight 3 lbs
- Element - Replaceable cartridge insert
- Connections: 1/2" compression



Sutardja Dai Hall

- 141,000 Gross Square Feet
- 80,000 Assignable Square Feet of office space
- 15,000 Assignable Square Foot NanoLab
 - (Class 1000 and 100 clean rooms)
- Over 50 Faculty and 300 Grad Students
- Qualcomm Café
- Main Distribution Center (MDC) for NE Corner of Campus
- CITRIS Server room
- Auditorium and Classrooms
- Reheat System
- Two 600 ton Chillers
 - (Centrifugal and Absorber)
- Currently building is running at a 850KW base load
- Siemens Apogee Building Automation System (BAS)
 - Siemens Energy Management and Control System (EMC)

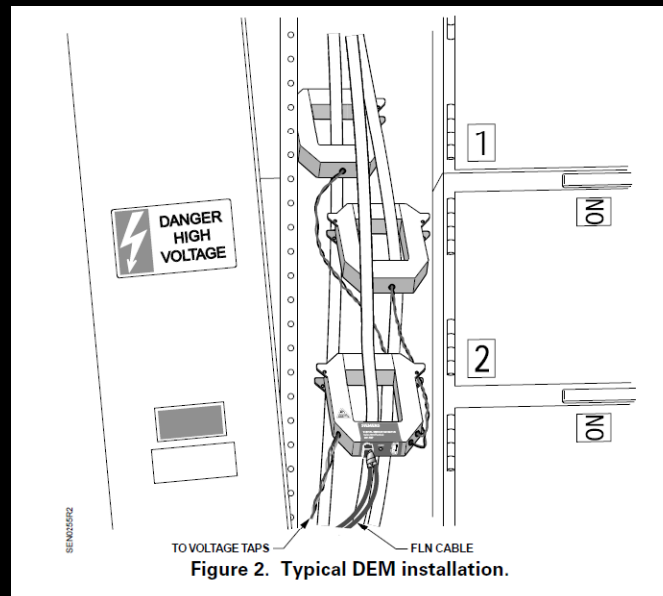
Sutardja Dai Hall Submetering



Digital Energy Monitor – Electrical,
Series 1000/2000



- CITRIS has invested over 200K in submeters and infrastructure
- Over 28 Submeters Monitoring
 - Light and Plug Loads Per Floor
 - HVAC Systems



Sutardja Dai Hall's

Energy Dash Board, Green Touch Screen & sMAP

BANATAO INSTITUTE @ CITRIS BERKELEY

51° F Partly Cloudy 13 mph WNW

Virtual Tour

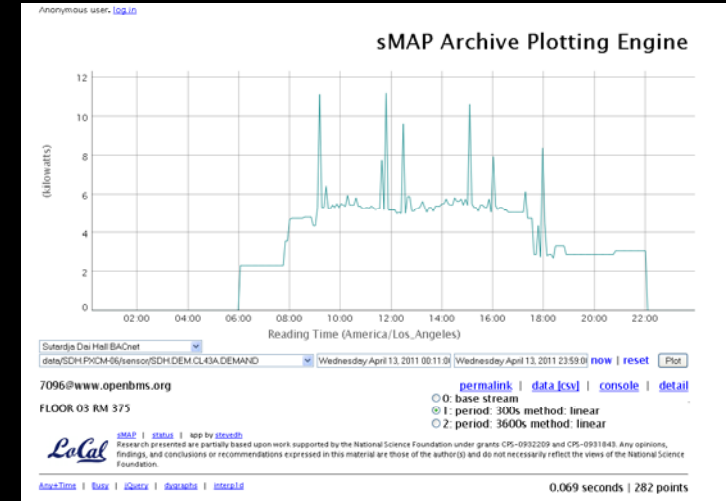
1st Floor

2 CITRIS Server Room

Previous Next

Tour The Building Live Data Systems How To Be Green

SIEMENS



BANATAO INSTITUTE @ CITRIS BERKELEY

49° F Partly Cloudy 13 mph West

Green Features Map

Absorption Chiller

Absorption chillers use highly efficient technology which consumes less energy than conventional chilling equipment, and also cools buildings without the use of ozone-depleting chlorofluorocarbons (CFCs). Absorption chillers work by transferring its thermal energy from the heat source to the heat sink through an absorbent fluid and a refrigerant. The absorption chiller creates a refrigeration effect by absorbing and then releasing water vapor into and out of a lithium bromide solution. (Cited Source: U.S. Department of Energy.)

Tour The Building Live Data Systems How To Be Green

SIEMENS

BANATAO INSTITUTE @ CITRIS BERKELEY

51° F Partly Cloudy 13 mph WNW

Current Week Electricity Use

Electricity Use per sq ft

NAME	Goal	Dom 1	Dom 2	Dom 3	Dom 4
RANK	1	2	3	4	
CHANGE	0.00%	+3.57%	0.00%	0.00%	0.00%

Electricity Use Breakdown

Dorm	Percentage
Dom 1	32.8%
Dom 2	16.8%
Dom 3	22.1%
Dom 4	28.3%

Competitor Details DORM 2

0.00%	Reduction from previous week:	0.00 kWh/sq ft
54.18%	Above goal:	1.30 kWh/sq ft
7.49%	Below typical usage:	0.29 kWh/sq ft

Equivalency

kg of Carbon Dioxide

Equivalent to **3.7 kg** of Carbon Dioxide

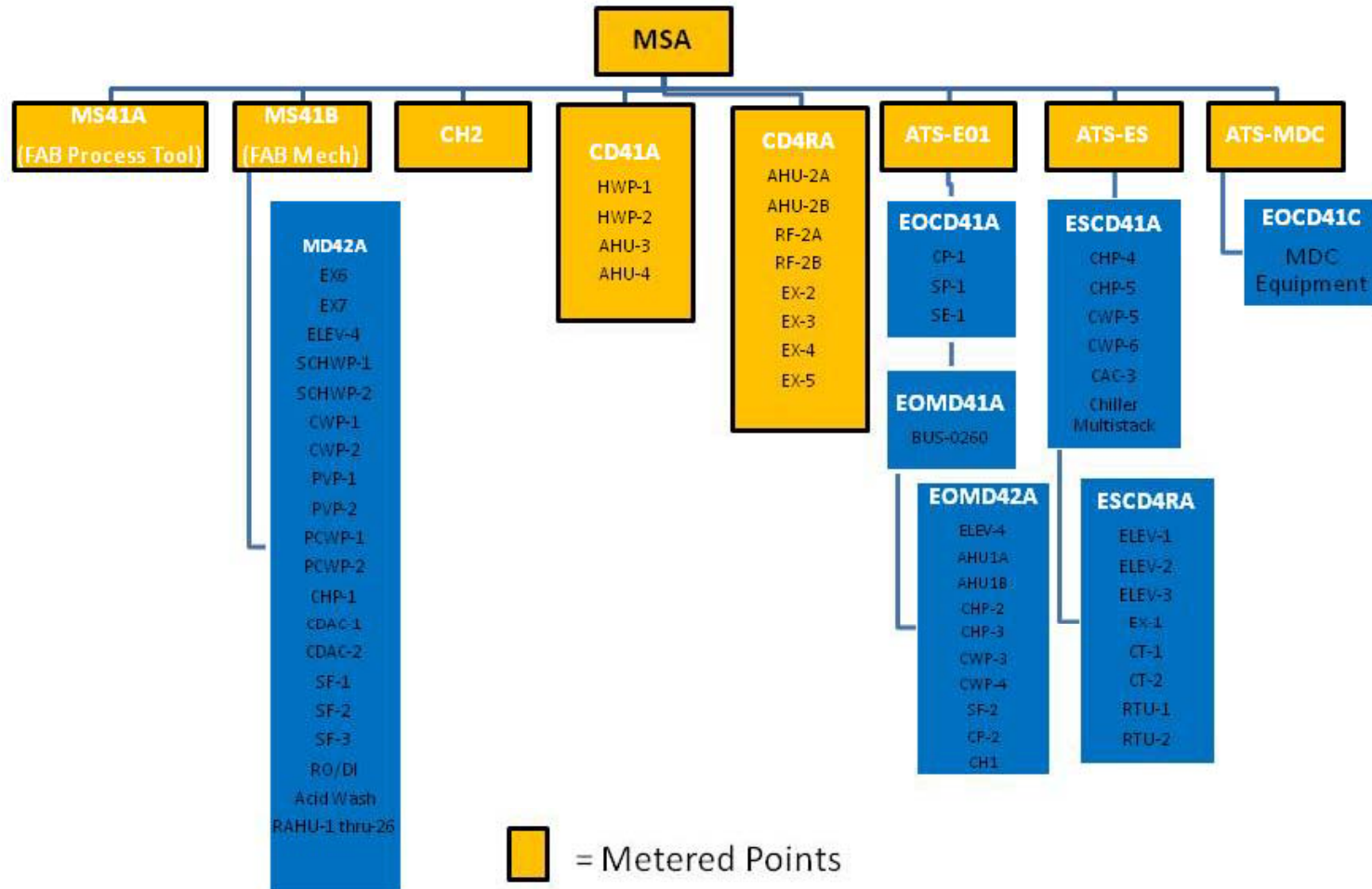
Tour The Building Live Data Systems How To Be Green

SIEMENS

MSA vs. MSB (1/7/11-1/18/11)

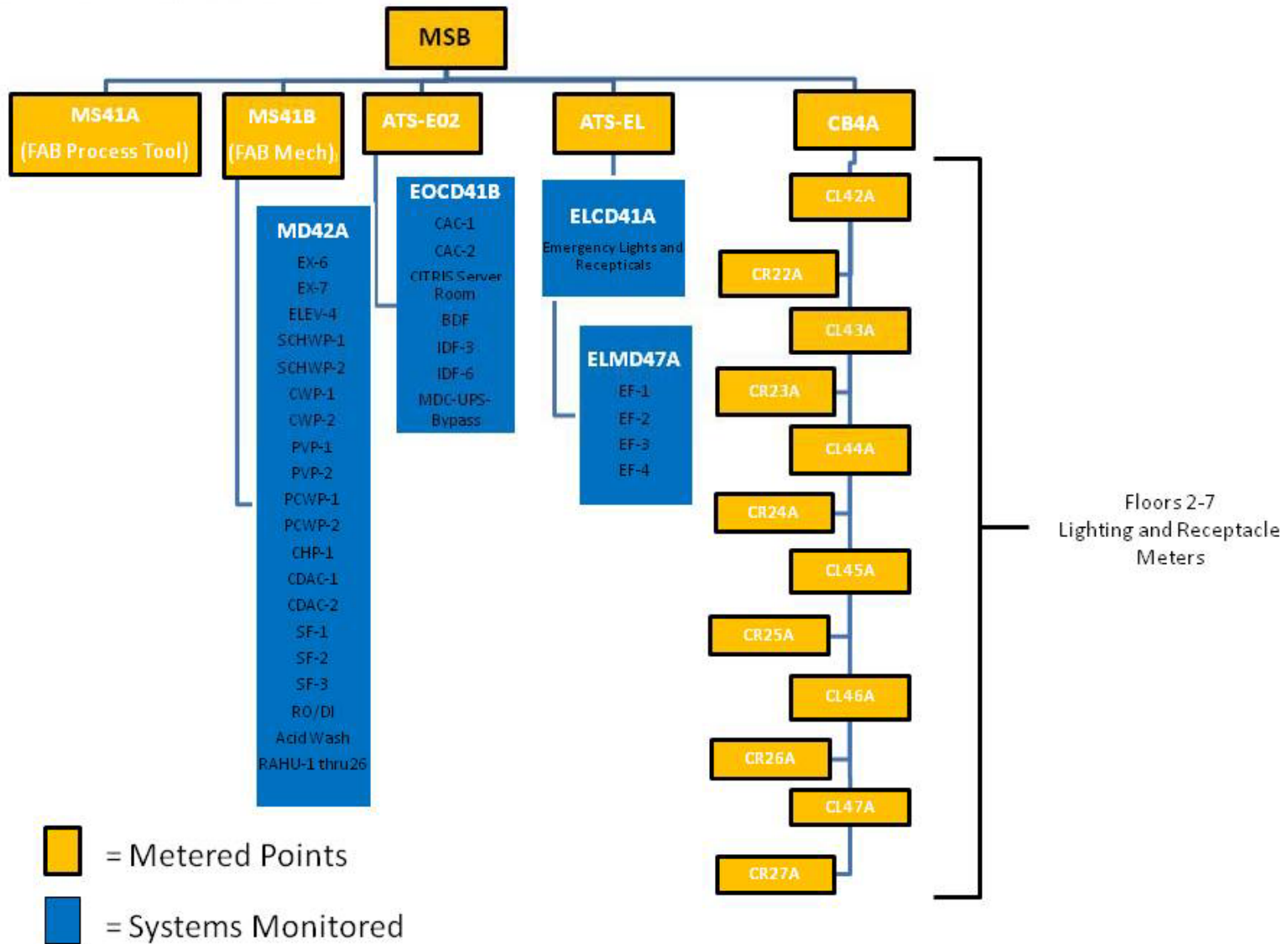


Main Substation A

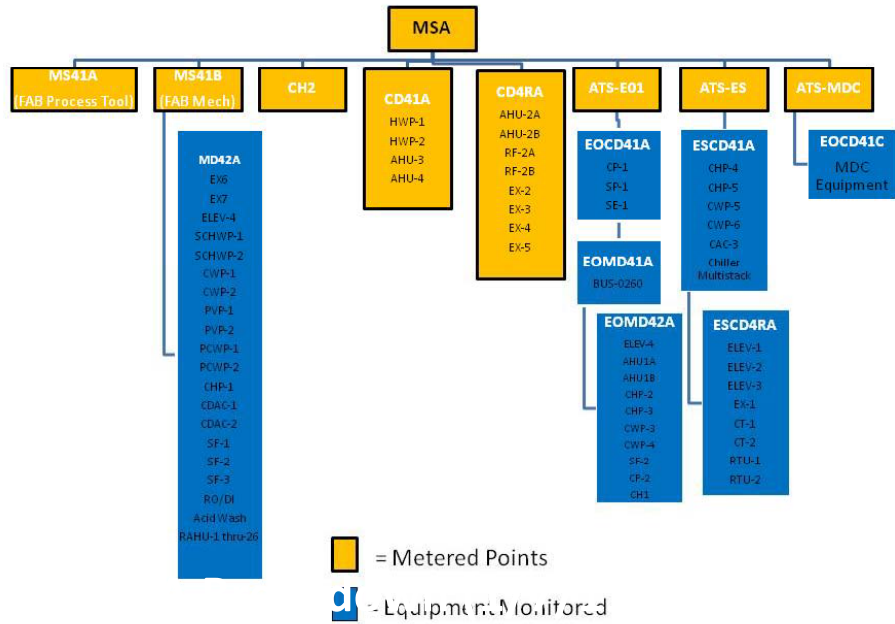


= Metered Points
 = Equipment Monitored

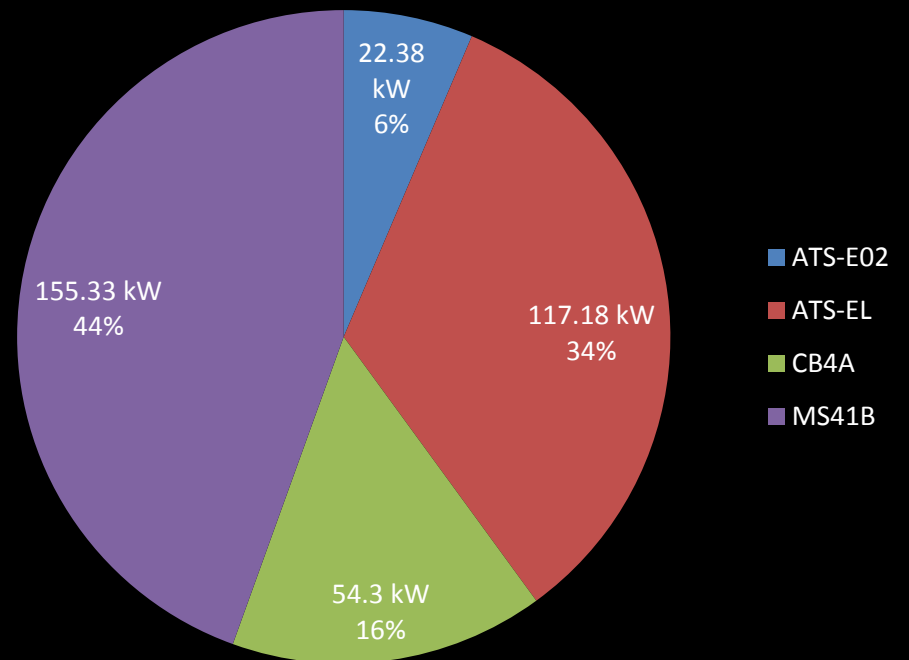
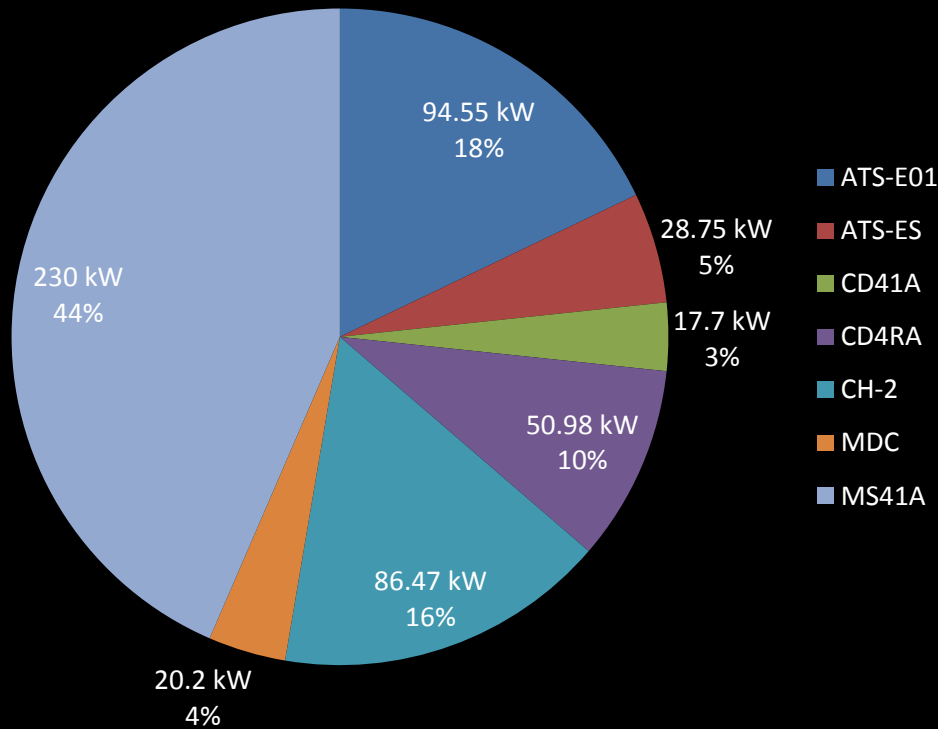
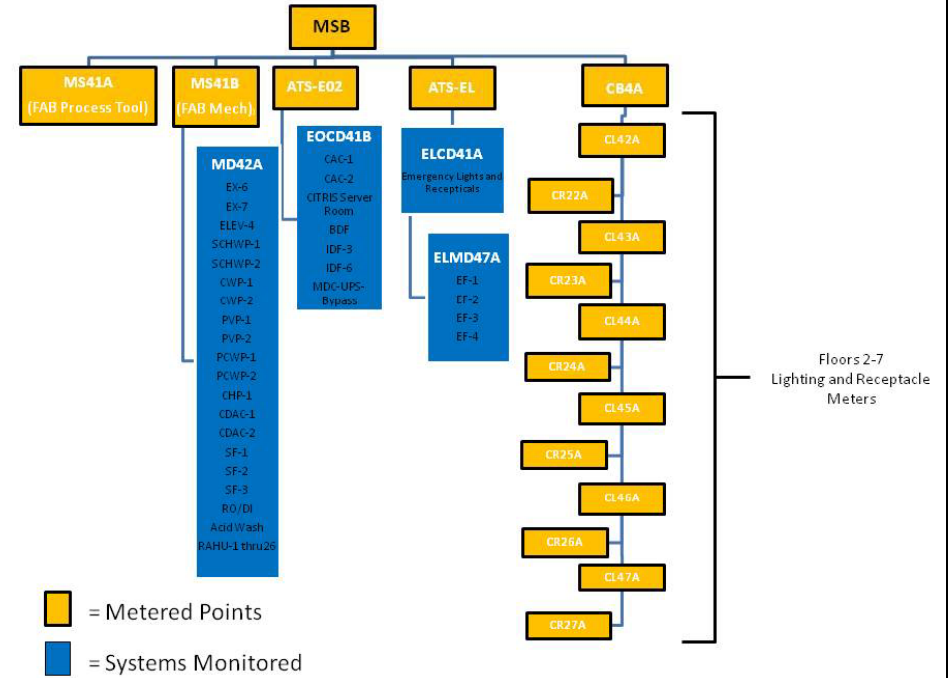
Main Substation B



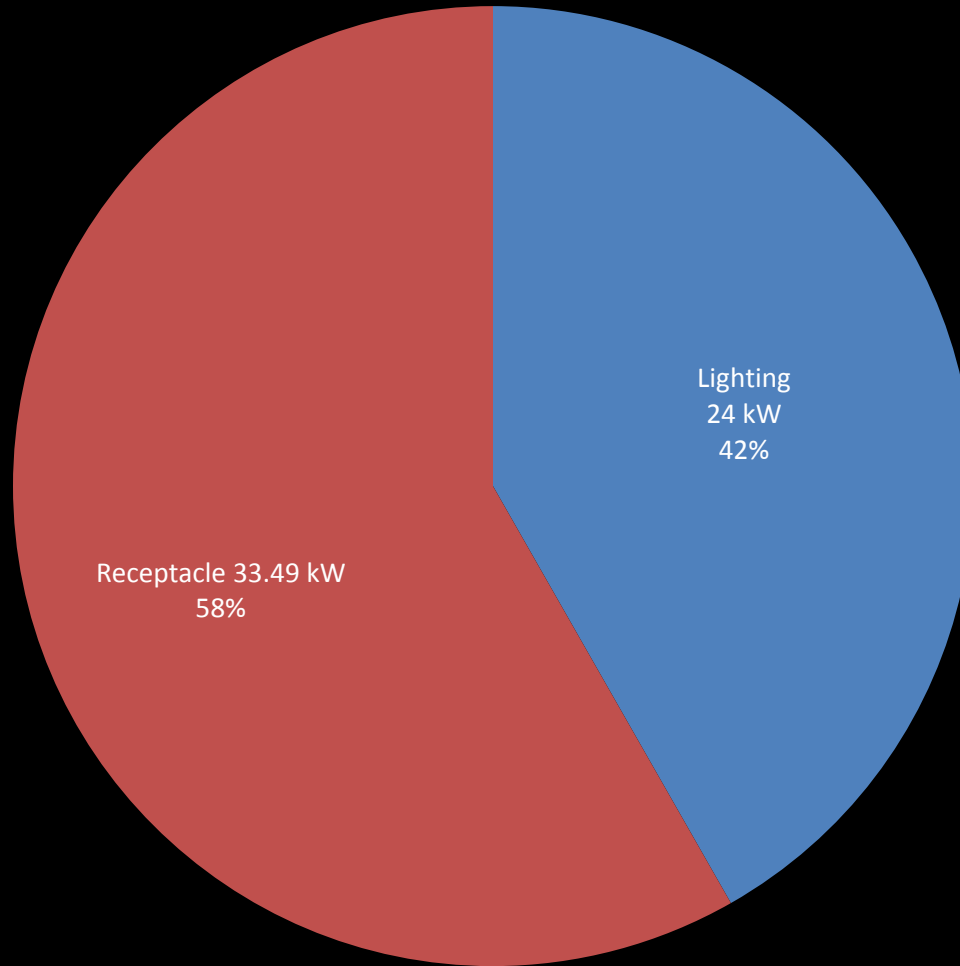
Main Substation A



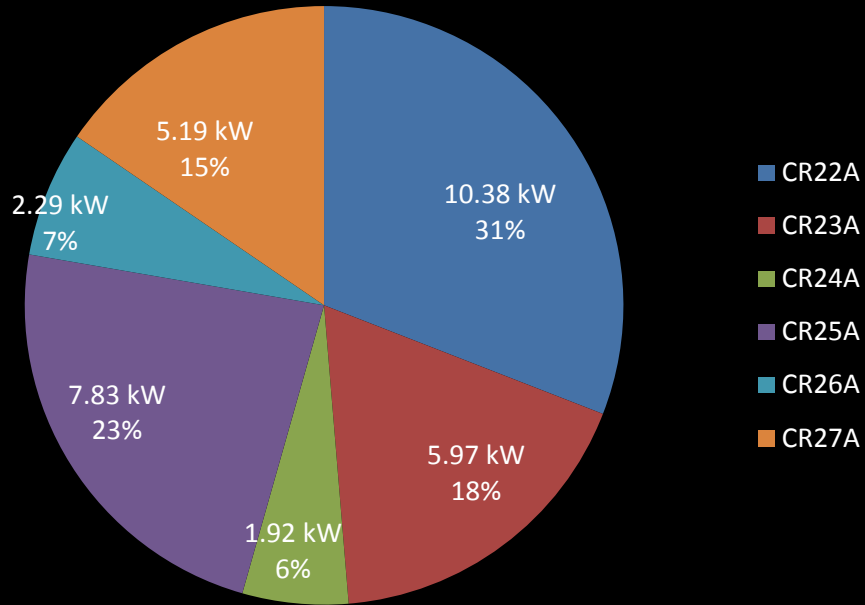
Main Substation B



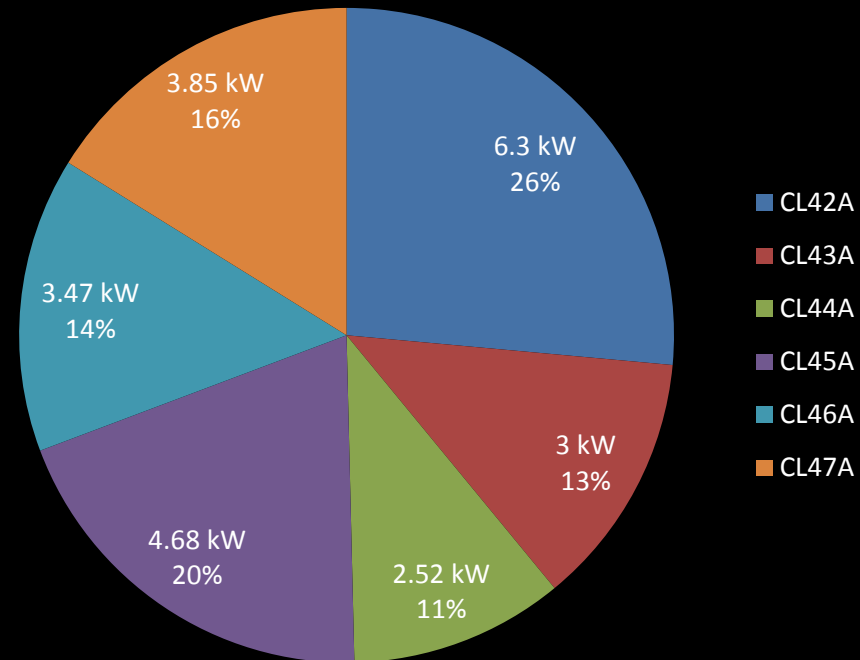
CB4A Breakdown (1/7/11-2/7/11)



Average Receptacle Demand (1/7/11-2/7/11)



Average Lighting Demand (1/7/11-2/7/11)



Finer Grained Submetering is Needed

- Problems with the existing meters and infrastructure
 - Reference power source
 - Communication infrastructure to field panels
 - Not enough space in distribution panels for multiple CT's

