Los Angeles Community College District
PROGRAM MANAGEMENT SERVICES

District-wide
Measurement & Demand Response Project

Facilities Master Planning & Oversight Committee
October 22, 2014
M&DR Project Overview

• Installation of electric, water and gas meters at 10,000+ GSF buildings

<table>
<thead>
<tr>
<th>Electric</th>
<th>Water*</th>
<th>Gas*</th>
</tr>
</thead>
<tbody>
<tr>
<td>162</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

* Majority are electric meters; gas and water meters to be installed at Central Plants.

• Installation of required energy management system/building automation system to implement auto demand response measures
  – Allows participation of demand response program savings from SCE / LA DWP
M&DR Budget and Schedule

- **Budget:** $6.2 million

- **Schedule:** May 2014 – May 2015

**PHASE I**
- Meter design: 95% complete
- Meter installation: 60% complete

*5-year warrantee on M&DR system and meters.*

**PHASE II**
- Auto demand response system design: 77% complete
- Implementation of demand response measures: 0% complete

On Target for May 2015 Completion
Electric & Water Meters

Safety Protocols: Installed meters are NEMA (National Electrical Manufacturers Association) rated and UL (Underwriters Laboratories) listed.
M&DR Project Benefits and Potential Savings

• Real-time monitoring and logging of energy consumption and demand.

• Track year-to-year performance by campus and building.

• Prop 39 compliance for energy efficiency-funded projects.

• Colleges able to reduce/curtail energy use to reduce/avoid peak demand charges.

• Colleges to participate in Demand Response Programs:
  – Offered by SCE and pilot offered by LA DWP. May qualify for up to $300/kW.
  – Easier and quicker to selectively reduce campus energy use in event of critical event at campus such as earthquake or fire.
M&DR Project Benefits and Potential Savings

• Peak demand reduction of 8% – 12%

• Campus energy cost reduction of 3% - 7%
  – Leverage CPP / Interruptible Rate Structures
  – Reduce Use in Highest Cost Hours

• Example college savings:
  – Campus Peak Demand = 1,500 kW
    10% Demand Reduction = 150kW
    @ SCE Rate ~ $27/kW = $48,600/yr savings
  – Campus Energy Cost = $900,000
    4% Energy Cost Reduction = $36,000/yr savings
LACCD District Energy Dashboard
Building for tomorrow's leaders

District Overview

Utility Consumption (This Month vs Last Month)

- **Electricity**: 266,959 kWh, -15% ▼
- **Natural Gas**: 76,695 cCF, -15% ▼
- **Domestic Water**: 150,000 Gallons, -15% ▼
- **Chilled Water**: 26,695 BTU, -15% ▼
- **Heating Hot Water**: 26,695 BTU, -15% ▼

Legend:
- ▼ Measured Value Reduced
- ▶ No Change (± 2%)
- ▲ Measured Value Increased

(As compared to previous time period)
Building for tomorrow’s leaders
District Overview  Sustainability  Variance  Profile  Energy Usage  Demand Response

SELECT UTILITY: Electricity
- Electricity
- Natural Gas
- Water

SELECT NORMALIZATION: Area
- Area
- Occupancy
- Weather

SELECT DATE RANGE: 2013

Legend:
▼ Measured Value Reduced
► No Change (± 2%)
▲ Measured Value Increased
(As compared to previous time period)
Building Area

180,000 ft²

33%

More Efficient Than Similar Building

This Bldg: 14.8 kBTU/ft²
Similar Bldg: 22 kBTU/ft²

Energy Usage Intensity
(over last 12 months)
M&DR Project Ongoing Requirements

• Current M&DR buildings / 5-yr warrantee
  – Covers troubleshooting and repairing any hardware or software parts of the M&DR system that are not functioning as they were at the time of project acceptance.

• Support for new buildings
  – Add additional electric and utility meters as new buildings come on line; integrate these new meters into the campus LAN and AXCESS software.
  – Add additional DR control strategies as new EMCS systems are added to new buildings.
  – Assist in trouble shooting EMCS/ M&DR. Diagnose the cause of non-functional demand response strategies should they arise.
Thank You