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| LACCD Bond Program | Design Procedure | Procedure Number: | DP 4.0 |
| | <i>Energy Optimization Program</i> | Effective Date: | October 15, 2013 |
| | | Total Pages: | 8 |
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1.0 Purpose

This section of the LACCD Bond Program Standard Operating Procedures defines the requirements for the Energy Optimization Program (EOP) for the LACCD Bond Program (hereafter referred to as Bond Program).

2.0 Scope

This LACCD Design procedure applies to the nine LACCD colleges, satellite colleges and the Educational Services Center for the Los Angeles Community Colleges District (District Headquarters building). The EOP includes; District Wide Energy Efficiency Projects, Renewable Energy Projects, Demand Side Management Projects, Measurement And Data Collection Program, Peak Energy Demand Response Program, Prop 39 Projects, Campus Electrical Substation Upgrades, and Central Utility Plants.

3.0 Responsibilities

3.1 College Project Managers (CPM)

LACCD CPM responsibilities

- Provide the PMO with documents and drawings as necessary for the District to submit and obtain Interconnection Agreements.
- Provide the PMO with documents and drawings as necessary for the District to submit and obtain solar incentives based upon the California Solar Initiative.
- Ensure the energy goals and processes of the Energy Optimization Program have been incorporated into the design and construction documents.
- Hire and work with the master plan architect for development of the college master plan
- Hire and work with the project architect for development of the plans and specifications, including DSA approval
- Manage the design phase and construction phases of the project after award
- Provide document control utilizing ProjectWise
- Provide Management of Renewable Energy and Demand Side Management Projects as necessary

- Coordinate with the EPL regarding projects impacting M&DR Projects

3.2 Program Management Office (PMO) Energy

The LACCD PMO Energy Team is responsible for:

Energy Procurement:

- Manage the 4217, 5956 and Design/Build procurement process for District Wide Energy Efficiency Projects
- Facilitate meetings with proposers and scoring sessions for District Wide Energy Efficiency Projects
- Issue 4217, 5956 or Design/Build agreements after BOT approval
- Formulate Proposed Board Actions to obtain BOT Authorization for Energy Efficiency Projects
- Coordinate with District General Counsel and District Energy Counsel as necessary to obtain BOT approval, craft contract language and address District's energy related concerns

Energy Incentives:

- Investigate and research and author applications for all federal, state and local agencies and other providers of grants, rebates, incentives and donations
- Compile, process and track all Utility Service Provider Incentive Submittals related to new photovoltaic installations applying for the California Solar Initiative
- Compile, process and track all Utility Service Provider Interconnection Agreements related to new and existing photovoltaic installations
- Compile, process and track all Federal Incentives related to Design/Build/Finance Photovoltaic Projects

Energy Meetings / Coordination:

- Facilitate and Attend the Energy Oversight Committee and Energy Adhoc Committee review of potential and existing District Wide Energy Efficiency Projects
- Coordinate with Shared Governance Committees and College Facilities and Administration Officials
- Coordinate and provide reports as necessary with Department of Energy (DOE), Environmental Protection Agency (EPA), Energy Information Administration (EIA), California Community Colleges and Investor Owned Utilities Statewide Energy Efficiency Partnership (CCC-IOU), California Center for Sustainable

Energy (CCSE), California Air Resources Board (CARB), California Public Utilities Commission (CPUC), California Energy Commission (CEC), and South Coast Air Quality Management District (SCAQMD) as necessary

PMO Energy Management:

- Provide Management and/or oversight of all Renewable Energy and Demand Side Management Projects
- Provide Management and/or oversight of Measurement & Demand Response Program
- Provide Program Management and/or oversight of all Central Utility Plant Optimization
- Assist with the formulation and updating of Energy Optimization Plans (EOP's) for each college.
- Evaluate new technology for implementation in EOP's
- Oversight and monitoring of college energy profile & Analyze baseline college demand profile
- Determine Time-Of-Use (TOU) demand for energy required to undertake normal day-to-day college operations
- Monitor energy initiatives including the metering and data-logging of energy supply to each building
- Review historical data in the form of Utility bills, population registries and weather data to formulate a correlation between outside air and cooling to determine what, if any, adjustments should be made to the theoretical baseline demands
- Recommend to the District what potential projects can be implemented to optimize existing energy demands by implementing various shifting, shedding and shaving protocols
- Analyze campus Building Automation Systems (BAS) and their interconnection with a centralized Energy Management Systems (EMS) for energy efficiencies
- Provide project support services as needed

3.3 Regional Program Liaison (RPL)

The LACCD Regional Program Liaison (RPL) is responsible for:

- Coordinate with EPL and CPM's to ensure that knowledge is being transferred to all appropriate parties.
- Oversight and Quality Assurance with the CPM and EPL after contract award

3.4 Regional Design Liaison (RDL)

The LACCD Regional Design Liaison (RDL) is responsible for:

- Oversee compliance of design standards and procedures
- Participate in Design Management sub-process, or incorporation of standards and policies into the drawings

4.0 Procedure

4.1 Identifying Energy Related Projects

Both the **RPL** and each **CPM** shall notify the PMO Energy Team for their college upon identifying an energy related project. Upon doing so, they should arrange to discuss the design and construction process with the PMO Energy Team. Among factors that should be discussed include the following:

- PV / Solar Panel Systems
- Demand Side Management (DSM) Scope
- Energy Efficiency Scope
- MicroTurbine (MT) Systems
- Solar Thermal System
- Thermal Energy Storage (TES) Systems
- Energy Models

4.2 New Construction Projects

The Board of Trustees has established that any new building project over 7,500 square feet shall have 10% of the total anticipated energy demand for the building in Renewable Energy systems. Some colleges have elected to use the carport PV structures to offset the 10% mandate. If a new PV system is anticipated to be installed, the PMO Energy Team must be notified during the design process for coordination with the Utility Service Provider (USP) and modification to the college's Interconnection Agreement. It is recommended that the college not exceed 1 MW AC as this will initiate USP upgrade requirements that are cost prohibitive.

4.3 Demand Side Management (DSM) Projects

The District has performed a prequalification for Energy Savings Companies (ESCO's). The ESCO's selected by each college performed a preliminary Investment Grade Audit (IGA) on the college under the direction of the CPM's. Some colleges elected to proceed with a DSM Project based upon a selection of Energy Cost Measures suggested by the ESCO's. The PMO Energy Team must be notified during the design

process for coordination with the Utility Service Provider (USP) and updating to the college's single line diagram and EMS.

4.4 Measurement & Demand Response (M&DR) Projects

Under the Management of the PMO Energy Team, the M&DR project is to address the District's Peak Demand costs from Southern California Edison and the Los Angeles Department of Water and Power. The installation of a sub-metering system and demand response system at each of the District's nine (9) college campus buildings, as prescribed by the Request for Proposals (RFP), will allow LACCD to accurately track the expenditure of energy on a per building / per campus basis; assess the collected data in order to eradicate inefficiencies; mitigate the peak demand utility charges at each of the colleges; and plan for future consumption. With this data, the District seeks to improve college buildings' energy performance with the lowest possible impact to the environment

4.5 MicroTurbine (MT) Projects

Should the college elect to install a MicroTurbine system on the campus, the PMO Energy Team must be notified during the design process for coordination of energy standards, Utility Service Provider (USP), and updating to the college's single line diagram and EMS.

4.6 Solar Thermal Projects

Should the college elect to install a Solar Thermal system on the campus, the PMO Energy Team must be notified during the design process for coordination of energy standards, Utility Service Provider (USP), and updating to the college's EMS.

4.7 Thermal Energy Storage (TES) System Projects

Should the college elect to install a Thermal Energy Storage system on the campus, the PMO Energy Team must be notified during the design process for coordination of energy standards, Utility Service Provider (USP), and updating to the college's EMS.

4.8 Gas Related Projects

Should the college elect to implement a Gas savings project on the campus, the PMO Energy Team must be notified during the design process for coordination of energy standards, Utility Service Provider (USP), and updating to the college's EMS.

4.9 Water Related Projects

Should the college elect to implement a water savings project on the campus, the PMO Energy Team must be notified during the design process for coordination of energy standards, Utility Service Provider (USP), and updating to the college's EMS.

4.10 Central Utility Plant Projects

Should the college elect to implement a central utility plant project on the campus, the PMO Energy Team must be notified during the design process for coordination of energy standards, Utility Service Provider (USP), and updating to the college's EMS.

5.0 Terms and Definitions

EOP – Energy Optimization Program

PMO – Program Management Office

RPL – Regional Program Liaison

TOU – Time Of Use Demand

BAS – Building Automation Systems

EMS – Energy Management Systems

PV – Photovoltaic

DSM – Demand Side Management

MT – MicroTurbine Systems

TES – Thermal Energy Storage

USP – Utility Service Provider

IGA – Investment Grade Audit

CSI – California Solar Initiative

LADWP – Los Angeles Department of Water and Power

SCE – Southern California Edison

SCG – SoCal Gas Company

DOE – Department of Energy

EPA – Environmental Protection Agency

EIA – Energy Information Administration

CCC-IOU – California Community Colleges and Investor Owned Utilities Statewide
Energy Efficiency Partnership

CCSE – California Center for Sustainable Energy

CARB – California Air Resources Board

CPUC – California Public Utilities Commission

CEC – California Energy Commission

SCAQMD – South Coast Air Quality Management District

6.0 Approvals

| | |
|--|-------|
| Prepared By: Functional Lead – Daynard Tullis | Date: |
| Reviewed By: Quality Manager – Kathleen Copus | Date: |
| Approved By: Program Director – Terri Mestas | Date: |

7.0 Revision History

This page is a record of all revisions to this implementing procedure. Each time the procedure is changed, the nature of this change is noted under the description and/or by revision lines in the procedure.

Comments to the SOPs and associated forms and documents are welcome, and should be emailed to procedures-comments@build-laccd.org. You must include the following in the body of your email:

- Your Name/Firm/Contact Telephone Number
- SOP Volume
- Section Name and Number
- Sub-section
- Description of Concern/Comment
- Reason/Suggested Resolution

Procedure revision requests will be reviewed and responded to on an ongoing basis.

| Revision | Effective Date | Pages Revised | Description | Type of Revision (Editorial/ Technical) | Update Required Reading? |
|----------|----------------|---------------|----------------|---|--------------------------|
| 0 | 10-15-2013 | All | Original Issue | Initial Issue | Yes |
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8.0 Records

- None

9.0 Attachments

| Attachment Number | Title | Attachment Identifier |
|-------------------|-------|-----------------------|
| None | | |
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