**Midwest Collaborative for Adaptive Lighting (M-CAL)**

*Advancing the application of adaptive energy efficient lighting in universities across the Midwest*

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**Goal:** To achieve a 50% reduction in exterior-lighting energy use, while also improving security and maintenance characteristics, through widespread installation of adaptive lighting systems on participating campuses.

**Strategy:** Establish a collaborative effort that encourages, through shared experience, the wide application of adaptive lighting. Each university will begin with a year-long pilot project, and will share information with the consortium to develop a common knowledge base of technological specifications, as well as expected energy use reduction and other outcomes for each application.

* + - Develop unified specifications for each application
      * Different specifications for each type of application (e.g. parking garage, outdoor parking lot, walk way, etc.) will be developed and shared with the consortium.
      * University of California, Davis will assist with development of specifications.
    - Develop a common testing program
      * Measurement and assessment of pilots will be based on conducting a pre-retrofit study of existing connected power and energy patterns using small light loggers deployed across a site or data from existing sub-metering. Data from these will be used to establish a baseline. Light loggers will then be used post-retrofit to assess lighting use patterns for comparison and energy saving projections.
        + Establish common baseline assessment

Identify source and systems

Identify connected load

Identify typical use patterns with light loggers

Estimate current energy use or use metered data

* + - * + Measurement & Verification (post-retrofit)

Occupancy measurement protocol using event recorders

Methodology for comparison

Reporting process

* + - Develop group purchases when possible
    - Establish a secured web page for developing draft specifications, shared information, calendar of events, manufacturers, and to link results and reporting projects
    - Establish quarterly progress meetings

**Benefits:**

* Common intelligence will help build a more informed specification
  + - Potential to minimize costs on commonly purchased materials
    - Greater insight into new technologies, less trial and error
* Reduce energy use and greenhouse gas emissions across universities in the Midwest