



LIGHTING ACTIVITY WORKBOOK – PHASE II

PREPARED FOR PACIFIC GAS AND ELECTRIC
COMPANY, SOUTHERN CALIFORNIA EDISON, AND
SAN DIEGO GAS & ELECTRIC

WAYPOINT BUILDING GROUP

Prepared by:
Waypoint Building Group, Inc.
930 Montgomery Street, Suite 210
San Francisco, CA 94133

Prepared For:
Chris Corcoran (chris.corcoran@pge.com), Vireak Ly (vireak.ly@sce.com) and
Michael Nguyen (mnguyen@semprautilities.com)

OCTOBER 31, 2013

Prepared By:

Andres Potes; andrespotes@waypointbuilding.com

Johnathon Fata; johnathonfata@waypointbuilding.com

ACKNOWLEDGEMENTS

The Lighting Activity Workbook, Phase II, included contributions of energy efficiency experts from Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric Company, and Southern California Edison (SCE) as well as other energy efficiency organizations and government agencies. The Lighting Activity Workbook Project Sponsors would like to acknowledge and thank all of the individuals who contributed their time to this effort. The following is a summary of these contributors:

Alton Kwok (San Diego Gas & Electric)
Dario Moreno (SCE)
Amy Kochanowsky (PG&E)
Toan Trinh (San Diego Gas & Electric)
Winsey Kan (PG&E)
Milena Simeonova (PG&E)
Carmelina Sorace (BC Hydro)
Julie Ahner (PG&E)
Joes Smith (Puget Sound Energy)
Jeff Beresini (PG&E)
Linda Sandahl (US Department of Energy)
Taylor Jantz-Sell (US Department of Environmental Protection)
Carolyn Weiner (PG&E)
Stu Tartaglia (PG&E)
Katherine Burgraff (California Lighting Technology Center)
Marissa Barerra (SCE)
Helen Arrick (PG&E)
Dan Mellinger (Efficiency Vermont)
Tina Chan (PG&E)
Megan Erwin (PG&E)
Teren Abear (SCE)
Bonnie Moreno (San Diego Gas & Electric)
Ellery Stahler (San Diego Gas & Electric)
Jake Huttner (SCE)
Caroline Chen (SCE)
Chris Corcoran (PG&E)
Vireak Ly (SCE)
Michael Nguyen (San Diego Gas & Electric)

Contents

| | |
|---|----|
| 1. Executive Summary..... | 5 |
| 2. Background | 6 |
| 2.1 Purpose and Objective | 6 |
| 2.2 Phase I | 6 |
| 2.3 Phase II | 7 |
| 3. Website | 7 |
| 4. Methodology..... | 7 |
| 4.1 Data Reorganization and Consolidation | 7 |
| 4.2 Data Update | 9 |
| 5. Conclusions | 10 |

Figures and Tables

| | |
|---|---|
| Table 1: Phase I Lighting Activity Workbook Format | 9 |
| Table 2: Phase II Lighting Activity Workbook Consolidated Data Format | 9 |

1. Executive Summary

In 2008, the California Public Utilities Commission (CPUC) adopted the California Long Term Energy Efficiency Strategic Plan (Strategic Plan), which outlined a roadmap for California to achieve energy efficiency through the year 2020 and beyond.¹ In 2011, the CPUC updated the Strategic Plan to include a chapter on lighting which set an ambitious goal of reducing lighting energy use by 60-80 percent from the 2010 baseline year by 2020.²

In working to achieve this goal, the Lighting Market Transformation (LMT) Program was created during the 2010-2012 energy efficiency program cycle with the goal of developing and implementing strategies for facilitating accelerated market adoption of more advanced lighting technologies and best practices. In order to support the statewide and LMT goals, the Investor Owned Utilities (IOUs) commissioned Waypoint Building Group (Waypoint) to compile the Lighting Activity Workbook (LAW) in order to catalog the lighting activity efforts under way at the IOUs and eleven other leading efficiency organizations. Phase I of the Lighting Activity Workbook was completed in 2012.

Phase II of the Lighting Activity Workbook involved a reorganization and consolidation of the data along with an update of data. Waypoint worked with the project sponsors to create a methodology to reorganize and consolidate the data from the Phase I workbook into a more concise and user friendly version. This process involved adding additional information categories and consolidating each activity, which previously may have involved multiple rows, into a single row. In addition to the data reorganization and consolidation, Waypoint conducted interviews with key IOU staff and representatives from included efficiency organizations. During these interviews, staff and representatives updated the data for activities collected during Phase I and provided additional activities which commenced after the completion of Phase I.

Finally, based on the interviews and workbook reorganization undertaken in Phase II of the Lighting Activity Workbook, interviews with contributors confirmed that the workbook is a useful tool for IOU and efficiency organization personnel and as such, should be more widely distributed and made available to current contributors and the broader community of IOU or efficiency organizations personnel who may find the data useful. Therefore, the Lighting Activity Workbook has been made publicly available online at www.lightingmarkettransformation.com and www.encyforward.com.

¹ California Public Utilities Commission; California Long Term Energy Efficiency Strategic Plan <http://www.cpuc.ca.gov/NR/ronlyres/D4321448-208C-48F9-9F62-1BBB14A8D717/0/EEStrategicPlan.pdf>

² California Public Utilities Commission; Energy Efficiency Strategic Plan 2011 Update, Pages 95-112 http://www.cpuc.ca.gov/NR/ronlyres/A54B59C2-D571-440D-9477-3363726F573A/0/CAEnergyEfficiencyStrategicPlan_Jan2011.pdf

2. Background

2.1 Purpose and Objective

The purpose of the Lighting Activity Workbook is to provide the California IOUs with a comprehensive catalog of the work that partner energy efficiency organizations are doing to advance the adoption of energy efficient lighting technologies. The Lighting Activity Workbook provides the California IOUs and energy efficiency partner organizations with a resource to reduce duplication of efforts and identify gaps in activities. A key outcome of the project is facilitation of greater coordination and collaboration among the IOUs and energy efficiency partner organizations to accelerate efforts in bringing advanced lighting technologies to market while working to achieve California's 60-80 percent lighting usage reduction target.

2.2 Phase I

In 2012, the California IOUs engaged Waypoint to assemble the Lighting Activity Workbook as a complement to the Lighting Solutions Workbook (LSW). While the Lighting Solutions Workbook provided categorizations of lighting energy savings potential based on California market data, the Lighting Activity Workbook is a compilation of the work the IOUs and key efficiency organizations are doing to advance energy efficient lighting. The Lighting Solutions Workbook and Lighting Activity Workbook serve as complementary resources for program planning.

The Lighting Activity Workbook developed categories based on a thorough literature review of relevant lighting documents identified by the LMT Program, specifically the LSW and LMT 2012 Annual Report. Once the workbook categories were created and approved, an interview guide was developed to capture information on the developed categories for the LAW. Interviews were conducted with the IOUs and eleven other efficiency organizations listed below which were identified by the Project Sponsors:

- Bonneville Power Administration
- British Columbia Hydro
- California Lighting Technology Center
- Efficiency Vermont
- New York State Research and Development Authority
- Northeast Energy Efficiency Partnership
- Northwest Energy Efficiency Alliance
- Pacific Northwest National Laboratory
- Puget Sound Energy
- Sacramento Municipal Utility District
- United States Environmental Protection Agency

The full interview guide, along with the methodology used in Phase I, are available in the Phase I Final Report of the Lighting Activity Workbook which can be found at www.lightingmarkettransformation.com.

Phase I of the Lighting Activity Workbook revealed a great amount of work under way across the IOUs and leading efficiency organizations to advance high performance lighting. Additionally, there was a great deal of enthusiasm among the other non-IOU efficiency organizations to formalize the document into a format that can be maintained and updated over time.

2.3 Phase II

Following the completion of Phase I of the Lighting Activity Workbook, the Project Sponsors wanted the data updated, and the workbook restructured to make it more consolidated and usable. The IOUs again engaged Waypoint to conduct this update in 2013.

As part of the project, an improved data organization methodology was developed which allowed for improved categorization and search of the data. The full methodology for reorganizing the data can be found in the Methodology section below.

The final step of the project involved outreach and interviews with personnel from the IOUs and leading efficiency organizations to refresh the data which included updating activities from Phase I if the effort was modified, removing the activity if it was no longer active, or adding new activities that commenced after the completion of Phase I.

3. Website

The Lighting Activity Workbook is accessible online through two public websites. The site www.lightingmarkettransformation.com hosts the workbook along with other Lighting Market Transformation reports and materials. Additionally, the website www.encyforward.com was created specifically to host the Lighting Activity Workbook data. This website provides a multi-faceted search function which allows users to search for lighting activities based on keywords in all or various fields. The search results can then be filtered by activity category, lead organization, sector, sub-sector, interior/exterior, and application. In addition to the activity search feature, www.encyforward.com hosts an activity submission tool which allows non-partner organizations to submit their lighting activities for inclusion into the lighting activity workbook. All submissions must be verified and added to the workbook by Waypoint and are not automatically included.

The purpose of the website is to increase accessibility to publicly available data. The websites and the data contained within the websites are intended to be illustrative and not representative of all data nationwide. Waypoint created and maintains www.encyforward.com in support of the IOUs' Lighting Market Transformation Program.

4. Methodology

4.1 Data Reorganization and Consolidation

During Phase I of the Lighting Activity Workbook, the original workbook categories were developed primarily through a literature review of relevant documents identified by the Lighting Market Transformation Program. In order to consolidate the data within the workbook and reorganize it for greater accessibility, Waypoint worked with the Project Sponsors to determine how data categories should be modified or added. The result was the addition of an interior/exterior category and the modification of the sector, sub-sector, and application categories. All other categories listed below remained unchanged (a full description of these categories can be found in the Phase 1 Final Report):

- Lead Organization
- Activity Name
- Activity Category
- Sub-sector
- Application
- New Product / Service
- Legacy Product / Service
- Program / Study / Campaign Launch
- Program / Study Expected Completion Date
- Funding
- Brief Description / Purpose
- Partners
- Website

Activity category represents a key information element used by the Project Sponsors for planning purposes. Full descriptions of this category can be found below.

Activity Category Definitions:

- Emerging Technologies – Demonstrating innovative lighting technology that promise significant savings potential
- Innovative Pilot – Testing innovative market deployment approaches
- Education and Training – Information developed to inform consumers about a technology or training offered to help residential/commercial customers and trade professionals understand and implement technologies or best operational practices
- Marketing – Approaches to influencing customers’ purchasing behavior and driving customer awareness of efficient lighting solutions
- Evaluation, Measurement and Verification – Work to assess an activity’s impact
- Workpaper Development – Business cases developed by the IOUs to justify energy savings claims for deemed (set dollar amount) incentives
- Codes and Standards – Work completed to influence local, state or federal standards to raise the baseline energy performance of a technology or building type
- Market Transformation – Activities driving the market toward sustainable adoption of energy efficient lighting solutions whereby program interventions, such as incentives, are no longer necessary
- Incentive Program – Efforts that offer financial incentives for the adoption of specific technologies

The addition of the interior/exterior category and modification to the sector, sub-sector, and application categories are detailed below:

- Interior/Exterior: Description of the focus of the lighting activity. For activities which address both interior and exterior, the designation “all” is used.
- Sector: High level description of whether an activity is focused on residential, non-residential, or both. The sector category no longer includes information about interior or exterior.

- Sub-sector and Application: Removed the interior/exterior option for residential and moved it to the newly created interior/exterior category. De-coupled sub-sector and application so that those values are now independent of one another.

To consolidate the data so that each activity’s information was contained within a single row, the interior/exterior category was added and the sector, sub-sector, and application categories were modified as described above.

An example of the data re-organization and consolidation can be seen in tables 1 and 2 below illustrating the difference in format between Phase I and II of the workbook.

| Activity Name | Activity Category | Sector | Sub Sector | Application |
|----------------------------|------------------------|-------------------------|---------------------------|---|
| Adaptive Lighting Symposia | Education and Training | Nonresidential Interior | Common to all Sub-Sectors | General Lighting |
| | Education and Training | Nonresidential Exterior | Area Lighting | Outdoor Parking Lighting (Pole Mounted) |
| | Education and Training | Nonresidential Exterior | Area Lighting | Perimeter (Wall Packs) |

Table 1: Phase I Lighting Activity Workbook Format

| Activity Name | Activity Category | Interior/ Exterior | Sector | Sub Sector | Application |
|----------------------------|------------------------|--------------------|----------------|--|---|
| Adaptive Lighting Symposia | Education and Training | All | Nonresidential | Common to all Sub-Sectors, Area Lighting | General Lighting, Outdoor Parking Lighting (Pole Mounted), Perimeter (Wall Packs) |

Table 2: Phase II Lighting Activity Workbook Consolidated Data Format

4.2 Data Update

Upon completion of the data reorganization and consolidation, interviews with contributors were conducted to update the data and ensure that the Lighting Activity Workbook contained the most up-to-date information from the IOUs and leading efficiency organizations. Key staff members from the IOUs

who were responsible for each activity category were interviewed to ensure an updated and comprehensive list of IOU activities.

5. Conclusions

During Phase II of the Lighting Activity Workbook, interviews confirmed the interest and usefulness of the workbook itself as both a tracking and planning tool to improve collaboration and coordination of efforts across energy efficiency partner organizations. Greater dissemination of the Workbook will be useful for future program planning efforts.

Depending on the level of interest in the future, the IOU and partner organizations may choose to coordinate efforts to further streamline the data update and accessibility processes to improve the Lighting Activity Workbook as a collaboration tool across partner organizations.