Relighting California Public Buildings

A statewide training partnership

Michael Siminovitch, UC Davis Rosenfeld Chair in Energy Efficiency

Agenda

12:00 – 1:00 pm **Luncheon**

1:00 – 1:15 pm **Relighting California's Public Buildings: A statewide training partnership**
Michael Siminovitch, Director, CLTC

1:15 – 1:40 pm **California's Energy Efficiency Goals: How training can help us get there**
Randall Winston, Executive Fellow,
Office of Governor Edmund G. Brown, Jr.

Lighting Action Plan, Jeorge Tagnipes, Energy Division, Non-Residential Programs, CPUC
Goals and Best Practices, Wendell Brase, Vice Chancellor for Administrative and Business Services at UC Irvine
Lighting Best Practice Overview, Karl Johnson, Research Coordinator, CIEE
CALCTP: A model for success, Bernie Kotlier, Co-Chair, California Advanced Lighting Controls Training Program (CALCTP)

1:45 – 2:15 pm **Public Buildings: The need for training from the perspective of the leaders of public facilities**

Dan Burgoyne, Sustainability Manager, State of California, Department of General Services
Len Pettis, Chief of Plant, Energy & Utilities at CSU Office of the Chancellor
Dirk Van Ulden, Associate Director at UC Office of the President

Agenda

2:15 – 2:30 pm **Utility Efficiency Centers:**
Reaching public facilities through statewide access to training

Robert Marcial, Director, PG&E Pacific Energy Center
Alan Suleiman, Technology Manager at SMUD
Vireak Ly, Program Manager at Southern California Edison

2:30 – 2:45 **Industry Input: A systems approach**

Alex Boesenberg, Manager of Regulatory Affairs at NEMA

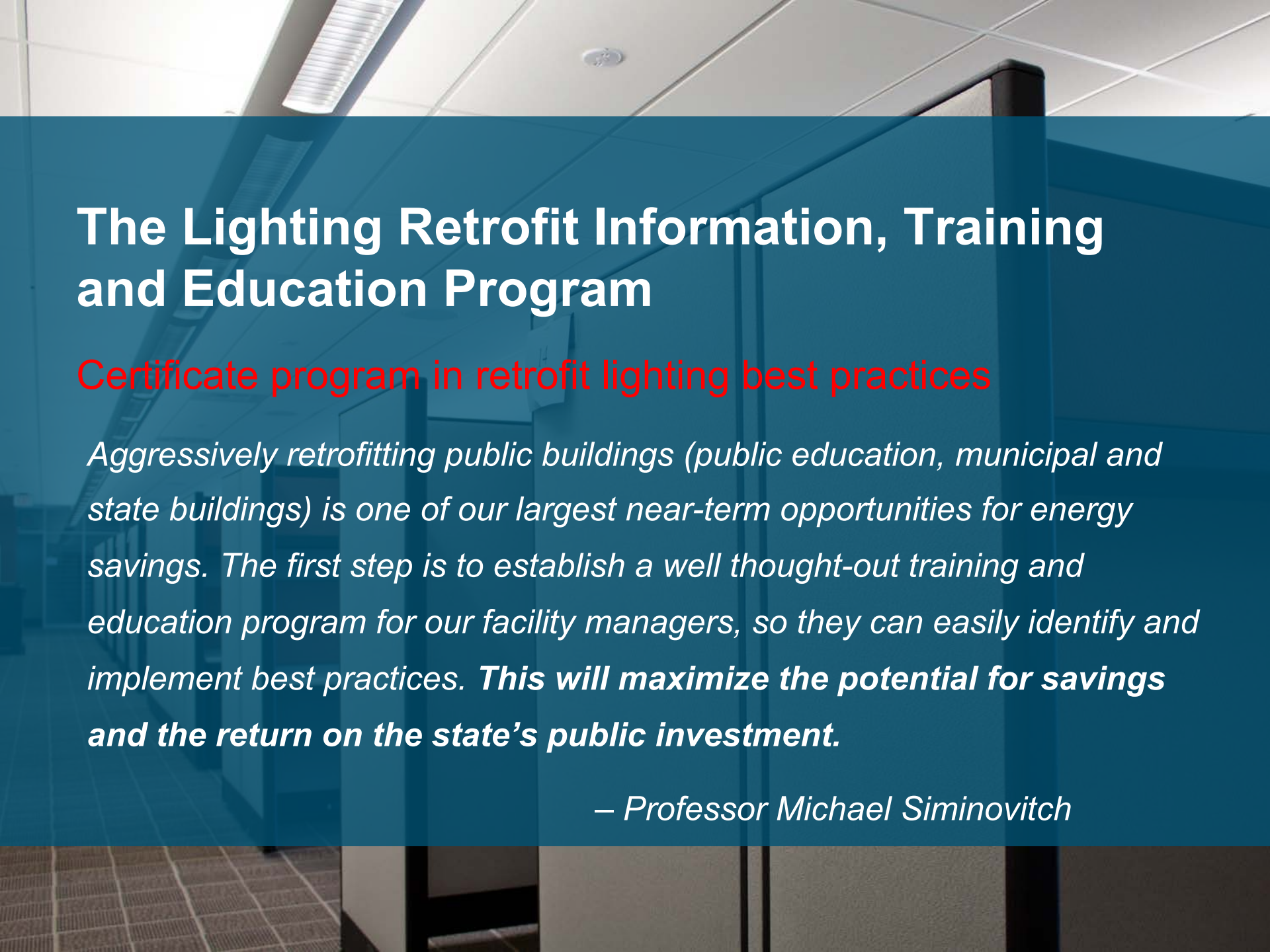
2:35 – 2:45 pm **Break**

2:45 – 3:45 pm **Light-RITE California Program Proposal and Discussion**

Michael Siminovitch, Director, CLTC

- Structure and management
- Certification
- Funding
- Curriculum development
- Training centers and deployment
- Timing and schedule

4:00 – 4:30 pm **Summary and Closing Comments**



The Lighting Retrofit Information, Training and Education Program

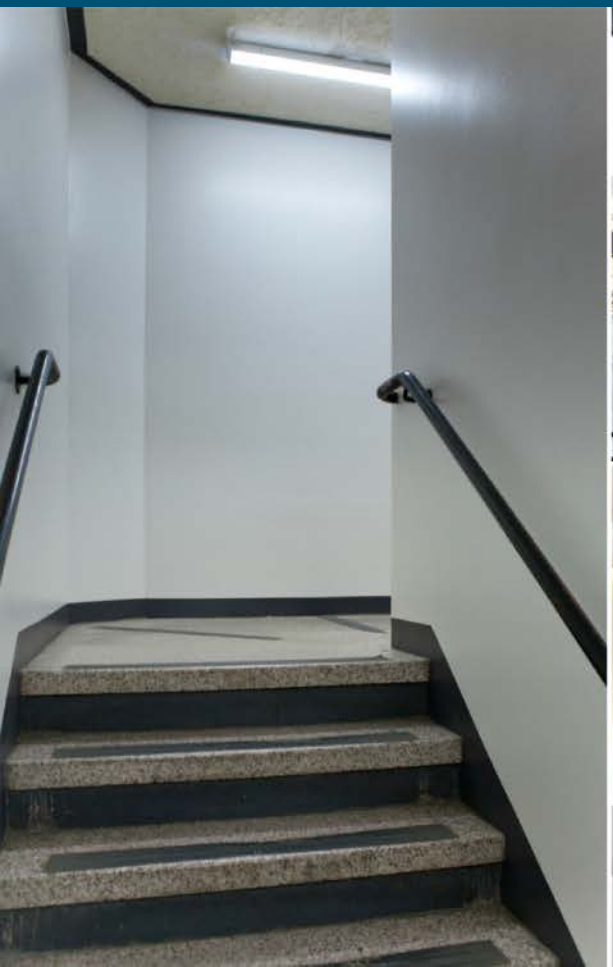
Certificate program in retrofit lighting best practices

Aggressively retrofitting public buildings (public education, municipal and state buildings) is one of our largest near-term opportunities for energy savings. The first step is to establish a well thought-out training and education program for our facility managers, so they can easily identify and implement best practices. ***This will maximize the potential for savings and the return on the state's public investment.***

– Professor Michael Siminovitch

Objective: To develop a statewide California training program for facility managers, project directors,-

A shared vision (SMUD, PG&E, SCE, NEMA, CPUC, CALCTP, UCOP, DGS, CSU, CCC, Finelite, CLTC, Public Schools)



Light-RITE CALIFORNIA

LIGHTING RETROFIT INFORMATION, TRAINING & EDUCATION

A program to improve public buildings

Process: Workshop

- All partners will be heard
- Discuss and build ideas (collective narrative)

Outcomes:

- Establish a beginning consensus on the structure and process
- **Deliver a prototype to the CA utilities in 6 months**

Foundation

- Rapid statewide retrofit of all public buildings
- Large near-term opportunity for energy savings

- Facility managers will need to implement lighting programs quickly and successfully, applying best practices
- We need to rapidly inform and train facility managers on best practices to ensure success, economies of scale and industry partnership

- **Wisely utilize the public investment to ensure maximum savings and long-term effectiveness**

- **Publicly owned and managed best practices training program**

Typical retrofit process

- Taking on large goal
- Proposal development (relighting to meet goal)
- Plan development/management review
- Funding

And/or

- Consultant/ESCO/Contractor
- Plan development/management review
- Funding

Mandate for a certified training program:

Requirement for all public building projects

- All lighting retrofit projects that exceed $100K (possibly $50k) of public funds
- Require/recommend for all public building lighting retrofits

- Eventually integrate into:
  - Utility incentive programs
  - Cal Green
  - Title 24

Source: http://naturalfrequency.com

Light-RITE Program Objectives

- **To ensure that public funds are well spent in achieving long-term savings**
- Ensure best practices to avoid trapped savings
- Address statewide goals

- Unity in action/economies of scale/group purchasing
- Transform the market through collective action
- Communicate needs to the industry

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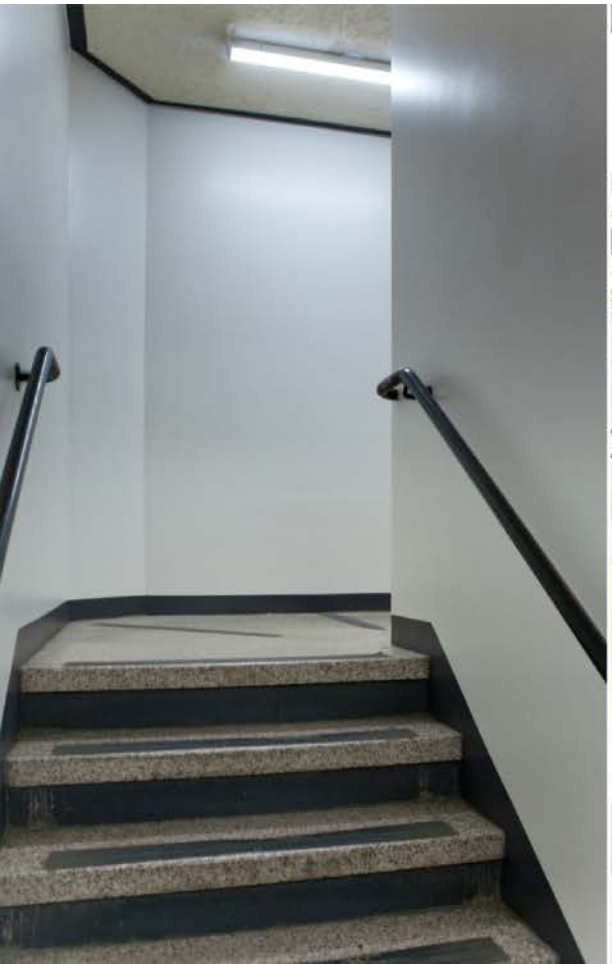
speakers

Strawman

Who? What? How? When?



Light-RITE CALIFORNIA

LIGHTING RETROFIT INFORMATION, TRAINING & EDUCATION

A program to improve public buildings

Light-RITE California:

The Lighting Retrofit Information, Training and Education Program

Who?

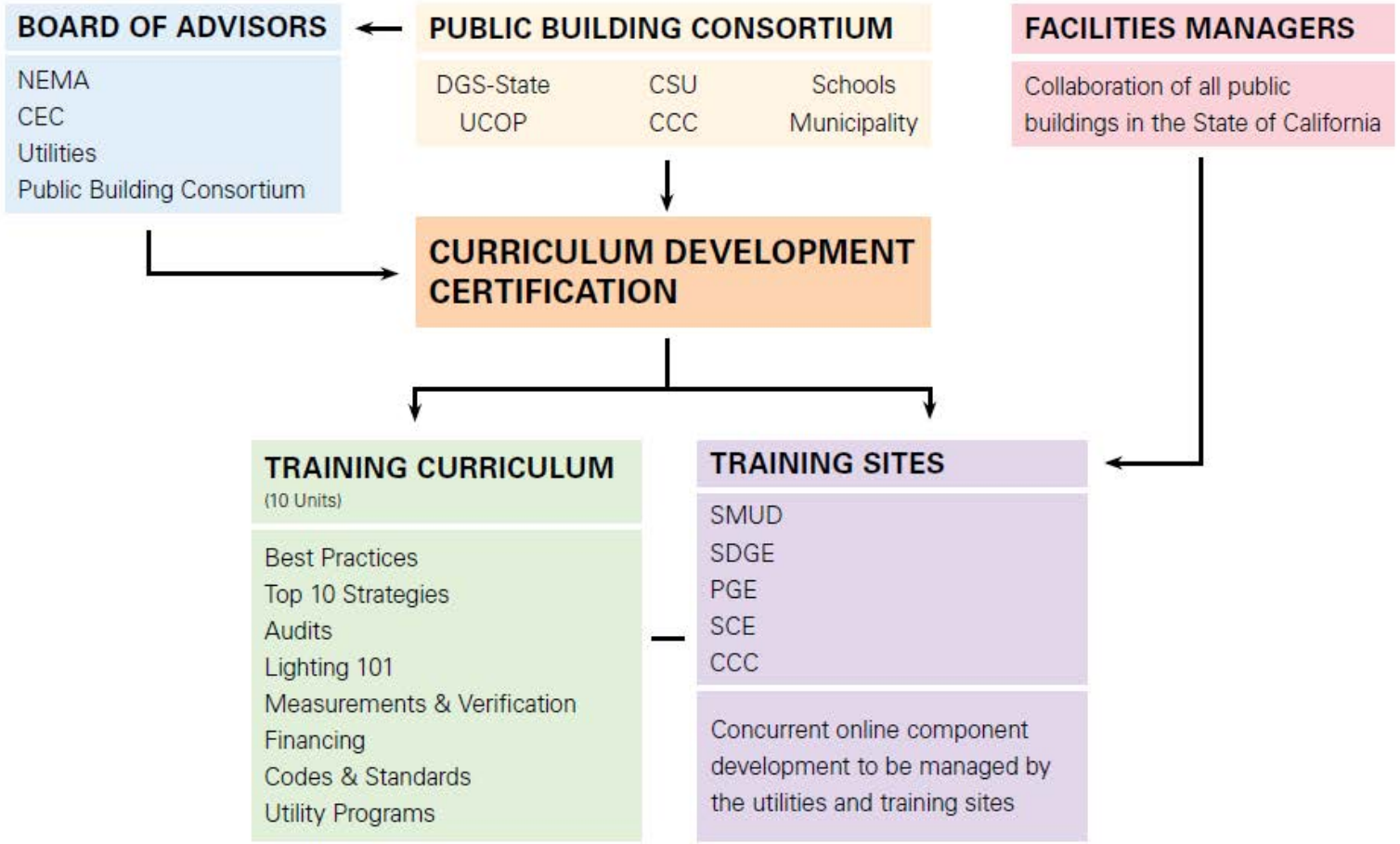
- Facility managers/decision makers/planners responsible for developing and executing retrofit projects

What?

- Knowledge and expertise (standardized curriculum)
  - Best practices/specifications (technologies)
  - Implementation (how to set up a program)
  - Pilot projects/learning-teaching labs
  - Assessment, M&V

How?

- Partnership (UC, CSU, CC, DGS)
- NEMA partnership/ training materials
- Partner with utility energy centers as points of dissemination



Michael Siminovitch – Rosenfeld Chair in Energy Efficiency

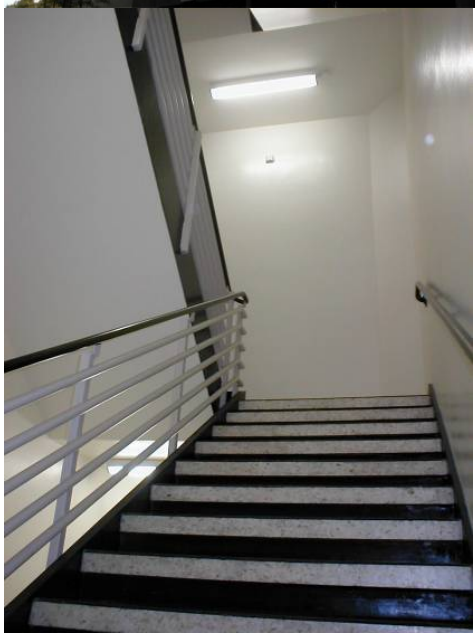
Key audience for training program

Those involved with proposing, leading, and conducting lighting retrofits

- Facility directors
- Facility managers
- Project engineers
- Project managers

Curriculum

1. Best practices
2. Shared experience through case studies
3. Process
   - Contracting
   - Audits
   - Measurement



Curriculum

1. Lighting technology overview
2. Conducting a site or facility audit
3. Best practices: system solutions
4. Evaluating options: prioritization
5. **Case studies and shared data**
6. Contracting and purchasing
7. Measurement and verification methods
8. Codes and standards
9. Utility programs
10. Financing

Curriculum (package options)

1. Best practices summit meeting biannual exchange (case studies)
2. Integrate into other programs (CALCTP, LC, IES)
3. Online components
4. **Recommended/required certificate course (taught at IOU Energy Centers)**

Program support- reaching an audience

1. Alliance of public buildings
2. Establish directive/mandate

Training Recommendations and Requirements for Lighting Projects

For all lighting retrofit or renovation projects it is **strongly recommended** that those involved in developing, proposing, leading, or managing a lighting project at a facility complete the California Lighting Retrofit Training program.*

The certified training program will be a **requirement** for projects that:

- Exceed $50K investment in total material and labor cost

  or

- Require a permit under California's 2013 Title 24 guidelines(and $ size)

Program support

- **Lighting Action Plan:**
  supports best practices and education
- Adds support for utility workforce development and training at the energy centers
- State goals coupled with the Lighting Action Plan may help with EPIC support for long-term funding

Ownership/management

- *CLTC organizer role*
- Publically owned (establish consortium)
- Board oversight (direction)
- Maintenance (ongoing development)
  - Updating best practices
  - Shared data and case studies

Development phases

1. **Concept development**
2. **Workshop**
3. Development of prototype (~ six months)

   UC Davis, NEMA, utilities, Public Building Consortium
4. Refinement
5. Beta testing and train-the-trainers
6. Deployment
7. Maintenance

Prototype

- Initial prototype delivered to each utility energy center
  - 10 unit course
  - Materials, lecturers, slides, notes

- Testing/refinement

Course delivery options

- Utility energy centers
  (primary delivery mechanism)

- Instructors (utility, advisory board)
- Community colleges
- Online component
- UC Davis, UC Irvine, CSU campuses

Course delivery structure-options

- 10 sessions (certification)
- All-day workshop
- 2-day retreat
- Hybrid online/in-person class

Certification

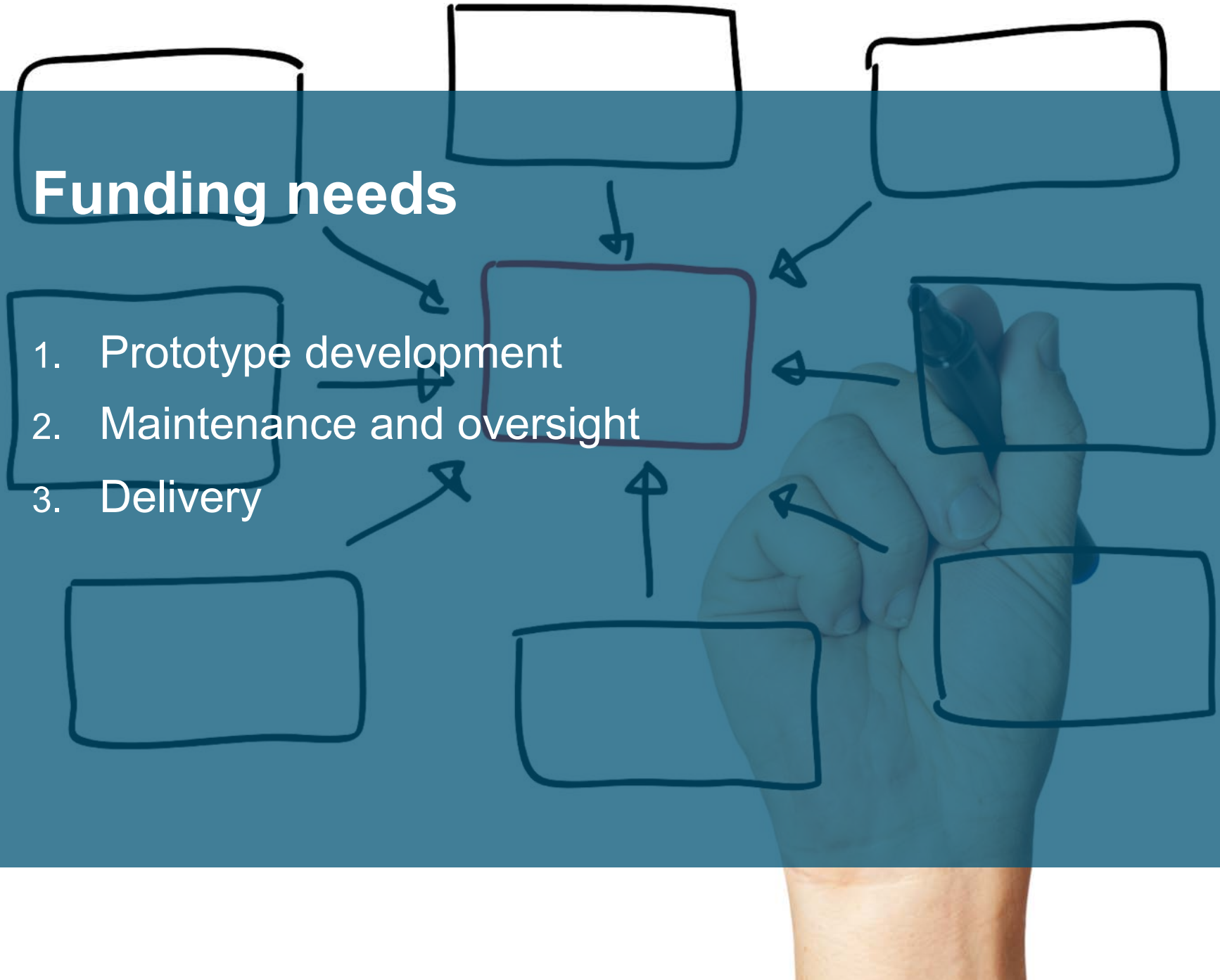
- Content: recognition and oversight by California experts

- 10 unit course (TBD)
- Collective construct/oversight
- Body of knowledge developed and overseen by lighting board of experts:

  UC Davis, UC Irvine, SMUD, SCE, PG&E, NEMA

Funding needs

1. Prototype development
2. Maintenance and oversight
3. Delivery



Funding support: development

- Prototype development
  - Seed funding from each utility (25K)
    - CALCTP model
  - UC Davis Rosenfeld fund
  - Redirected PIER funding

- Long-term maintenance development
  - EPIC proposal (Utility/NEMA/UC Davis)

Funding delivery: two sequential pathways

1. CPUC supported activity via energy center proposals
   - Training efforts align with Lighting Action Plan goals for best practices
2. EPIC funding partnership

Future development

- Privatization (non-public buildings)
- HVAC
- Other?

Tasks and next steps

1. Identify board of advisors
2. Develop pilot with partners
3. Work with utility education partners as points of dissemination
4. Set up funding agreements for pilot development
5. Assemble team for EPIC proposal