California Plug Load Research Center Workshop

The Twelfth Semiannual Workshop on Energy Efficient Plug Loads

April 10, 2018
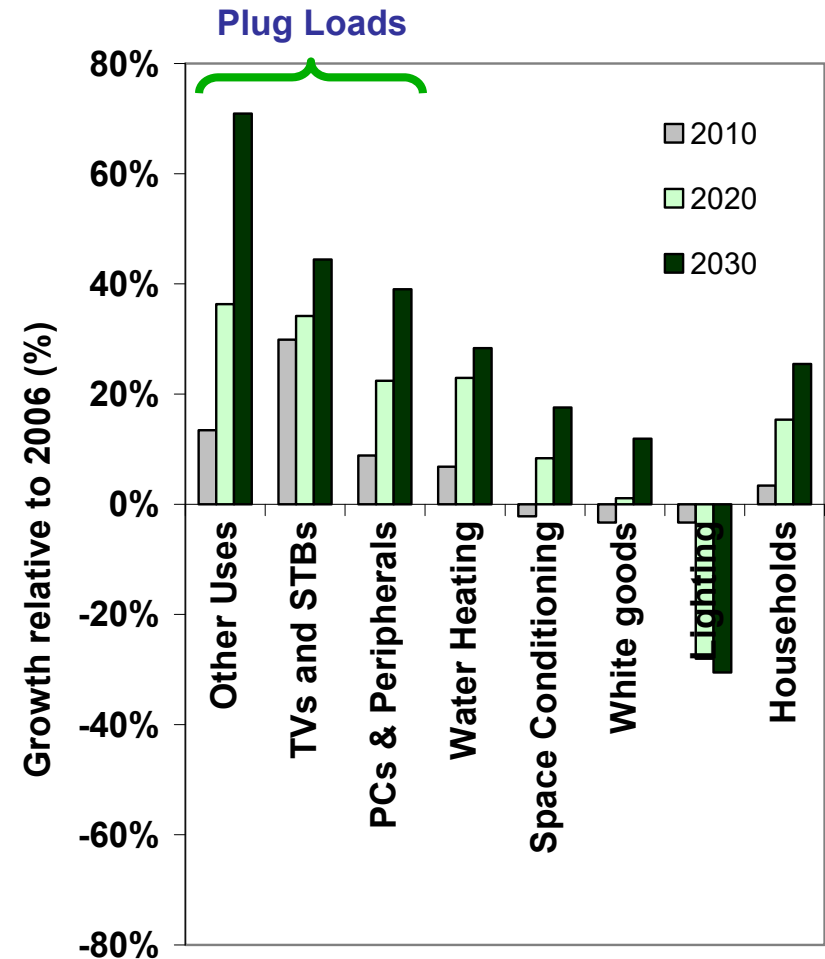
Dr. G. P. Li

California Plug Load Research Center

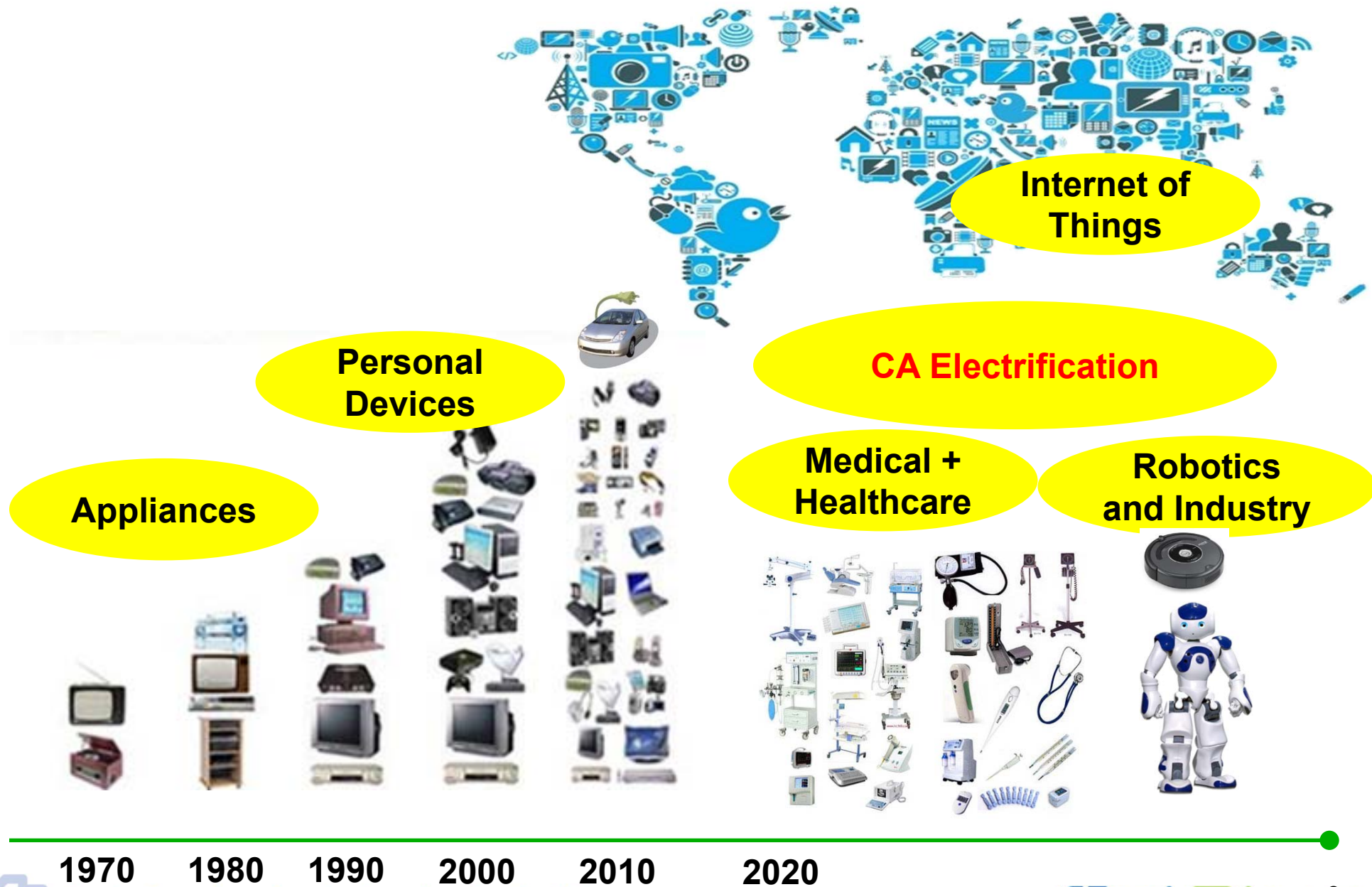California Institute for Telecommunications and Information Technology

Creating Connections. Powering Innovation. Boosting Efficiency.

CalPlug

CALIFORNIA PLUG LOAD RESEARCH CENTER

CalPlug Purpose

- **Help California and U.S. improve energy efficiency in appliances and electronic devices**

- **In the residential and commercial sectors**

- **Through research (basic and applied), demonstration, and education**

- **About engineering, incentives, codes and standards, and user behavior**

Creating Connections. Powering Innovation. Boosting Efficiency.

CalPlug
CALIFORNIA PLUG LOAD RESEARCH CENTER

Residential and Commercial Plug Loads

Internet of Things

CA Electrification

Personal Devices

Medical + Healthcare

Robotics and Industry

Appliances

1970   1980   1990   2000   2010   2020

Creating Connections. Powering Innovation. Boosting Efficiency.

CalPlug

CALIFORNIA PLUG LOAD RESEARCH CENTER

3

Integrating ZNE Building Design with Personal Energy Footprint Management

ENERGY USE
PREDICTED vs. ACTUAL

Electrification Path Leading to More Electrical Plug Loads: Challenges and Opportunities

PREDICTED EUI — ENERGY MODELLER — ENGINEER — ARCHITECT — OWNER — OCCUPANT — ACTUAL EUI
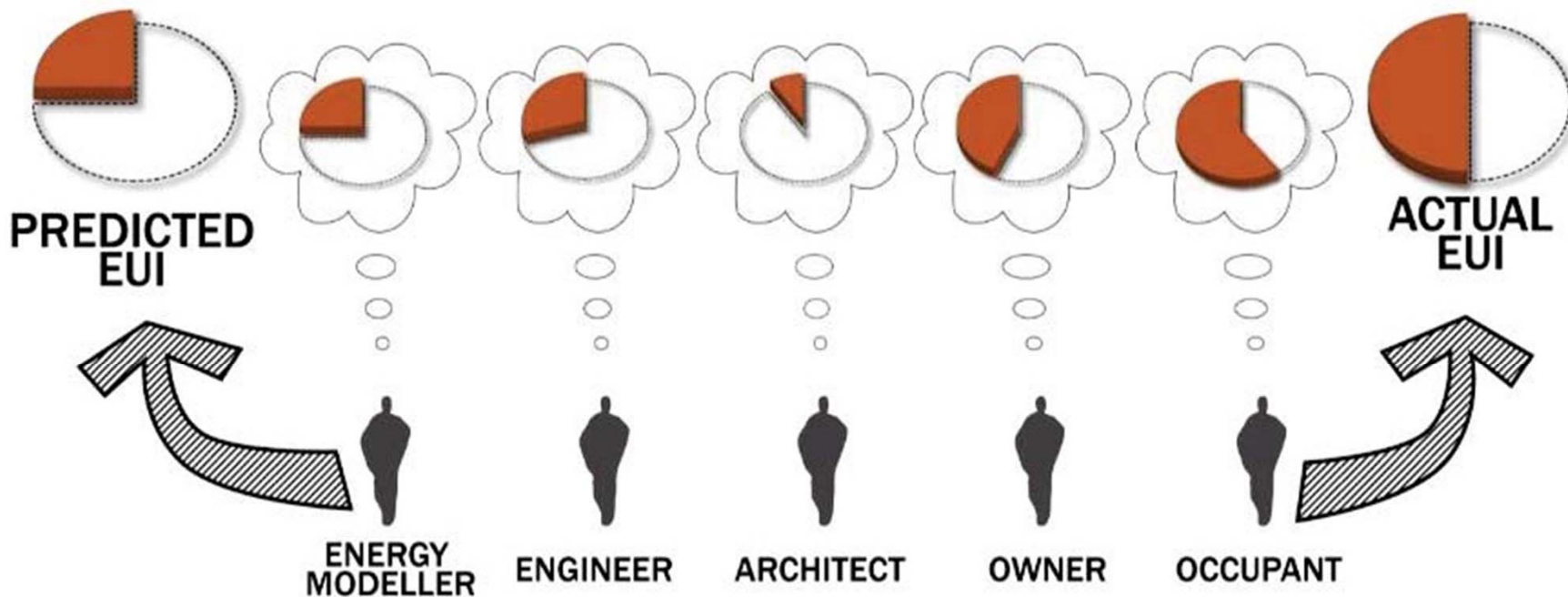
Clark Brockman, AIA LEED Fellow

Principal, SERA Architects

CALIFORNIA PLUG LOAD RESEARCH CENTER

CalPlug Workshop

➢ **Goal:**

To have an open forum for plug loads information exchange and to accelerate their adoption of energy efficiency by all means including innovation in hardware and software, codes and standards, and incentives and rebates

➢ **Anticipated outcome:**

To create an energy efficiency working group for strong collaborations among players including research centers, manufacturers, service/content providers, utilities and government agencies

Creating Connections. Powering Innovation. Boosting Efficiency.

CalPlug

CALIFORNIA PLUG LOAD RESEARCH CENTER

CalPlug Workshop

➤ **Morning session:** Keynote by Prof. Scott Samuelsen, then Progresses on CalPlug projects, and lastly an update on Smart Manufacturing.

➤ **Afternoon sessions** will focus on a contemporary topic of CA Electrification Planning and Activities.

➤ **Afternoon networking reception** including lab demos by students.

Creating Connections. Powering Innovation. Boosting Efficiency.

CalPlug
CALIFORNIA PLUG LOAD RESEARCH CENTER

Acknowledgements

➢ **CTA and its member companies for support and guidance in plug load research and related projects**

➢ **SCE – support for plug loads projects**

➢ **PG&E – support for APS II hosting**

➢ **CEC– EPIC project support**

➢ **CalPlug member companies and sponsors (newest ones: SDGE and Ibis Networks)**

➢ **Speakers, and CalPlug & Calit2 staff and students**

Creating Connections. Powering Innovation. Boosting Efficiency.

CalPlug
CALIFORNIA PLUG LOAD RESEARCH CENTER

We welcome opportunities for collaboration.

Thank you!

CalPlug

CALIFORNIA PLUG LOAD RESEARCH CENTER