



# California's Emerging Technologies Accomplishments – the View from Here

**NASEO Annual Meeting**

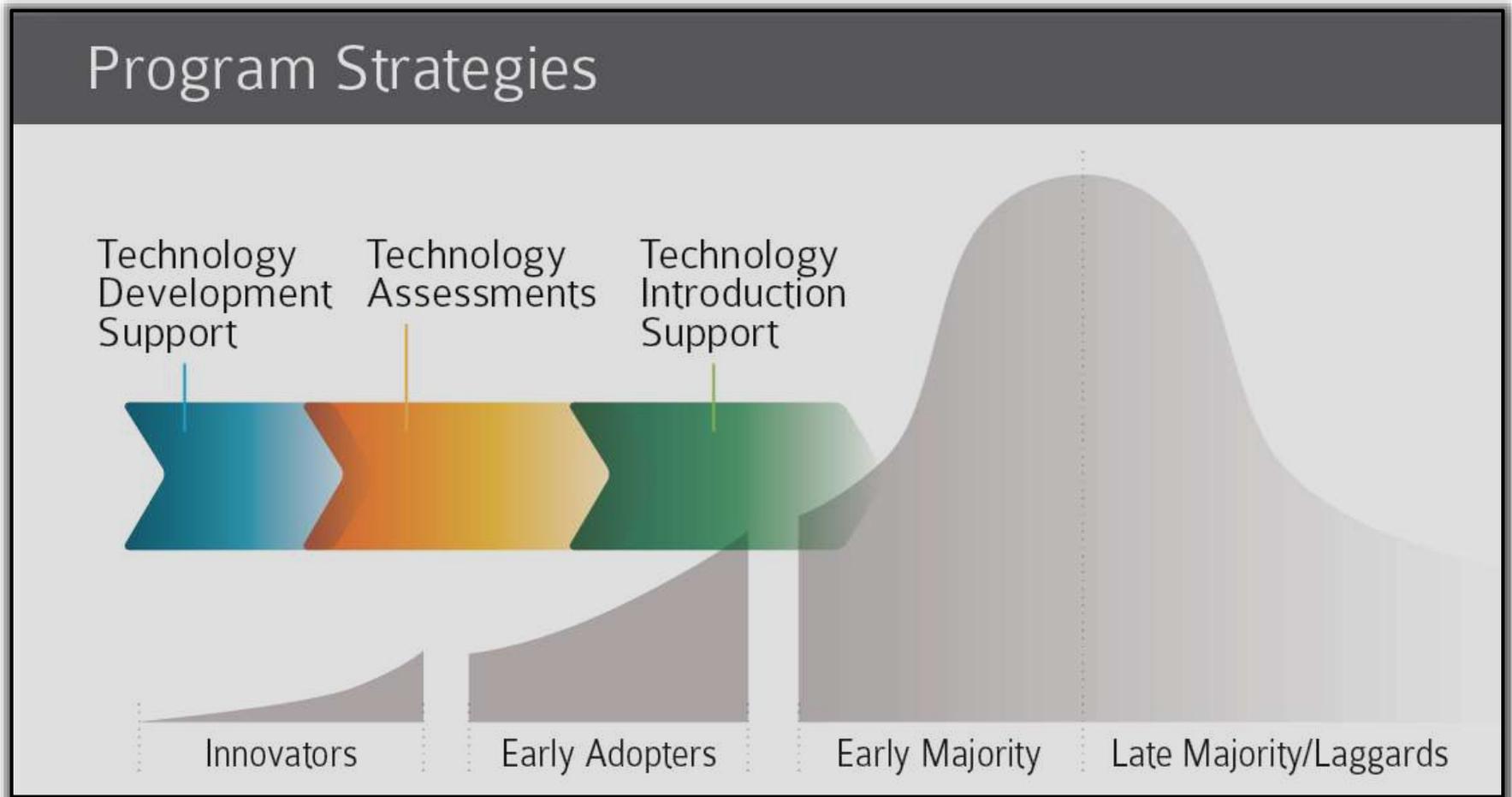
**September 14, 2015**

# Overview



- California statewide ET programs
- ETCC and its role
- Value of ET collaboration and outreach

# Role of California Statewide ET Programs



# California Statewide ET Program Design

## Technology Development Support

- Provide resources to transform early-stage technologies / concepts into saleable products
- Develop forward-looking product specifications
- Provide outreach to early-stage entrepreneurs, investors and analysts (TRIO)

## Technology Assessment

- Evaluate performance claims
- Generate energy and demand savings and cost data required for regulatory approval of new EE measures

## Technology Introduction Support

- Conduct scaled field placements to foster market traction
- Build demonstration showcases to create visibility / market awareness
- Conduct third-party solicitations using competitive bidding (TRIP solicitation)

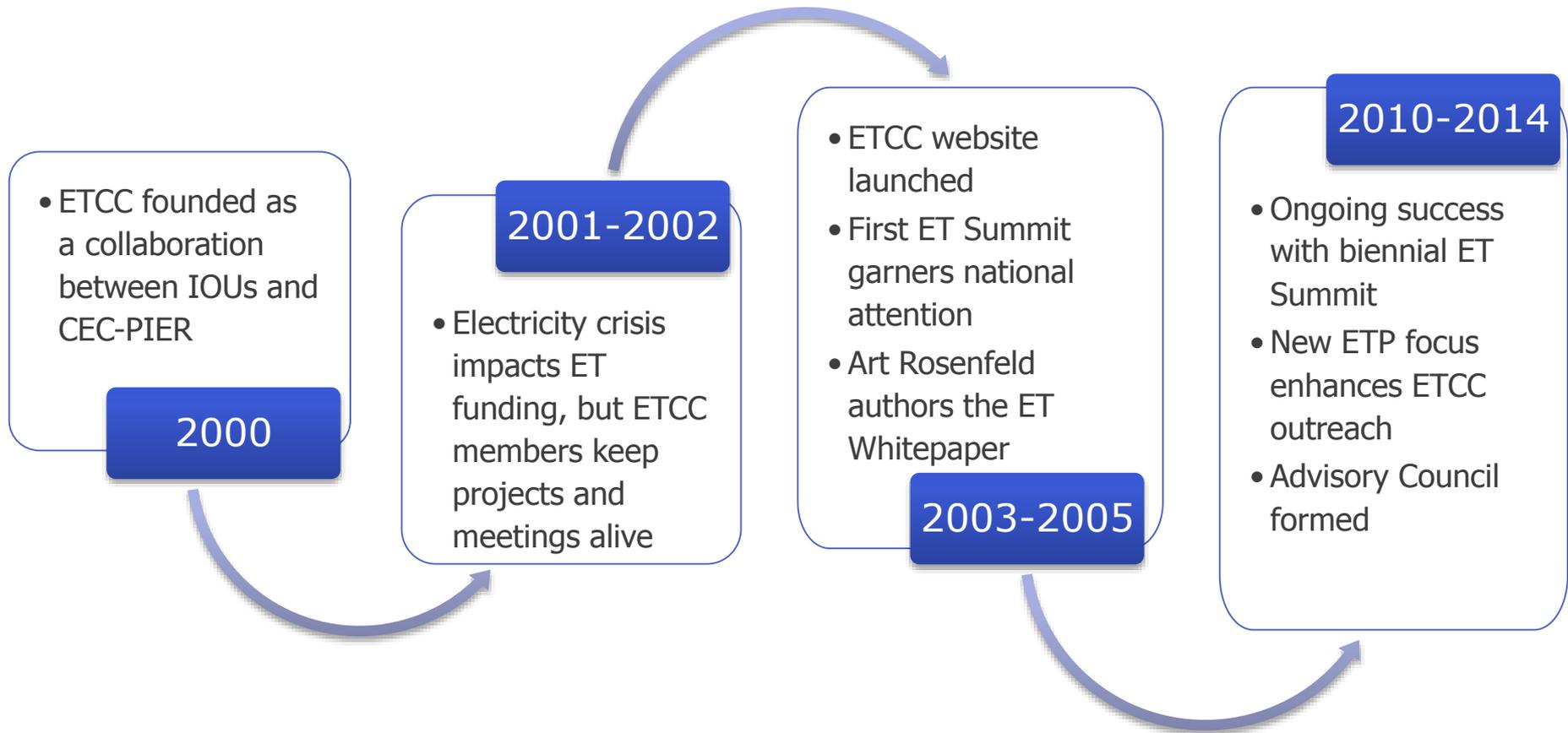
# Emerging Technologies Coordinating Council (ETCC) aligns utility & CEC activities

“The ETCC supports the advancement of energy efficiency and demand response initiatives through its leadership, impact and influence in the emerging technology domain. It pursues this objective through strategic stakeholder engagement and effective and efficient coordination among ETCC members.”

The ETCC members include:



# ETCC enables ET collaboration, outreach and dissemination of findings



# Collaboration drives EE & DR program success

- ETCC member utilities have completed >300 technology assessments and >20 demonstration showcases in the past decade
- California’s ET program initiatives contributed to numerous new energy efficiency program measures, education programs and code and standards requirements.

<b>Technology Family</b>	<b>Representative Solutions Enabled by California ETP and ETCC</b>
<b>Demand Response</b>	AutoDR and Open ADR
<b>Lighting</b>	LED streetlights, Advanced Lighting Controls Training Program; LED high bay fixtures, retail display, refrigerated display case and general lighting
<b>Zero Net Energy</b>	Project monitoring and cross-cutting technologies
<b>Gas Measures</b>	Boiler controllers, tankless hot water heaters, finned cooking pot, mechanical vapor recompression, and ozone laundry

# ETCC collaboration and outreach contribute to market transformation

## **Industry and research collaborations originating from ETCC**

- West Coast Utility Lighting Team
- Western HVAC Performance Alliance – FD&D
- Western Cooling Challenge Partnership

## **ET program development and expansion across North America**

- BC Hydro's Technology Innovation
- Bonneville Power Administration's Energy Efficiency Emerging Technologies program (E3T)
- Nicor Gas' ETP
- Gas Technology Institute's National ETP
- Xcel Energy' Emerging Energy Efficiency Partnerships
- Consortium for Energy Efficiency Utility ET Collaborative
- New York State Energy Research and Development Authority's Emerging Technologies and Accelerated Commercialization (ETAC) program
- Los Angeles Department of Water and Power's ETP



## For more information:

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# ADDITIONAL MATERIAL

# Auto-DR and Open-ADR case study

## OVERVIEW:

- Collaboration between LBNL and ETP (PG&E, SCE and SDG&E)
- Six years worth of RD&D led to successful development of:
  - **AutoDR:** low cost communications infrastructure designed to improve the reliability, repeatability, robustness, and cost-effectiveness of DR in commercial buildings
  - **OpenADR 1.0 and 2.0:** open and interoperable information exchange models used in the Auto-DR signal delivery process

## IMPACT:

- ETP helped expand ADR technologies in California and worldwide
- Increased number of qualified ADR products for utility incentives
- Process evaluation shows 1,119 customers enrolled AutoDR in PG&E, SCE and SDG&E territory (*Opinion Dynamics 2012 data*)

# LED Streetlights case study



**OVERVIEW:** ETP undertook one of the first U.S.-based performance assessments of LED-based streetlights (2007)

## **IMPACT:**

- Performance assessment results widely disseminated and influential
  - One manufacturer developed a new product line that was 34% less expensive and reduced energy consumption by 25% from the previous model, while delivering comparable luminaire performance
  - 20% of city and third-party owned streetlights in PG&E territory have been converted to LED since program began (114,000 out of 560,000 – for a total of 27.8 MWh savings since 2010)
  - PG&E requested CPUC authorization to convert all 180,000 utility-owned streetlights to LEDs
- The success of these groundbreaking ETP studies has encouraged other utilities and municipalities across North America to engage in their own large-scale LED streetlight trials and installation

# Success Factors and Opportunities for Improvement

## Success Factors

- Status as a non-resource program
- Backed by focused, dedicated resources (ensures long-term stability)
- Adaptability and dynamic approach

## Opportunities for Improvement

- Need to respond to constantly changing market and technical conditions
- Perception that ETP is a silver bullet