



California's Commercial ZNE Action Plan UPDATE

Identifying the Best Plan
for the Future



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Energy Policy, Sustainability Planning, Stakeholder engagement, Communications & Facilitation

- New ZNE Residential Action Plan
- ZNE Commercial Action Plan update
- Existing Buildings Energy Efficiency Action Plan
- ARRA Statewide Energy Upgrade California Outreach, Marketing & Communications
- Energy Upgrade California Working Group
- Local Government – Regional Energy Networks Business Planning
- Strategic Plan Statewide IOU Workforce Education & Training



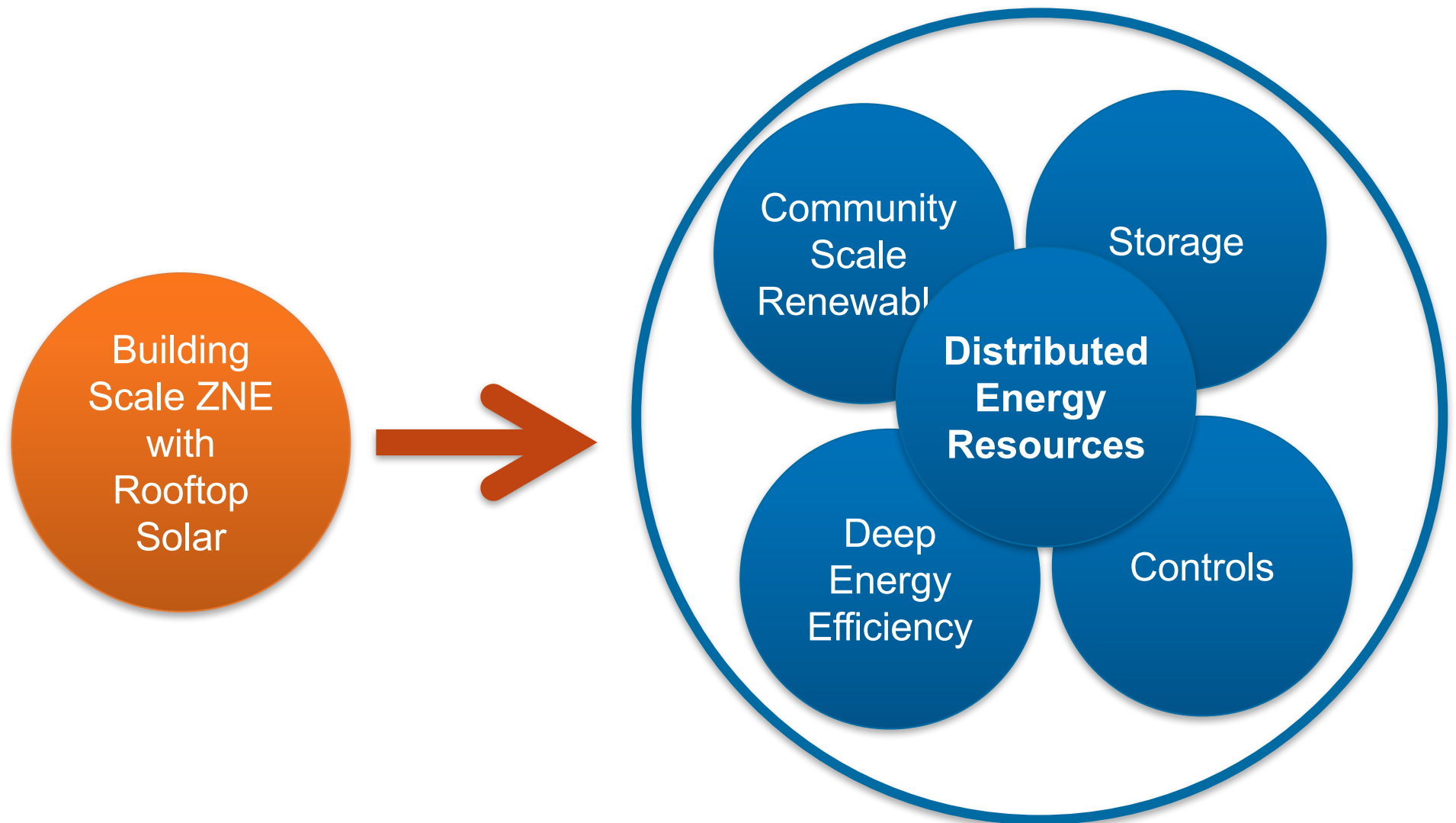
The image shows the exterior of a modern library building. The word "LIBRARY" is prominently displayed in large, white, three-dimensional letters on a dark grey horizontal band above the entrance. To the left of the entrance, the address number "1135" is visible. The building features large glass windows and a dark grey facade. In the foreground, there are several bicycles parked in a designated area. A few people are seen near the entrance. The scene is captured during the day, with some shadows cast on the building's surface.

LIBRARY

Develop a Plan to Align Market with Policy

City of Berkeley ZNE Library

Evolution and Need to Refocus



Update the Goal & Objective

- **Goal:** Beginning in 2030, all new commercial buildings and major renovations of existing buildings achieve zero net energy performance (onsite/offsite renewables) and grid optimization.
- **Objective:** ZNE Buildings and Districts are integrated as key distributed energy resources that reduce carbon emissions, enhance customer experience and create more resilient communities.

Focus on Drivers of ZNE

1. Programs Enable ZNE/ZNE Ready Buildings & Districts



2. Informed Customer Decisions



3 Integrated ZNE Districts



4. Market Capacity & Readiness



5. Targeted Technology R&D



6. Codes & Standards

Develop A Decision Making Tool

- Informed by CPUC, CEC policy goals
 - Grid Friendly/Load Balancing
 - Locational Value
 - Cost Effective
 - Equity for Ratepayers
 - Reduce Transmission
 - Distributed Energy Resources
 - Reliability
- Powered by Customer needs and objectives

Decision Maker Focused

- Who Makes the Decision?
 - Developers
 - Local Governments
 - Property Owners
- Who Helps to Make the Decision?
 - Architects
 - Builders
 - Energy Consultants

Discussion Tool Concept

1. Identify Paths to ZNE
2. Define “Customer” Objectives for Going to ZNE
3. CPUC values Paths
4. Customer Prioritizes Objectives
5. Get 2-3 Options to further Explore
 - *Goal – Better decision making with Customer Choice*

Initial Paths to ZNE

- Building Scale (Onsite Solar Only)
- Building Scale (Solar + Storage Onsite)
- Community Scale Renewables (Solar, wind, biogas et al.)
- Community Solar Plus Storage
- District ZNE/Grid Connected Microgrid
- Islanded Microgrid
- Utility Scale Renewables

Objectives

- Sustainability
- Resiliency
- Carbon Zero/Neutral Development
- Infrastructure Modernization
- Local Energy Supply
- Monetization Of Energy
- Economic Development
- Asset Control/Management
- Ease of Access
- Architecture Flexibility
- Load Management
- Leverage non-building Financing
- Costs

Additional Considerations

- Risk Management
- Land Availability
- Electrification
- Interconnection
- Line Connection
- Stakeholder Buy In
- Renewable System Ownership
- Integration of Electric Vehicles
- Tax Credits Availability
- Incentives/Local Programs
- Environmental Justice
- Certification

Example 1. Sustainability Focused Customer

| ZNE Option | | Building Scale (Solar + Storage Onsite) | | Community Solar Plus Storage | | District ZNE/Grid Connected Microgrid | | Utility Scale Renewables | |
|------------|---------------------------------|---|------------|------------------------------|------------|---------------------------------------|------------|--------------------------|-----------|
| Value | Objective | Value | Score | Value | Score | Value | Score | Value | Score |
| 5 | Sustainability | 4 | 20 | 4 | 20 | 5 | 25 | 3 | 15 |
| 5 | Resiliency | 4 | 20 | 4 | 20 | 5 | 25 | 1 | 5 |
| 5 | Carbon Zero/Neutral Development | 3 | 15 | 4 | 20 | 5 | 25 | 3 | 15 |
| 1 | Infrastructure Modernization | 1 | 1 | 3 | 3 | 5 | 5 | 1 | 1 |
| 2 | Local Energy Supply | 5 | 10 | 5 | 10 | 5 | 10 | 1 | 2 |
| 1 | Monetization of Energy | 3 | 3 | 4 | 4 | 5 | 5 | 1 | 1 |
| 2 | Economic Development | 1 | 2 | 3 | 6 | 5 | 10 | 1 | 2 |
| 1 | Asset Control/Management | 5 | 5 | 2 | 2 | 4 | 4 | 1 | 1 |
| 1 | Ease of Access | 5 | 5 | 3 | 3 | 2 | 2 | 5 | 5 |
| 2 | Architecture Flexibility | 3 | 6 | 5 | 10 | 5 | 10 | 5 | 10 |
| 1 | Load Management | 2 | 2 | 4 | 4 | 5 | 5 | 4 | 4 |
| 2 | Costs | 3 | 6 | 3 | 6 | 2 | 4 | 5 | 10 |
| 3 | Financing Options | 3 | 9 | 2 | 6 | 5 | 15 | 1 | 3 |
| | Score | | 104 | | 114 | | 145 | | 74 |



Example 2. Economic Focused Customer

| ZNE Option | | Building Scale (Solar + Storage Onsite) | | Community Solar Plus Storage | | District ZNE/Grid Connected Microgrid | | Utility Scale Renewables | |
|------------|---------------------------------|---|------------|------------------------------|------------|---------------------------------------|------------|--------------------------|------------|
| Value | Objective | Value | Score | Value | Score | Value | Score | Value | Score |
| 1 | Sustainability | 4 | 4 | 4 | 4 | 5 | 5 | 3 | 3 |
| 3 | Resiliency | 4 | 12 | 4 | 12 | 5 | 15 | 1 | 3 |
| 1 | Carbon Zero/Neutral Development | 3 | 3 | 4 | 4 | 5 | 5 | 3 | 3 |
| 1 | Infrastructure Modernization | 1 | 1 | 3 | 3 | 5 | 5 | 1 | 1 |
| 1 | Local Energy Supply | 5 | 5 | 5 | 5 | 5 | 5 | 1 | 1 |
| 5 | Monetization of Energy | 3 | 15 | 4 | 20 | 5 | 25 | 1 | 5 |
| 2 | Economic Development | 1 | 2 | 3 | 6 | 5 | 10 | 1 | 2 |
| 4 | Asset Control/Management | 5 | 20 | 2 | 8 | 4 | 16 | 1 | 4 |
| 5 | Ease of Access | 5 | 25 | 3 | 15 | 2 | 10 | 5 | 25 |
| 5 | Architecture Flexibility | 3 | 15 | 5 | 25 | 5 | 25 | 5 | 25 |
| 1 | Load Management | 2 | 2 | 4 | 4 | 5 | 5 | 4 | 4 |
| 5 | Costs | 3 | 15 | 3 | 15 | 2 | 10 | 5 | 25 |
| 5 | Financing Options | 3 | 15 | 2 | 10 | 5 | 25 | 1 | 5 |
| | Score | | 134 | | 131 | | 161 | | 106 |



Next Steps

- Test and Discuss Values and Definitions
- Develop and Test Phase 1. Decision Making Tool
- Complete the Commercial Buildings Action Plan
- Coordination with other Agencies
 - Energy Efficiency Collaborative
 - Ongoing Coordination with CEC



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