ZNE and the Utility’s Role

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ZNE and the Utility’s Role

- Balancing Zero
- Sustainable Communities Program – case study
- Challenges
- Utility’s Role
- Key Takeaways

Private and confidential
Balancing Priorities

Owner’s Interests
Design Guidelines
Architectural Styles
Coordinating Project Teams
Construction Timelines
Costs and Marketability
Development and PV Layouts

Conserve Energy

Community-Scale Developments
The Sustainable Communities Program (SCP)

- **About the Program:**
  - Developed by Southern California Edison (SCE)
  - Commercial, residential, mixed-use, and/or multiple building
  - Design and incentive assistance

- **Goals:** Aggressive sustainable design, energy efficiency, water efficiency, daylighting, comfort, and ZNE

- **Benefits:** Funding, early integration/collaboration, constructability and education

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**Project Information**
Path to ZNE

Passive Design → Envelope & Shading → Lighting

Plug Load → Mechanical Equipment → Renewable Energy

Analysis Methodology

Benchmarking → Renewable Energy → Computational Fluid Dynamics

Visual Comfort → Daylighting Simulation → Energy Modeling
Rooftop PV Capacity

Challenges

Is this a regulatory hurdle for commercial PV system applications?

Conventional building practices limit daylighting capability

VS
Challenges

- Due to poor existing building design it becomes a cost and structural barrier when looking at NZE level
- ‘Too hard’ and ‘Too expensive’ mentality

Tenant – Owner Issues for NZE

- Tenants don’t have economic incentive to improve building envelope or systems, they even see this as asset depreciation
- Served by common/shared HVAC system that are not sized for a reduced load
- Façade improvements usually mean $$$

Source: Real Estate Optimizer
Tenant – Owner Issues for NZE

- For DPR’s office in Newport it cost $3,000 per window to switch to natural ventilation.
- VE: 90 operable windows down to 43.

Source: DPR Newport Beach office before renovation
Source: DPR Newport Beach office after renovation

Net Metering Incentive – Capacity Restriction

- CPUC’s Net Metering incentive caps at 1MW
- An incentive for solar, solar thermal, wind, fuel cells and other renewable technologies
- Financial and demand restriction for utilities
- Limits NZE performance for sites (campuses) where 1MW PV capacity is just not enough

Source: ASU campus – 2 MW of the total 10 MW Array
Utility’s Role

- Market demographic - Owner occupied vs Owned and Leased
- Educate the market through emerging technologies and aggressive performance targets
- Better integration of EE and RE programs within utilities
- Local government partnership programs
- Funding solar with utility dollars – utility rules
- Remove barriers associated with net-metering
- Grid integration
- Natural gas

Key Takeaways
**Key Takeaways**

- Education to design teams of ZNE possibilities

- Competing objectives

- Change in ownership

**General Barriers to ZNE:**

- Site Restrictions
- Net Metering
- Existing building stock
- Owner/Tenant

Questions?

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