Community Level Energy Innovation in Davis, California

Milestones on a Road to Sustainable Energy

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Village Homes

Village Homes was designed and built (starting in 1964) on 60 acres in West Davis. The development comprises 220 single family homes, 20 apartments, and an 8-bedroom cooperative house. Most of the buildings incorporate low-impact features such as solar water heating, photovoltaic panels, and passive solar design.

UC Davis West Village

**Energy Initiative
Program Goals**

**Zero Net Energy from the grid
on an annual basis**

**Deep energy conservation
measures**

No higher cost to the developer

No higher cost to the consumer

*Multiple integrated community
scale renewable resources*

Smart grid compatibility

Aerial View

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The Cannery

…. will be one of the most energy efficient new home communities in the country. A 1.5K solar system will come standard with every home, and residents can upgrade to zero energy consumption and zero carbon emissions.

The plan now includes:

- 547 homes,
- a 7.4-acre working urban farm,
- nearly 30 acres of parks and open space,
- a Market Hall anchoring up to 172,000 square feet of commercial space.

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Renewable Ordinance

8.20.030

**Minimum Solar Photovoltaic Requirement
per Dwelling Unit**

Single-Family or Duplex	Minimum System Size
1,000 sq. ft. or less	1.6 kW
1,001 sq. ft. to 1,500 sq. ft.	2.0 kW
1,501 sq. ft. to 2,000 sq. ft.	2.3 kW
2,001 sq. ft. to 2,500 sq. ft.	2.5 kW
2,501 sq. ft. to 3,000 sq. ft.	3.0 kW
More than 3,000 sq. ft.	3.5 kW

% Annual Electricity Offset
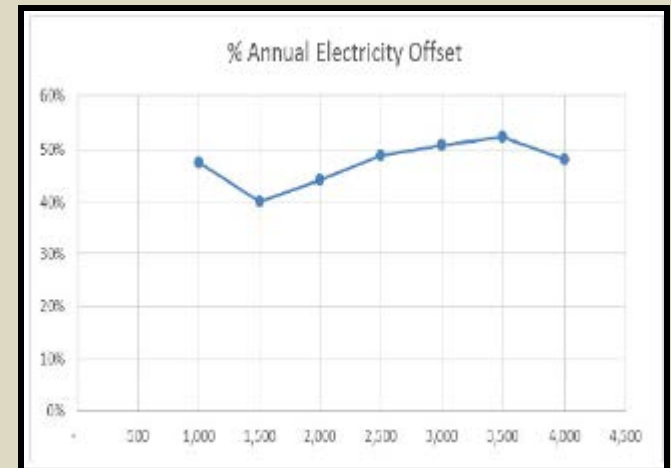
All residential solar systems installed pursuant to this article shall reserve sufficient roof space to accommodate a fifty percent expansion of the required system capacity and shall provide electrical conduit to accommodate any additional wiring. The expansion area shall be shown on the building plans.

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Net Zero Davis

- Scoping study of steps to make the City of Davis a net zero community
  - Sponsor: Valley Climate Action Center
  - Authors: UC Davis study team
- Recommended action steps:
  - Share data with university and initiate a CCA information request
  - Net zero goal for existing buildings
  - Determine high usage neighborhood profiles
  - Solar water heating replacement plan
  - Expand existing solar garden project prior to tax credit expiration
  - Optimization model for renewable energy
  - Transportation survey
  - Exploit energy potential of local area urban/agricultural feedstock streams

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DavisFREE*

- Study tasks:
  - Integrated Renewable Energy Deployment Scenarios
    - Topic of previous webinar
  - Use of City GIS Systems for Energy Planning
  - Local Solar Electricity Sites and Resources
    - **Rooftop and Parking Area Solar Electricity Potential**
    - Assessment of Solar Garden Sites
  - Utility Scale Renewable Energy Opportunities
  - Utility Scale Renewable Energy Supply Curves
  - Net Zero Residential Retrofit Program Design
  - Local Solar Thermal Sites and Resources

*Davis Future Renewable and Energy Efficiency

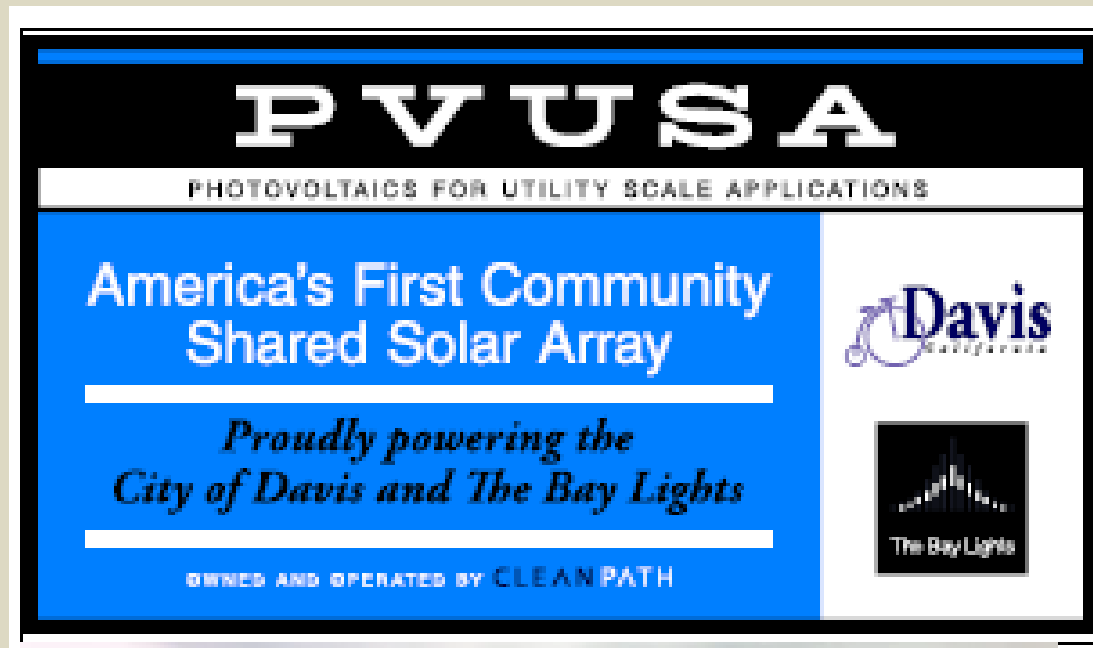**Integrated Resources Network**

PVUSA

The City of Davis and Clean Energy Assets/CleanPath Ventures co-own an 86-acre solar project site just north of the city limits. Originally a system cost reduction research launched in the 1980s, the facility can currently generate up to 1,300 MWh annually. PVUSA now feeds power into the local grid, which is credited to 33 City of Davis accounts.

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SB 43

PVUSA, a so called "shared solar" array was the inspiration for SB 43, the Shared Renewable Energy Self Generation Act sponsored by State Senator Lois Wolk, which created a 600 MW statewide pilot program, to reach the millions of Californians who can't choose on-site solar. SB 43 includes a 20 MW "carve out" for Davis.

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Net Zero Community Integration

- Milestones on the path to net zero at the community level will reflect each community's unique opportunities and experience.
- It's becoming clear that Davis's net zero strategy will need to include:
  - Program to enable net zero building retrofits
  - Net positive on-site solar PV
  - Local shared solar and wind projects
- Lessons from each step must inform the next.

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