

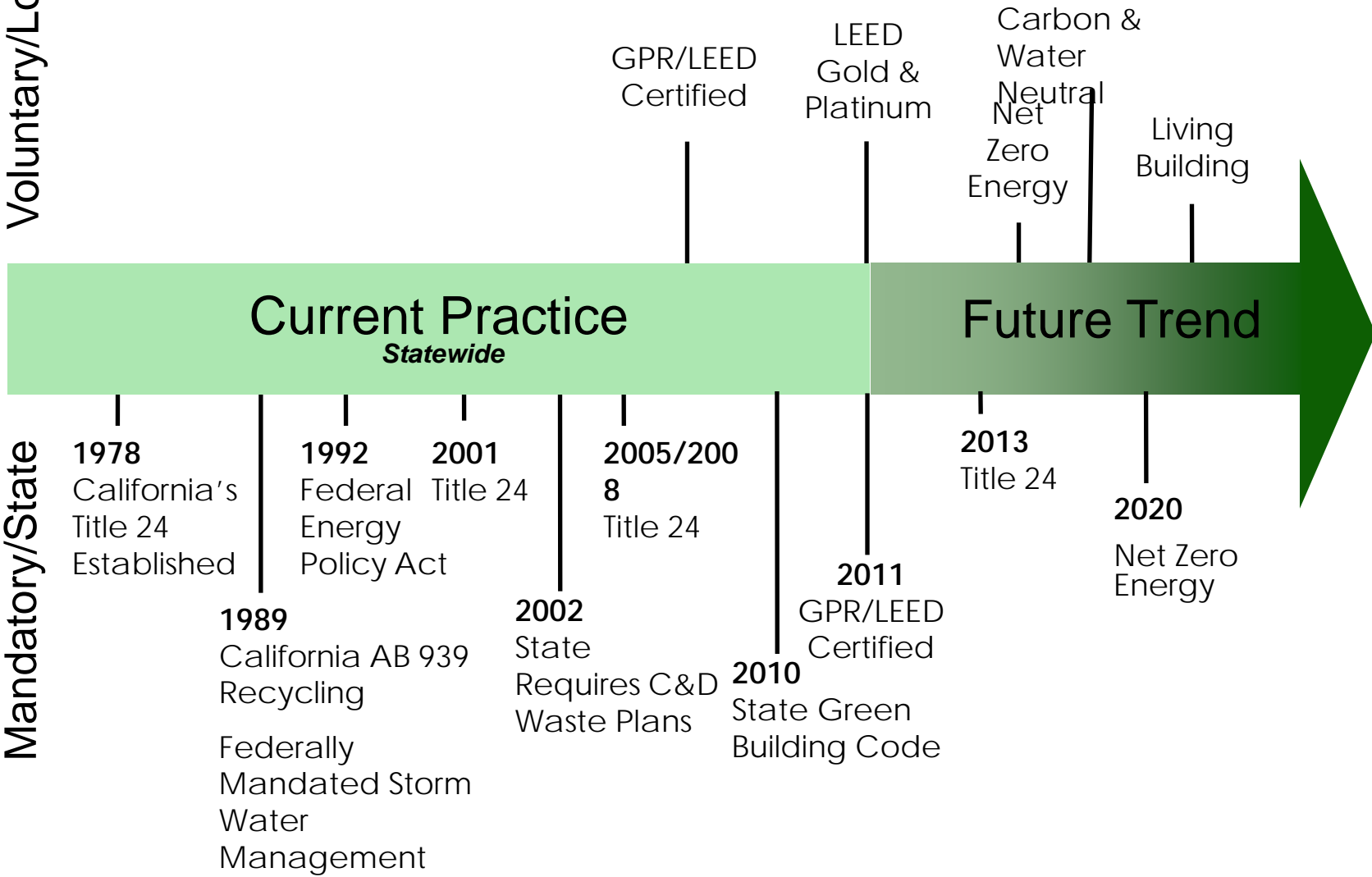
Past and Future of Green Affordable Housing



Trends in Green Building

Voluntary/Local

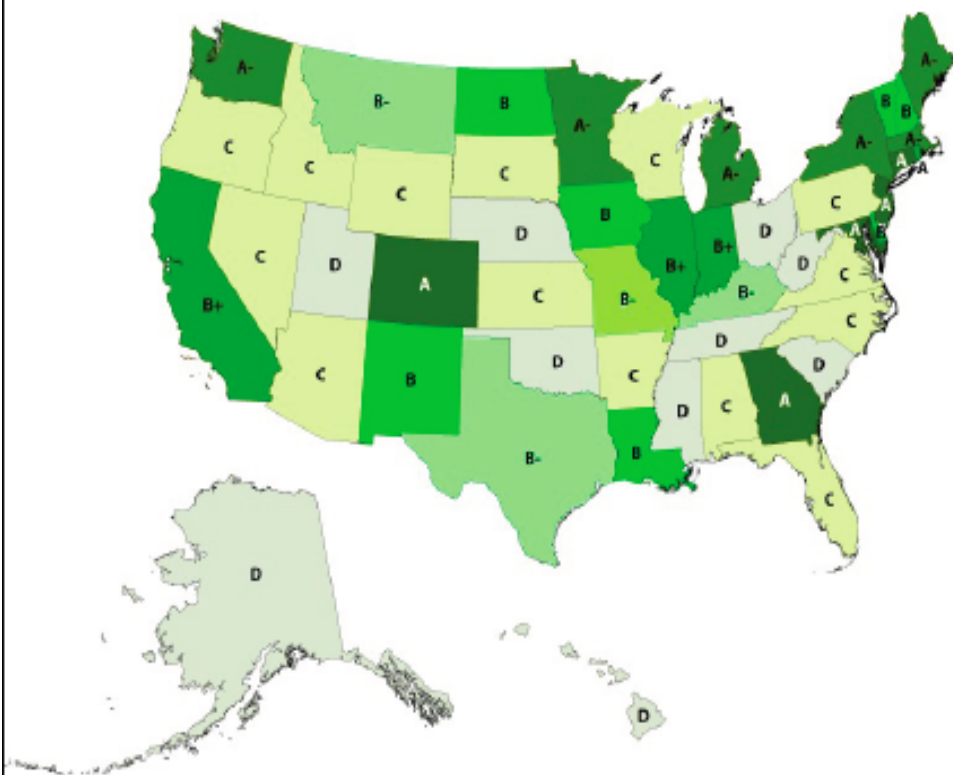
Mandatory/State



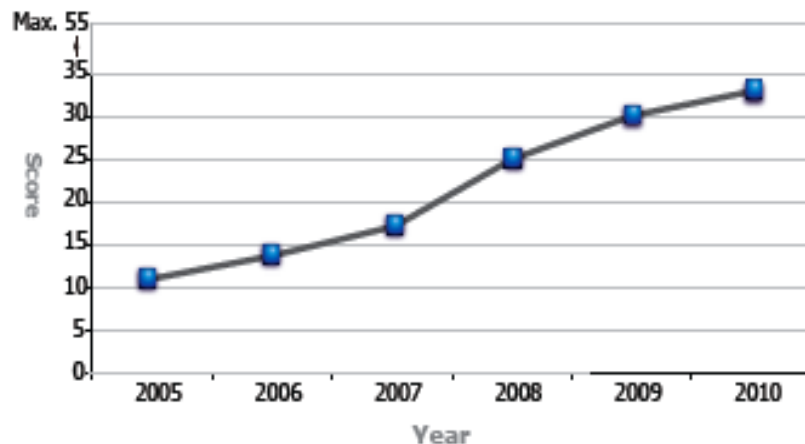


Green Building Criteria in Low-Income Housing Tax Credit Programs

2010 Analysis



Average Total Scores



Top Ten States of 2010

- Connecticut (50)
- Georgia (50)
- Maryland (48)
- New Jersey (46)
- Colorado (46)
- Washington (44)
- Rhode Island (44)
- Massachusetts (42)
- Minnesota (42)
- New York (42)

2011 TCAC Sustainable Building Points New Construction Regulations

- **Maximum 10 points**
- **The applicant commits to develop the project in accordance with the minimum requirements of any one of the following programs: Leadership in Energy & Environmental Design (LEED); Green Communities; or the GreenPoint Rated Multifamily Guidelines. (5 points)**
- **Up to 5 points for additional energy efficiency**

Better than T-24	Low Rise	High Rise
17.5%	2 points	3 points
20%	3 points	5 points
25%	5 points	

- **Up to 5 points for higher levels of certification**

Points	Green Point Rated	LEED
3	100	Silver
5	125	Gold

- **MOST PROJECTS CHOOSING LEED SILVER/GPR 100 PLUS 17.5%**

Combining Tax Credits

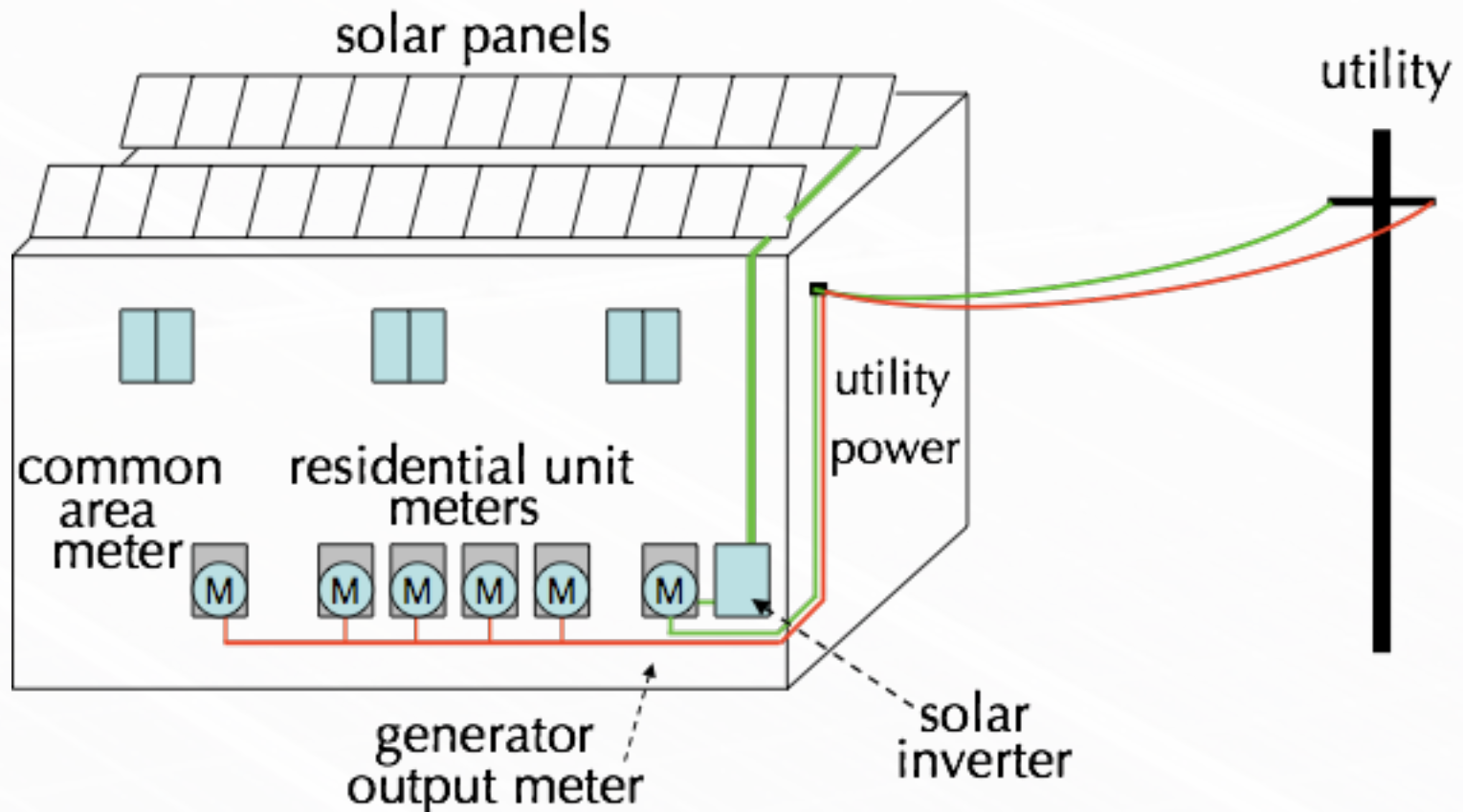


EE Rebate Levels Catching Up

	Net PV cost/unit	Gross Cost Energy Efficiency /unit	Energy Efficiency Incentives/unit	Net Energy Efficiency Cost/unit	Total PV + EE cost after rebates
Solara	\$1,446	\$870	\$214	\$656	\$2,102
Los Vecinos	\$809	\$2,430	\$160	\$2,270	\$3,079

Virtual Net Metering

- Virtual Net Metering - Now available in all IOUs for all multi-tenant properties

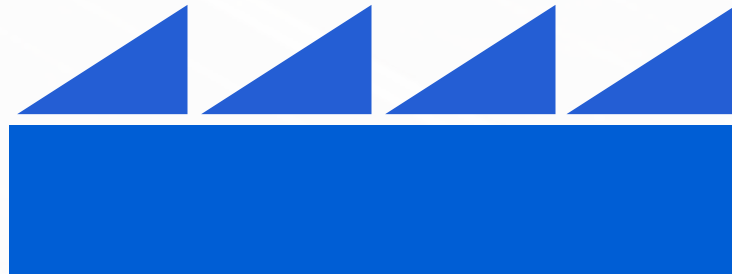


Project Experience



Challenge – Roof Design

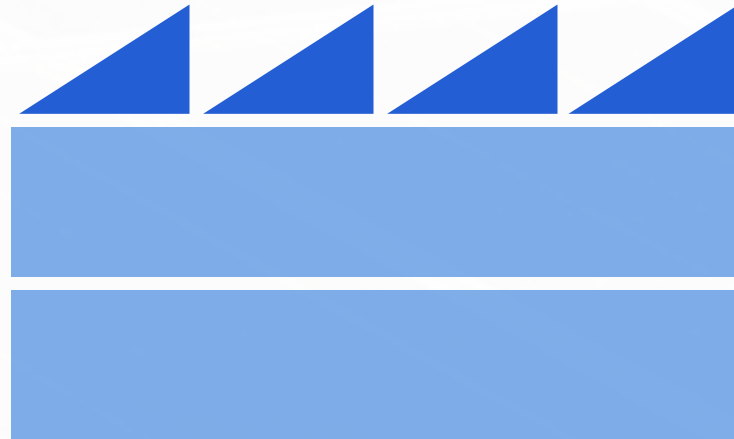
- › **With current off-the-shelf technology, getting to zero net electricity in multifamily buildings imposes a height limit of 2 to 4 stories**
- › **Variables are air conditioning, roof design, and the availability of other space to host solar PV**



1 : 1

Challenge – Roof Design

- › **With current off-the-shelf technology, getting to zero net electricity in multifamily buildings imposes a height limit of 2 to 4 stories**
- › **Variables are air conditioning, roof design, and the availability of other space to host solar PV**



2 : 1

Challenge – Roof Design

- › **With current off-the-shelf technology, getting to zero net electricity in multifamily buildings imposes a height limit of 2 to 4 stories**
- › **Variables are air conditioning, roof design, and the availability of other space to host solar PV**



3 : 1

Challenge – Consultants

- **Energy Consumption Estimates**
 - Solar – kWh production and solar fraction
 - Energy Modeler – Regulated load/% terms
 - Electrical Engineer – Maximum load
- **PV/Solar Thermal Split**
 - Need for a “one-stop shop”
 - Include financial analysis – commercial customer
- **Patience and resources during design**
 - Significant work years before equipment purchase

Challenge - Cost Environment

- **Public policy goals and local requirements (delays) driving up AH production costs**
 - Hitting \$500k to \$600k per unit in some jurisdictions (average approx \$250k/unit)
- **Public policy goals include transit adjacency, green building/ee/renewables and provision of services**
 - Land/construction/property management
- **Goals are under attack in the name of affordability**
 - True affordability is under attack!
- **NEED TO MAINTAIN BROAD COALITION IN FAVOR OF AFFORDABLE HOUSING**



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