



The Affordable Housing Playbook for the All-Electric Solution...(CUAC Edition)

...economics, technology, budget...

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Why should economics
drive the design process?

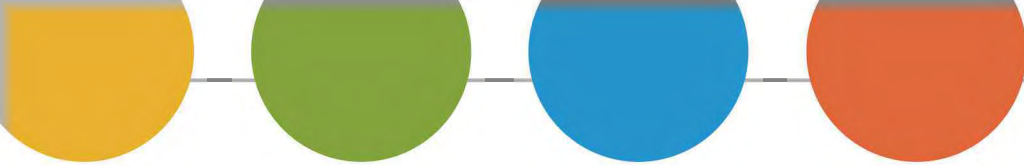


BECAUSE WHERE YOU LIVE MATTERS

City, Zip, Address, Property Name

SEARCH





Our Commitment to Sustainability...

National CORE awarded Power Builder distinction by U.S. Green Building Council's 2018 LEED Homes Awards

Jun 20, 2019

Annual awards honor prominent projects, developers, and builders in residential sustainability Rancho Cucamonga, Calif. – June 20, 2019 – National Community Renaissance (National CORE) has been named a Power Builder by the U.S. Green Building Council (USGBC) as a part...

[read more](#)

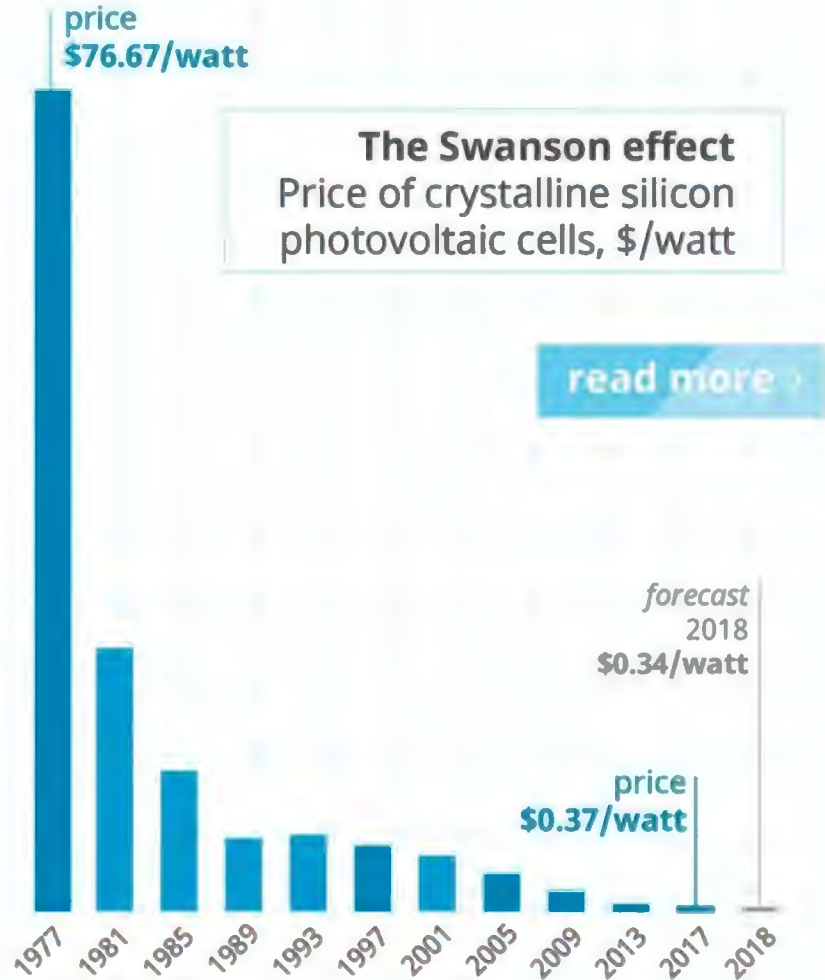
National Community Renaissance becomes first developer to sign onto AIA's 2030 Commitment

Apr 16, 2019

WASHINGTON – April 16, 2019 – The American Institute of Architects (AIA) is welcoming National Community Renaissance (National CORE), one of the nation's largest nonprofit developers of affordable housing, as the first developer to sign the AIA 2030 Commitment. AIA's...

[read more](#)

Energy Efficiency + Renewables – Why is this important now?



The Dropping Cost of PV

1. These are real savings
2. We see this playing out on every project.
3. Affordable housing developers must take advantage of this (there is too much at stake not to)
4. National CORE is way way ahead of the curve on this

<https://cleantechnica.com/2014/02/04/current-cost-solar-panels/>



Source Solar, Inc
 310 N Indian Hill Blvd #403
 Claremont, CA 91711
 Phone 714.715.5901
 Email info@sourcesolarinc.com
 Lic. 805496

The Dropping Cost of Rooftop Photovoltaics – this from 8/13/21

August 13, 2021

Scott Bricker, Construction Manager
 National Community Renaissance @
 9421 Haven Ave.
 Rancho Cucamonga, CA 91730
 909-477-9850 Direct

RE: Arrowhead Grove Solar

- 48.6kW DC carport-mounted solar photovoltaic system. \$82,134.00 (\$1.69/watt)
- 163.8kW DC Roof top mounted solar photovoltaic system. \$324,324.00 (\$1.98/watt)
- Combined annual output of 303.4 MWh.

Exclusions:

- Carport structures
- Trenching and conduit from electrical rooms to carports

ray

New Construction – Leaning Towards ZNE- San Ysidro Senior Village

Looks like
ZNE

Master
Metered,
but this is
building
has a gas
fired boiler



New Construction – What ZNE Looks like - Day Creek Villas

2016 Energy Code Building
(in advance of the ZNE Energy Code)

410kW DC PV System



New Construction – What ZNE Looks like - Day Creek Villas

**ZNE Common
Area + ZNE
Residential Units
(but still has
natural gas
boilers)**

**Residential Utility
Allowances
(using the CUAC)
are less than
\$7/mo**



Vista Verde – All Electric – ZNE – Carbon Neutral

**AHSC Funded
(Affordable
Housing
Sustainable
Communities)**

**368kW DC PV
system (Rooftop
+ Carports)**

**Includes infrastructure
to install one future EV
Charger for each
residential unit (101
total)**



Vista Verde – All Electric – ZNE – Carbon Neutral

**Plancheked in
the 2016 Energy
Code**

**All Electric and
ZNE Made
Economic Sense
(even before the
2019 Energy
Code)**



Vista Verde – All Electric – ZNE – Carbon Neutral



Well managed Roof for PV



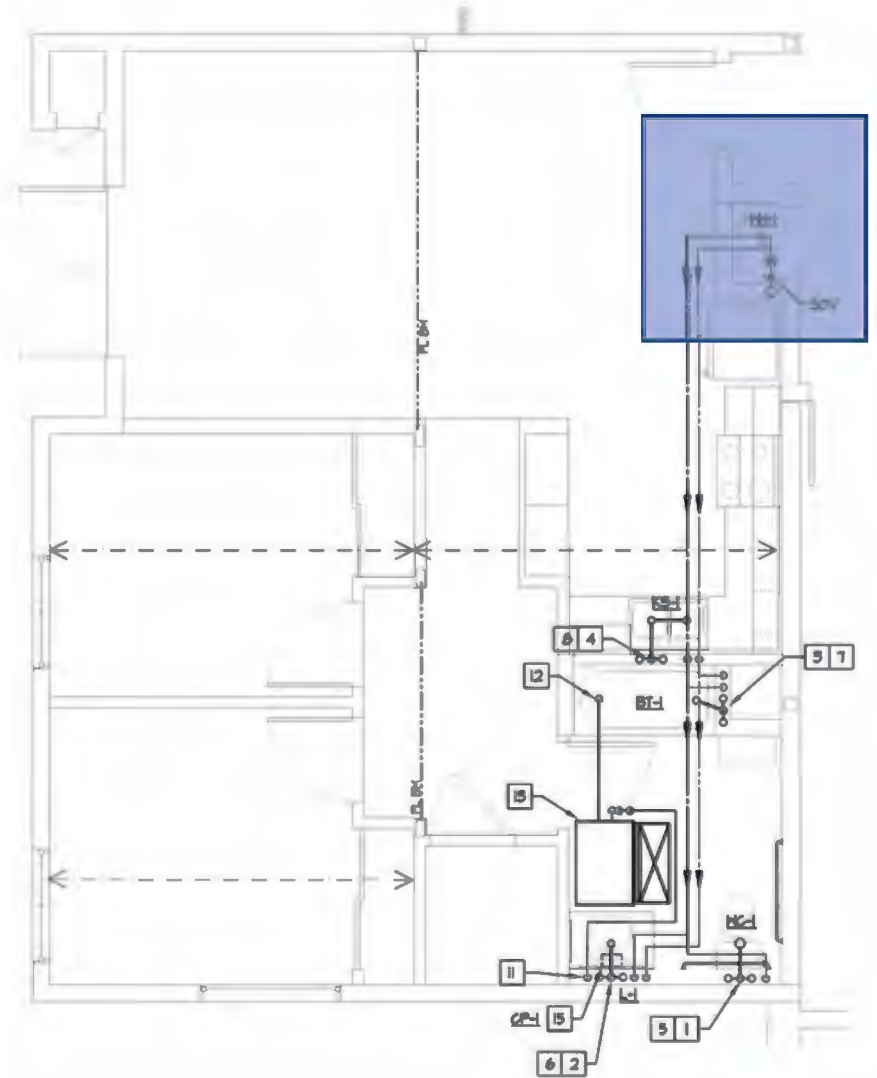
**Ducted Minisplits – parapet mounted
Condensers**

Vista Verde – All Electric – ZNE – Carbon Neutral

**Decentralized
Hot Water
Heating**

**Heat Pump Hot
Water Heaters
(Energy Factor =
3.55)**

**Cost parity
with gas (gas
1/3 cost per
unit of energy
– HP 3.5 more
efficient**



How does this pay off for new construction?

Published Utility Allowance Schedule

Rent + Utilities Cannot Exceed 30% of Family Income

Published Utility Allowance Schedule (San Bernardino County)

Allowances for
Tenant-Furnished Utilities
and Other Services

U.S. Department of Housing
and Urban Development
Office of Public and Indian Housing

Locality San Bernardino County	Age mixed	Unit Type Apartment	Date (mm/dd/yyyy) 10/1/2020
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Utility or Service		Monthly Dollar Allowances						
		0 BR	1 BR	2 BR	3 BR	4 BR	5 BR	6 BR
Heating	a. Natural Gas	19	22	24	26	29	31	33
	b. Bottle Gas	47	53	58	63	69	75	79
	c. Electric	21	26	34	41	48	54	61
Cooking	a. Natural Gas	3	4	5	7	8	10	11
	b. Bottle Gas	7	9	13	17	20	24	26
	c. Electric	9	10	15	21	28	34	39
Other Electric		32	34	53	68	84	101	115
Air Conditioning		17	21	32	45	54	64	85
Water Heating	a. Natural Gas	7	8	11	16	20	24	26
	b. Bottle Gas	16	19	28	38	48	58	62
	c. Electric	20	23	33	43	53	63	72
Water		44	46	60	81	102	123	140
Sewer		36	36	36	36	36	36	36
Trash Collection		25	25	25	25	25	25	25
Range/Microwave		5	5	5	5	5	5	5
Refrigerator		4	4	4	4	4	4	4
Other - specify		0	0	0	0	0	0	0

\$134 \$175

vs. the California Utility Allowance Calculator

California Utility Allowance Calculator (CUAC)

- California Utility Allowance Calculation – With PV
- \$13.43 for a two bedroom
- \$17.15 for a three bedroom
- Total savings \$159,648/yr (high efficiency building plus near ZNE CUAC)
- Savings like this change organizational development goals for the long-term...
- All of National CORE's projects now follow this model

STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION
 UTILITY Allowance Calculation Tool
 Annual Submittal Report



12/29/2020 12:03:47 AM
 Page 2 of 3

Tool Version: 2.0.0 11/30/2020

Tables Version: 1.1.0 11/30/2020

Printed Timestamp: 12/29/2020 12:03:51 AM

Project Name: Vista Verde

Site Street Address: 110 North Virginia Avenue, Ontario, 91764

Site Contact: Zoe Kraneman

Electric Utility: SCE **Electric Territory:** 10 - Electric

Gas Utility: No Gas **Gas Territory:** All

Tariff Type: CARE **Affordable Housing:** Yes

Utility Allowance Calculator Results

Apartment Type	Units		Monthly Usage (\$/month)				
	Affordable Housing	Market Rate	Electric	Gas	Water	Trash	Total
Two Bedroom	69	0	\$13.43	\$0.00	\$0.00	\$0.00	\$13.43
Three Bedroom	32	0	\$17.15	\$0.00	\$0.00	\$0.00	\$17.15

(For new Construction Only)

Villa Serena – Beyond T24 Energy – Full ZNE

Completion December, 2022



Carport PV –
Added to Lower
CUAC

T24
Required PV



- California Utility Allowance Calculation – With T24 PV (177kW DC)
- \$103.05 for a one bedroom
- \$127.65 for a two bedroom
- \$161.14 for a three bedroom
- As configured, this project does not beat the published utility allowances (by a lot!) – even with a robust PV system!
- Time to add more PV and use the CUAC!

Tool Version: 2.0.0 11/30/2020
Tables Version: 1.2.2 4/18/2022
Printed Timestamp: 11/7/2022 2:35:07 PM
Project Name: Villa Serena - 177kW DC PV - T24 Min
Site Street Address: 340 Marcos St., San Marcos, 92069
Site Contact: Lorna Contreras
Electric Utility: SDG&E **Electric Territory:** Coastal - Electric
Gas Utility: No Gas **Gas Territory:** All - Standard
Tariff Type: Standard **Affordable Housing:** No

Code Min. PV System (61% to Common Area)

Utility Allowance Calculator Results

Apartment Type	Units		Monthly Usage (\$/month)					Total
	Affordable Housing	Market Rate	Electric	Gas	Water	Trash		
One Bedroom	18	0	\$103.05	\$0.00	\$0.00	\$0.00	\$103.05	
Two Bedroom	41	0	\$127.65	\$0.00	\$0.00	\$0.00	\$127.65	
Three Bedroom	25	1	\$161.14	\$0.00	\$0.00	\$0.00	\$161.14	

UA
 \$63
 \$82
 \$99

I attest that the inputs to the Project Specific Utility Allowance Calculator are accurate.

Energy Consultant Signature: _____
 Name: _____
 Title: _____
 Company: _____
Project Owner Signature: _____
 Name: _____
 Title: _____
 Company: _____

Published UA beats T24 building with PV in excess of what is minimally required



Villa Serena – add 79kW of Additional PV

- California Utility Allowance Calculation – With 79kW DC more than T24 (257kW DC)
- \$49.22 for a one bedroom
- \$59.53 for a two bedroom
- \$76.82 for a three bedroom
- This generates \$26K in annual operating savings
- Residents benefit by having more of there electricity permanently locked in



Tool Version: 2.0.0 11/30/2020
Tables Version: 1.2.2 4/18/2022
Printed Timestamp: 11/7/2022 2:16:01 PM
Project Name: Villa Serena - 257kW DC PV - 40% Common
Site Street Address: 340 Marcos St., San Marcos, 92069
Site Contact: Lorna Contreras
Electric Utility: SDG&E **Electric Territory:** Coastal - Electric
Gas Utility: No Gas **Gas Territory:** All - Standard
Tariff Type: Standard **Affordable Housing:** No

79kW DC PV added in addition to 177kW DC T24 min (39% to common area)

Utility Allowance Calculator Results

Apartment Type	Units		Monthly Usage (\$/month)					Total	UA
	Affordable Housing	Market Rate	Electric	Gas	Water	Trash			
One Bedroom	18	0	\$49.22	\$0.00	\$0.00	\$0.00	\$49.22	\$63	
Two Bedroom	41	0	\$59.53	\$0.00	\$0.00	\$0.00	\$59.53	\$82	
Three Bedroom	25	1	\$76.82	\$0.00	\$0.00	\$0.00	\$76.82	\$99	

I attest that the inputs to the Project Specific Utility Allowance Calculator are accurate.

Energy Consultant

Project Owner

Signature: _____
Name: _____
Title : _____
Company: _____
Phone: _____

This now beats the published utility allowance with a comfortable margin. National CORE is buying carports on top of the parking deck to pull this off

UTILITY BILLS

Expect Your Electric Bill to Go Up in 2023. SDG&E Says a Rate Hike is Imminent

NBC 7 Responds looked at why the utility says rates are jumping next year across San Diego County

San Diego Gas and Electric (SDG&E) is requesting another rate increase starting in January. It still needs to be approved by the California Public Utilities Commission, but that's likely to happen in December.

"We're seeing about an \$28 increase for the average customer in January," said Scott Crider, the Senior Vice President of External and Operations Support.

Crider says it breaks down to an average of \$15 per month increase for delivery, and \$13 per month for electric generation. That means even if you are a customer of San Diego Community Power or Community Energy Alliance, your bill will also increase.

That delivery cost comes from investments in programs like wildfire safety and grid reliability, as well as a new billing system.

- SDG&E is proposing an 8% increase (other utilities are also requesting increases)
- Last year's increase were close to 10%
- Investing more in energy efficiency and renewable energy will benefit residents long-term.
- The CUAC is an important design and analysis tool needed to unlock opportunities



The Affordable Housing Playbook for the All-Electric Solution...(CUAC Version)

...economics, technology, budget...

...and good tools!

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