Lowering Energy Costs Citywide

Detailed report and financial model. Companion to "Beating Utility Inflation" [1]. Prepared September 2026.

Summary

- The federal 30% homeowner credit for solar and batteries ended for systems installed after December 31, 2025[2], and general-market battery rebates in SCE territory are closed or waitlisted[3]. Upfront price is now the main lever households have.
- City-run group buying works. Connecticut Solarize campaigns cut prices about 20% and more than tripled installs[4]; campaigns with several competing installers cut prices about twice as much as single-installer ones[5].
- At a 15% group discount, a typical solar-plus-battery household saves about $5,230 upfront. With 500 participating households, about $2.6M stays in the community.
- For City Hall, an illustrative 500 kW solar carport with a 1 MWh battery has a modeled 25-year NPV of $2.9M if owned and federal credits are captured, $2.3M without the solar credit, and $1.2M under a PPA.

1. Why household costs matter now

SCE residential rates average around 34 cents per kWh[6], and summer on-peak time-of-use rates are higher[7]. New solar customers since April 2023 are on the Net Billing Tariff[8], which pays roughly 3 to 6 cents per kWh for exported power[9]. That makes batteries, which let a home use its own midday solar in the evening, much more valuable.

Change	Effect on a Fountain Valley household
25D homeowner credit repealed after 2025	No federal credit on a purchased system[2,10]
Leases and PPAs	Third-party owners can still use the business credit under 48E deadlines, which may be passed through in pricing[11]
SGIP battery rebates	General-market budgets closed or waitlisted[3]
Net Billing Tariff	Low export value; self-consumption and storage drive savings[8,9]

Table 1. Policy changes affecting household solar economics.

2. Bulk buying: the evidence

Program	Design	Price result	Scale
Solarize Connecticut	Town-sponsored, tiered pricing, about 20-week campaigns	About 20% lower; 20% to 30% over the program[4]	More than 3x installs[4]
Solarize CT (study)	Single vs. multiple installers	Multiple-installer campaigns cut prices about twice as much, and effects persisted[5]	Randomized and matched comparisons
SunShares (Bay Area)	Independent committee pre-vets installers; solar and batteries	About 15% below market[12]	40+ cities and employers; 1,000+ households, 5.8 MW since 2016[12]
Solar United Neighbors co-ops	Resident co-op bids for installer	10% to 30% below individual market[13]; 10% to 20% in a 2026 Ohio co-op[14]	Multi-state

Table 2. Group-buy program outcomes.

Key finding. Non-exclusive, multi-vendor pools produce larger and longer-lasting price cuts than single-vendor deals. That supports a Fountain Valley design where the city pre-vets several installers and residents choose.

Proposed "Solarize Fountain Valley" design

- Open procurement. The city issues a request for qualifications and selects a pool of licensed, insured installers using published criteria. No exclusive award.
- Tiered pricing. Each vendor publishes a price per watt and per kWh of storage that falls as citywide sign-ups cross set thresholds.
- Consumer protections. Standard contract terms, minimum warranties, workmanship standards, clear financing disclosures, and a complaint process with removal from the pool for violations.
- Broad eligibility. Homeowners, landlords, HOAs, and small businesses. Solar, batteries, heat pumps, heat-pump water heaters, EV chargers, and panel upgrades.
- Fast permits. Adopt SolarAPP+ for residential systems[15].
- City role limited to vetting, outreach, and reporting. The city does not buy, own, or guarantee equipment for residents.

3. Household model

Input	Value	Basis
System size	8.39 kW	California average quoted size[16]
Solar price	$2.52/W ($21,143)	EnergySage California, before incentives[16]
Battery (13 kWh)	$13,722	EnergySage California[17]
Annual yield	1,550 kWh per kW	Orange County factor about 1,586[18]; California range 1,504 to 1,845[19]
Share of output used at home (with battery)	80%	ASSUMPTION; tested 50% to 80%
Retail rate avoided	$0.34/kWh	SCE average[6]
Export value	$0.05/kWh	Net Billing Tariff range[9]
Group discount	15%	SunShares about 15%[12]; tested 10% to 20%

Table 3. Household model inputs.

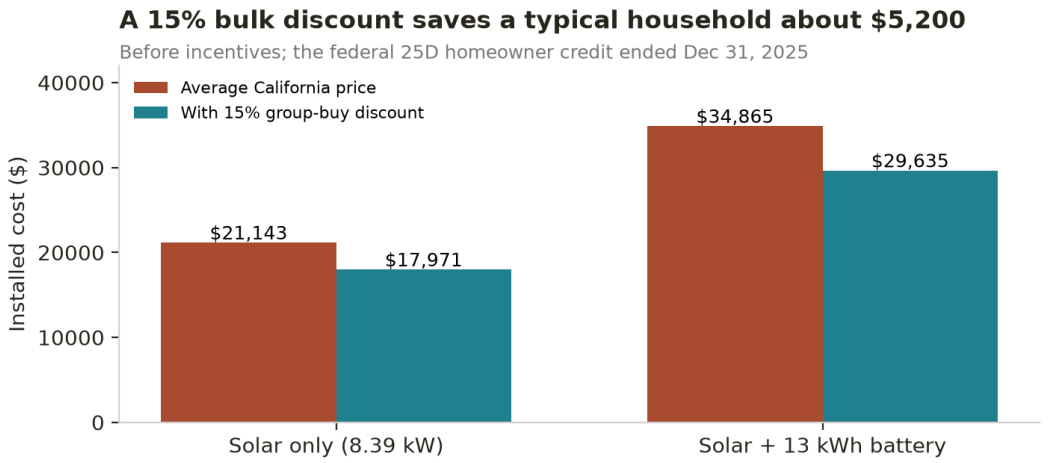


Figure 1. Installed cost with and without a 15% group discount (model output).

Share used at home	Annual bill savings	Payback, market price	Payback, 15% discount
50%	$2,536	13.7 yrs	11.7 yrs
65%	$3,102	11.2 yrs	9.6 yrs
80%	$3,667	9.5 yrs	8.1 yrs

Table 4. Simple payback for solar plus battery (no rate escalation, no financing cost).

Assumption. The system is sized from a statewide average quote. Homes that use less electricity will export more and see lower savings; that is why the table tests a 50% self-use share. Payback ignores rate increases, which would shorten it, and loan interest, which would lengthen it.

Citywide savings

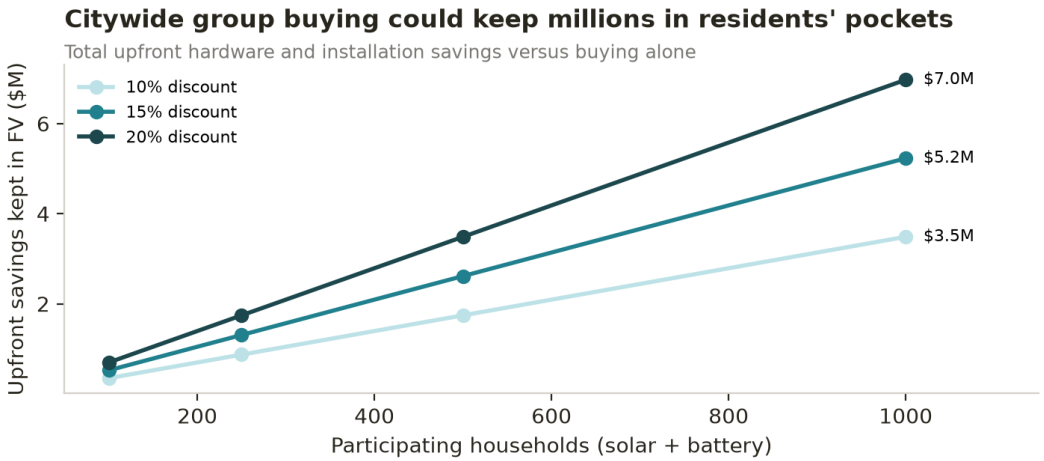


Figure 2. Total upfront savings by participation and discount (model output).

Households	10% discount	15% discount	20% discount
100	$0.35M	$0.52M	$0.70M
250	$0.87M	$1.31M	$1.74M
500	$1.74M	$2.61M	$3.49M
1,000	$3.49M	$5.23M	$6.97M

Table 5. Upfront savings kept in Fountain Valley (solar plus battery).

For scale, SunShares has reached more than 1,000 households across 40-plus jurisdictions since 2016[12], so 500 households in one city of Fountain Valley's size would be a strong result. 100 to 250 is a more conservative first-year target.

4. City Hall: solar carports and batteries

We model one illustrative site. It is not a specific city lot; actual sites need engineering, interconnection, and utility bill analysis.

Input	Value	Basis
Solar capacity	500 kW	ASSUMPTION (illustrative site)
Yield	1,550 kWh per kW	Orange County factor[18]
Carport installed cost	$3.50/W	Carport $3 to $4/W[20]; $0.40 to $0.90/W premium over rooftop[21]
Battery	250 kW / 1 MWh at $700/kWh	NREL ATB commercial storage[22] (ASSUMPTION within range)
Value of solar kWh	$0.22/kWh, +3%/yr	ASSUMPTION; blended SCE commercial energy rates[23]
Demand charge reduction	200 kW x $15/kW-month	ASSUMPTION; SCE TOU-GS-2 on-peak demand is higher, about $19 to $24[24]
Battery energy shifting	250 days x $0.15/kWh	ASSUMPTION
O&M	$20/kW-yr + 2% of battery cost	ASSUMPTION
Federal credit (elective pay)	30% solar, 30% battery	Requires city ownership[25]; solar deadline applies[26]
Financing	4.5%, 20 years; 4% discount rate	ASSUMPTION (municipal lease or bond)
PPA price	$0.20/kWh flat	ASSUMPTION; solar only

Table 6. Municipal carport inputs.

Metric	Value
Gross capital (solar + battery)	$2.45M
Net capital after credits	$1.72M
Annual debt service	$131,843
Year-1 solar value	$170,500
Year-1 battery value (demand + shifting)	$73,500
Year-1 O&M	$24,000
Year-1 net cash flow after debt	$88,157
25-year NPV, owned	$2.87M
25-year NPV, PPA	$1.15M

Table 7. Municipal base-case results.

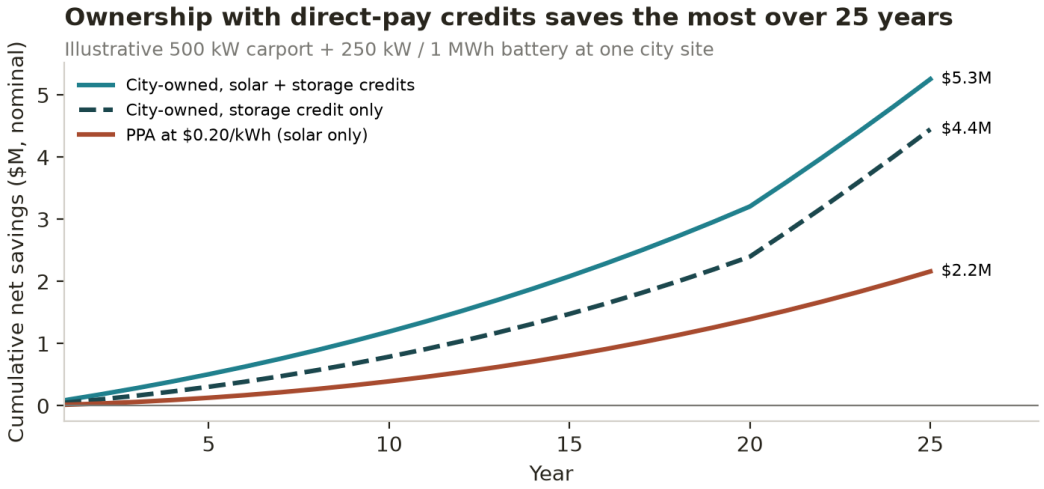


Figure 3. Cumulative 25-year savings by ownership path (model output).

Federal credit timing

Under the July 2025 law, solar must have begun construction by July 4, 2026 or be placed in service by December 31, 2027 to claim the credit[26]. The first date has passed, so a new city project needs to be operating by the end of 2027. Storage keeps its credit longer[27]. Elective pay is only available if the city owns the system[25].

Scenario	NPV, owned	Change vs. base
Base (both credits)	$2.87M	--
No solar credit (misses 2027)	$2.32M	-$0.55M
No credits at all	$2.10M	-$0.77M
Cost $3.00/W	$3.05M	+$0.18M
Cost $4.00/W	$2.68M	-$0.18M
Energy value $0.18/kWh	$2.24M	-$0.63M
Energy value $0.26/kWh	$3.49M	+$0.63M
No rate escalation	$1.52M	-$1.35M
5% rate escalation	$4.15M	+$1.28M

Table 8. Sensitivity of owned-system NPV.

Key finding. The owned path remains positive in every tested case, including no federal credits. Rate escalation is the biggest swing factor. PPAs need no city capital but deliver less than half the value in this model.

Examples and context

Orange Unified partnered with Ameresco on rooftop and carport solar at seven schools under a 25-year fixed-price PPA, with about $6.3 million in projected savings[28]. Fountain Valley joined the Orange County Power Authority, with service planned for April 2027[29]; city projects should be coordinated with it. Mile Square Park is County-owned[30], so carports there require County partnership.

5. Recommendations

1. Launch a non-exclusive "Solarize Fountain Valley" group-buy program for all residents and businesses, with open procurement and published tiered pricing.
2. Adopt SolarAPP+ for residential systems and a fast-track checklist for commercial projects.
3. Solicit proposals for city carports and batteries comparing city ownership (with elective pay if in service by 2027) against PPAs.
4. Partner with school and water districts and neighboring cities on joint bids to increase buying power.

Methodology and limitations

Municipal cash flows use annual steps with 0.5% yearly solar degradation. The battery value is a simplified estimate; real savings depend on each facility's load profile and tariff. Household payback is simple (undiscounted). Prices are 2026 market averages and vary by installer and roof. Tax statements are general information, not tax advice.

Sources

Superscript numbers in the text link to the sources below. All figures labeled ASSUMPTION are modeling choices, not sourced facts, and can be changed in the companion Excel workbook.

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