POLICY BRIEF

Community Energy Infrastructure for AI Data Centers

A deployment plan for Florida and other states | November 2026



More power. Stronger communities. Protected families.

A voluntary, performance-based framework for data centers to help finance community solar, battery storage and flexible demand, with utility-verified delivery and protected hurricane reserves.

Prepared by Joseph Kenney | Co-founder, PowerSol USA

Cover artwork is a conceptual illustration, not an engineering diagram. Research and company announcements cited in this brief do not imply endorsement of this proposal.

01 / EXECUTIVE DECISION

Make new load an infrastructure partner

The goal is an energy-abundance strategy: more dependable generation, transmission and distribution capacity, renewables, storage, efficiency and controllable demand. A community virtual power plant (VPP) is one component of that portfolio. It cannot substitute automatically for round-the-clock service to an AI campus.

Five commitments for Florida

1. **Assign costs to the customer creating them.** Preserve full-cost large-load tariffs, credit security and cancellation protections. Community investment must supplement, rather than replace, the data center's service obligations. [3]
2. **Buy outcomes competitively.** Procure delivered peak reduction, usable storage, resilience and customer benefits through open, technology-neutral bids. Publish administration and subcontract costs. PowerSol and other qualified firms may compete on equal terms.
3. **Protect the household first.** Voluntary enrollment, a protected battery reserve, storm overrides, total-expense disclosures, maintenance obligations and fair transfer or exit terms should be binding.
4. **Verify two different results.** Measure grid delivery at the electrically relevant location and household and community benefits where people live. Geographic proximity alone does not prove that a battery relieves the data center's constraint. Duke's framework makes this distinction central. [2]
5. **Scale after evidence.** Evaluate cost per dependable kW, total participant bills, reserve compliance, safety, local spending and nonparticipant rate effects before further awards.

The demand case

Berkeley Lab's 2024 report estimated 176 TWh of U.S. data-center use in 2023 and projected 325–580 TWh in 2028. Its 2025 Update, published June 18, 2026, models a 2030 reference case of 649 TWh, with compounded uncertainty bounds of 521–843 TWh. These are model results for different forecast years, not directly interchangeable measurements. [4,5]

> **Policy implication:** use staged commitments and scenario planning. Do not build the financial case around a single demand forecast or assume all announced data-center load will arrive on schedule.

02 / THE POWER REQUIREMENT

Build the whole portfolio, with cost discipline

Planning distinguishes energy from capacity. Energy is the total electricity used over time. Capacity is the ability to serve the highest load at the required moment. A solar array may produce substantial annual energy but cannot provide the same round-the-clock service as firm generation. Batteries can move energy across hours, but their duration and recharge conditions must be modeled explicitly.

Infrastructure layer	Primary role	Planning implication
Firm generation	Continuous, dispatchable output	Compare natural gas, existing and advanced nuclear, geothermal, hydro and other qualified resources on reliability, cost, time and site constraints.
Transmission and distribution	Move power; maintain voltage and reliability	Assign required upgrades and financial security against project delay or cancellation to the large load.
Utility-scale renewables	Add energy at scale	Model hourly output, curtailment, transmission access and integration costs.
Storage	Shift energy; respond quickly	Specify MW, MWh, duration, degradation, reserve policy and replacement funding.
VPP resources	Coordinate distributed generation, storage and flexible load	Use utility-approved telemetry, dispatch, cybersecurity and participant protections.
Efficiency and demand flexibility	Reduce or move selected loads	Treat verified reduction as a system resource without assuming it is available in every hour.

What the data center receives

- Verified reduction in system or feeder peak during defined windows
- Dispatchable battery capacity that remains after the participant reserve
- Potential capacity, ancillary-service or resilience value under an approved tariff or contract
- Faster deployment of distributed resources than a single large project may achieve
- A documented host-community investment residents can see and evaluate

What it does not receive automatically

- Ownership of electricity behind a residential meter
- A guarantee that residential exports physically flow to the campus
- Round-the-clock firm capacity equal to solar nameplate capacity
- Unlimited control of batteries during storms or household emergencies
- A right to bypass utility tariffs, retail-service law, interconnection rules or consumer protections

03 / RESEARCH AND MARKET EVIDENCE

What the evidence supports

Source / evidence type	Finding and boundary
Duke University, 2026 / framework	Separate community benefits from grid value; test beneficiaries, scale and timing, operations and location, evidence, and accountability. It is a design framework, not proof that this Florida investment pays for itself. [2]
RMI, 2025 / commercial models	Utility-sleeved procurement, capacity transfer and reliability reinforcement offer different contracting paths. Capacity transfer is most plausible where wholesale accreditation and trading already exist. [6]
Brattle, 2023 / modeled economics	A modeled 60 GW VPP deployment could lower ten-year resource-adequacy net costs by $15–35 billion versus alternatives, in undiscounted 2022 dollars. Results are not Florida bid prices or guaranteed savings. [7]
Google / company announcement	The October 22, 2026 Voltus agreement targets a 1 GW PJM VPP, expanding an earlier 100 MW agreement. An announced portfolio target is not independently verified delivered capacity. [8]

Operating evidence is useful, with limits

The Duke paper cites a Massachusetts battery evaluation: average event reduction of 24.5 MW and average discharge of 4.8 kW per device, or 57% of enrolled device power. This is a secondary citation to Guidehouse. Florida equipment, heat, storm reserves and event duration could produce different results. [2, pp. 14–15]

Australia's market operator tested VPP frequency-control and energy-market services, operational visibility, consumer experience and cybersecurity. Tesla's Australian program illustrates household batteries earning grid-service payments. Ontario's thermostat fleet, reported by RMI, illustrates a different resource mix. None establishes a transferable Florida tariff or revenue rate. [6,9,10]

> Research models, operating evaluations, announced targets and proposed policy are different levels of evidence. This brief labels planning assumptions explicitly and does not treat announced capacity as verified delivery.

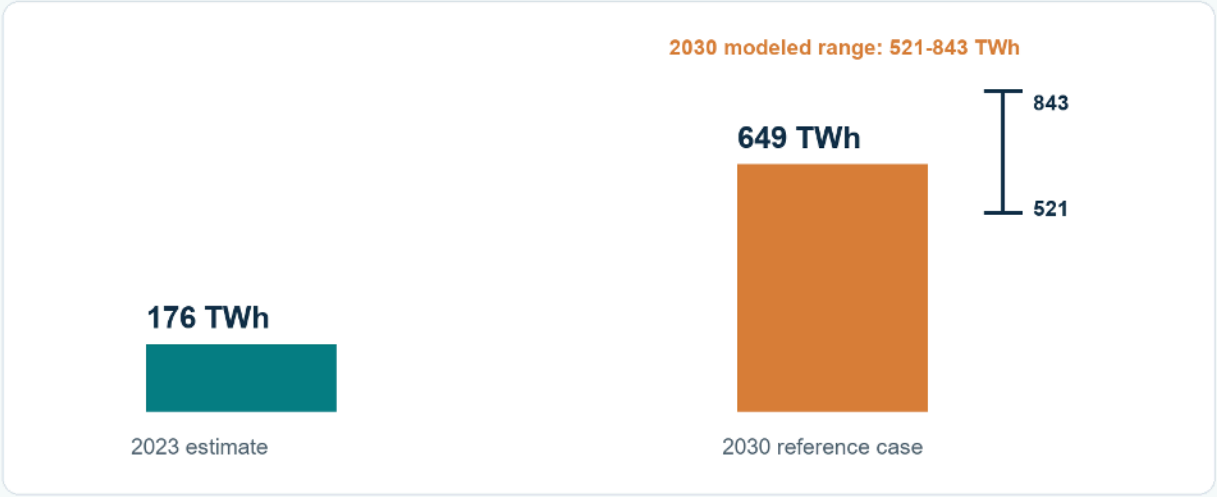
VISUAL EVIDENCE / DEMAND

Plan for demand growth and uncertainty

FLORIDA ENERGY + AI / VIRTUAL POWER PLANTS

Data-center demand is a planning challenge.

U.S. annual data-center electricity use | TWh | Historical estimate versus modeled future



Sources: Berkeley Lab, 2024 report and 2025 Update (published June 18, 2026).
2030 range combines modeled uncertainties; it is not a statistical confidence interval.
Planning implication: stage commitments and test multiple load-growth scenarios.

The opportunity is to add useful flexibility while the broader power system expands. Scenario planning protects communities from both underbuilding and stranded investment.

Evidence: Berkeley Lab historical estimate and modeled 2030 scenarios. [4,5]

04 / PROGRAM ARCHITECTURE

A modular fleet, a clear chain of responsibility

Offer separate participation tracks: existing batteries; storage added to existing solar; new solar plus storage; efficiency and smart controls; multifamily properties; small businesses; and critical community facilities. Compare these with utility-scale and conventional alternatives on lifecycle system cost and distinct community value.

Party	Accountability
Data center / capital sponsor	Commit funding and service obligations; retain responsibility if the aggregator underdelivers; post security for default, delay and exit.
Utility	Identify constraints and eligible zones; approve interconnection and exports; define dispatch limits and tariff recognition; retain safety and restoration authority.
Independent administrator / aggregator	Run enrollment and dispatch, maintain assets and telemetry, reconcile payments, protect data and provide transition support. Separate procurement from independent verification.
Participants / community representatives	Choose participation, identify critical loads, receive disclosures and payments, access complaint and appeal procedures. Community oversight includes nonparticipants.
Independent evaluator	Validate baselines and metering, audit costs and benefits, publish anonymized results, and recommend continuation or suspension.

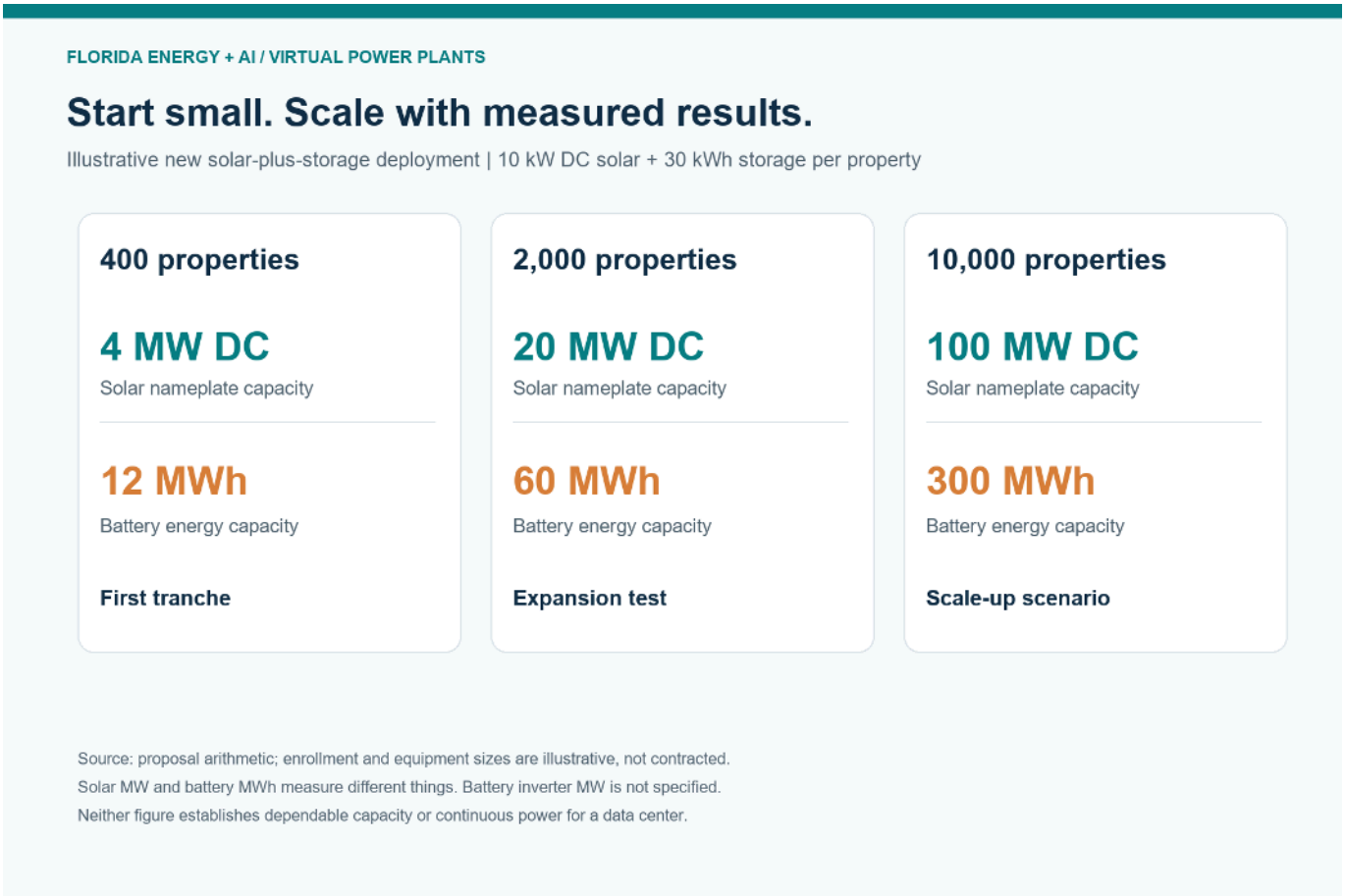
Build from the constraint backward

The utility should disclose enough planning information to identify the binding generation, transmission or feeder constraint without exposing sensitive infrastructure data. Procure resources that can affect that constraint at the required hour. A neighborhood may receive resilience benefits even when its batteries receive no locational capacity credit. [2]

A VPP coordinates assets and net demand through the electric system; it does not create a private wire from houses to the campus. Household ownership of solar energy, renewable attributes, export credits and grid-service rights must be allocated explicitly. Do not sell the same service twice.

VISUAL PLANNING / SCALE

A staged path to community infrastructure



Procure a limited first tranche, test the result, and make each expansion conditional on financing, utility performance and household outcomes. The 10,000-property case shows scale, not a commitment.

Illustrative proposal arithmetic. Solar nameplate MW is not battery dispatch MW. [1]

05 / ENGINEERING AND VERIFICATION

Count dependable delivery, not equipment labels

Illustrative scale: 10,000 properties at 10 kW DC solar and 30 kWh battery energy each equal 100 MW DC solar and 300 MWh of installed storage. The battery inverter MW rating remains unspecified. These quantities do not establish 100 MW of firm capacity, 300 MWh available to the grid, or continuous campus supply. Actual dispatchable delivery would be smaller and must be independently verified. [1]

Sensitivity case	Fleet response	Two-hour delivery
Conservative	20 MW	40 MWh
Planning case	35 MW	70 MWh
High performance	50 MW	100 MWh

These are proposed tests, not Florida forecasts. At 30 kWh per home, a 40% reserve leaves 18 kWh per home, or 180 MWh of fleet energy before losses, degradation, household consumption, unavailable devices and network limits. Even an energy-feasible dispatch can fail the inverter-power or locational test.

Required measurement plan

Define event windows, duration, notice, response time, ramp, eligible meters and weather-adjusted baselines before enrollment. Use interval import/export data and device state of charge; distinguish gross battery discharge from net grid relief. Independent sampling and holdout groups should test thermostat or efficiency savings and baseline bias.

Report available MW, requested MW, delivered MW/MWh, response latency, event completion, rebound consumption, reserve compliance and coincident feeder/system peaks. Test communications failures, hot-weather operation, winter peaks, outages and overlapping programs. Count only incremental resources or documented incremental service; prevent duplicate capacity and energy payments.

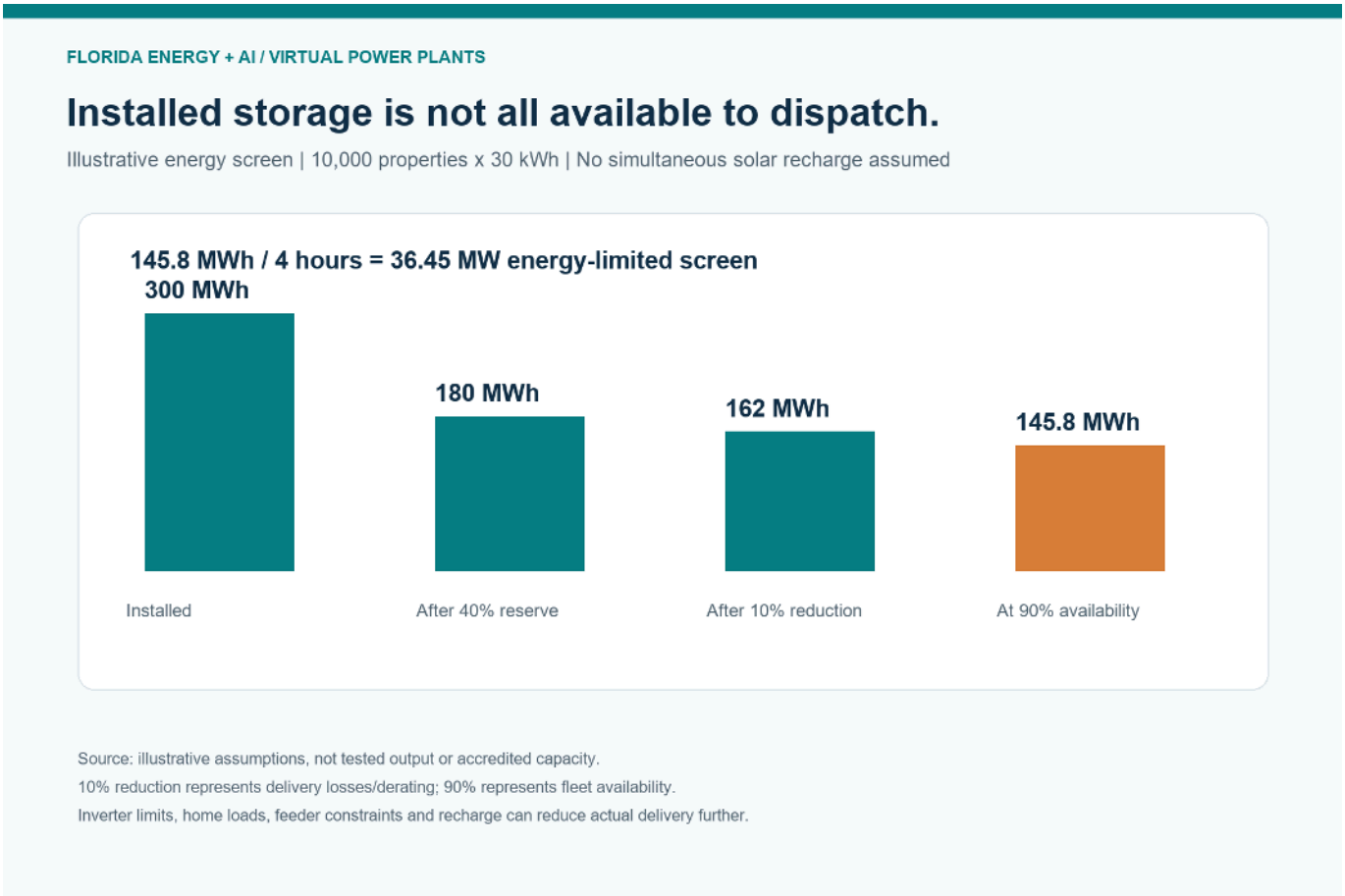
Accreditation and remedies

A conservative engineering screen is the lesser of available inverter power, net discharge energy divided by event hours, and the network limit, reduced for demonstrated availability. Formal utility capacity accreditation must also assess correlated outages and seasonal reliability. Pay a readiness component plus verified performance; derate repeated shortfalls, draw performance security and require replacement service.

> **Solar plus storage is dispatchable within limits.** It is not unlimited firm power. Recharge energy, extended cloud cover and multiday hurricane disruption must be modeled explicitly.

VISUAL PLANNING / CAPACITY

Protect reserves before counting grid service



This four-hour calculation is an energy screen, not a utility capacity accreditation. Contracted delivery must also satisfy inverter power, feeder limits, household use and observed availability.

Illustrative assumptions: 40% reserve, 10% delivery reduction, 90% availability. Not a measured Florida result.

06 / HOUSEHOLD AND MULTIFAMILY ACCESS

Energy independence with enforceable protections

Start with a property-specific energy plan

Use at least 12 months of bills or interval data, a critical-load assessment, roof condition, shading, electrical capacity, wind and flood exposure, insurance and likely future loads such as vehicle charging. Offer site-appropriate sizes rather than requiring every household to buy 10 kW and 30 kWh. Solar-only systems generally do not provide outage backup without islanding equipment. Integrate equipment only after utility approval, inspection, commissioning, cybersecurity enrollment and participant acceptance testing.

Before signing, show the program payment plus residual utility bill, taxes and connection charges; expected savings range; escalation; dispatch rights; export and renewable-attribute ownership; warranty and replacement coverage; credit checks; liens; and sale, transfer, buyout and exit terms. Provide a cooling-off period, accessible language and an independent complaint channel. Savings guarantees need a measurable baseline and a funded remedy.

Hurricane resilience is a service obligation

Specify a minimum reserve in usable kWh tied to critical loads, with automatic pre-storm charging and a higher reserve trigger agreed with emergency managers. Suspend discretionary grid dispatch when household safety requires it. Validate islanding, safe reconnection, critical-circuit power limits and local operation if internet or cellular service fails.

Require wind-rated mounting, battery siting above applicable flood exposure, code-compliant fire clearances, inspection, spare parts, trained repair crews and a post-storm response plan. A 30 kWh battery provides 15 idealized hours at a constant 2 kW critical load before conversion losses and operating limits; it does not guarantee whole-home multiday air conditioning.

Include renters and affordable housing

Procure multifamily tracks with landlord consent and a documented benefit allocation for tenants, not just owner common-area savings. Where lawful metering or bill-credit arrangements are unavailable, use enforceable rent or utility-allowance adjustments or defined services rather than promise virtual net metering. Review housing-program rules before treating reduced bills as net tenant savings.

Require anti-displacement commitments, no undisclosed rent pass-through, fair access without homeownership, and continuity when tenants move. Shared batteries supporting cooling rooms, elevators, medical-device charging and communications need engineered load priorities and access plans. Report households served separately from buildings installed.

07 / FINANCING SCENARIOS

Show the funding gap before asking for scale

Illustrative assumptions: $25,000, $30,000 or $40,000 gross capital per property; a ten-year, non-escalating $150 monthly participant payment (120 payments); an 8% nominal annual discount rate divided monthly; and a $500 annual operating/replacement allowance per property, paid at year-end for ten years. No residual asset value, tax credit or VPP revenue is assumed in the base case. These are sensitivities, not bids.

Two ways to read the gap. In the $30,000 original case, the **simple capital gap** is $12,000: $30,000 minus 120 × $150 = $18,000 of undiscounted payments. The **modeled present-value gap** is about $20,992 (≈$21,000): $30,000 + $3,355 PV of upkeep − $12,363 PV of participant payments.

Per-property measure	Low cost	Original case	Stress case
Gross capital	$25,000	$30,000	$40,000
Simple gap (undiscounted, no upkeep)	$7,000	$12,000	$22,000
PV of participant receipts	$12,363	$12,363	$12,363
PV of operating allowance	$3,355	$3,355	$3,355
Modeled outside support, no tax credit	$15,992	$20,992	$30,992
Commercial/third-party owner: less 30% §48E credit, if eligible	$8,492	$11,992	$18,992
…and less 100% bonus depreciation at 21% federal rate	$4,030	$6,637	$11,852

Outside support = capital + PV of operating allowance − PV of participant receipts − realized tax value. At 10,000 properties, the $300 million capital case needs about $210 million of PV support without tax benefits, about $120 million if a commercial owner realizes the full 30% credit, or about $66 million if it also uses 100% bonus depreciation. Homeowner-owned systems placed in service in 2026 cannot claim the §25D residential credit, which ended for expenditures after December 31, 2025. [15] Financing fees, defaults and costs beyond year 10 would increase needs; future service revenue could reduce them.

Three ownership and payment options

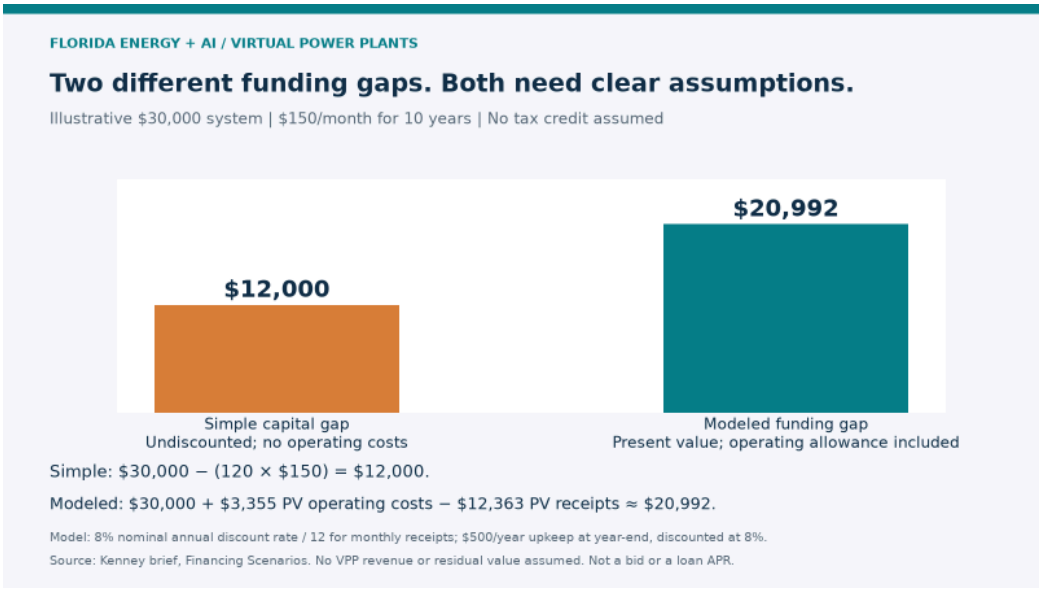
Sponsored resilience: data-center community capital covers most costs, with little or no household charge. **Third-party lease:** an owner installs and services equipment, collects a disclosed payment and retains specified VPP rights; Tesla's lease illustrates this commercial form, not a verified Florida price or an endorsement. **Customer ownership / retrofit:** owners receive an equipment incentive plus verified service payments, with explicit maintenance duties. [11]

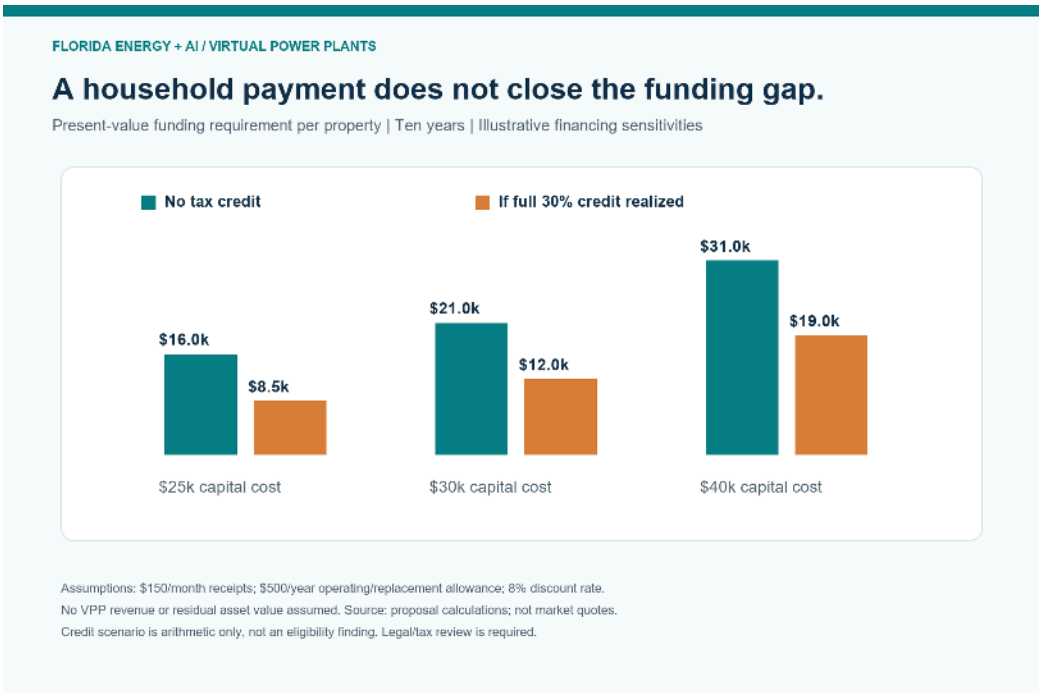
For a 35 MW planning response, annualizing the $120 million PV gap (30% credit case) over ten years at 8% yields roughly $17.9 million per year, or $511 per dependable kW-year; with bonus depreciation also realized, about $283; with no tax benefits, about $894. This is a residual funding requirement, not the market value of capacity. Sponsors may pay partly for community benefits; utility payments must reflect independently justified grid value.

> Use an incentive-free base case. The commercial-owner rows apply only if the conditions on the next pages are met. They require written review by a qualified tax professional before inclusion in committed funding.

VISUAL PLANNING / FINANCE

Make outside funding explicit





In the lower chart, "if full 30% credit realized" means a commercial or third-party owner that qualifies for the §48E business credit; it does not apply to homeowner-owned systems. Depreciation is not shown.

A household payment does not close the funding gap. The remainder must come from sponsor capital and defensible service payments. Do not assume tax benefits before eligibility review.

Illustrative calculations using the assumptions on the preceding page. Figures rounded.

07A / COMMERCIAL OWNERSHIP PATHWAY

Business tax credits: conditions, not assumptions

If systems are owned by a commercial VPP operator or third-party owner and qualify for the business clean electricity investment credit (§48E), the owner, not the household, may claim a 30% base credit and depreciate the remaining basis. This can roughly halve the outside support required. It is a financing pathway to evaluate, not an approved program or a guaranteed result. [15–20]

Eligibility conditions as of November 2026

- **Ownership.** The credit belongs to the business owner of the property. Homeowner-owned systems placed in service in 2026 cannot claim §25D, which ended for expenditures after December 31, 2025. Leased solar electric property remains eligible under §48E; the 2025 law denies it for leased solar water heating and small wind property. [15,16]
- **Solar timing.** Solar facilities that began construction after July 4, 2026 receive no credit unless placed in service by December 31, 2027. Facilities that began construction by July 4, 2026, under the physical work test or the 5% safe harbor (restored after a June 2026 federal court vacated IRS Notice 2025-42), must also maintain continuous construction. Equipment "safe-harbored" before the deadline helps only with documentation that holds up. [16,17]
- **Battery storage.** Storage is excluded from the solar/wind cutoff. It keeps the full credit for construction beginning through 2033, then 75% in 2034 and 50% in 2035. [16]
- **Prohibited foreign entities.** The owner cannot be a prohibited foreign entity. Facilities and storage beginning construction after December 31, 2025 must meet material-assistance cost-ratio limits on Chinese-linked components (interim rules in IRS Notice 2026-15). This affects panel, inverter and battery sourcing. [18]
- **Wages and apprenticeship.** The 30% rate requires prevailing wage and apprenticeship compliance, otherwise 6%. Facilities under 1 MW AC are exempt, which generally covers individual home systems. Domestic-content and energy-community bonuses (up to 10 points each) need separate qualification. [19]
- **Monetization.** The owner needs tax capacity, tax equity or a credit transfer. Transfers generally sell below face value, and recapture risk applies for five years.

Illustrative combined value, $30,000 system

Component (federal only, undiscounted)	Per system	% of cost
30% §48E credit	$9,000	30.0%
Depreciation: basis $25,500 (reduced by half the credit) × 21%	$5,355	17.9%
Total, base case	$14,355	47.9%
With Florida corporate tax (5.5%, combined ≈25.3%)	$15,463	51.5%
With one 10-point bonus adder (40% credit), federal only	$17,040	56.8%

Combined value of roughly 48–57% of cost is plausible only when every condition is met. Transfer discounts, financing fees and lack of tax capacity reduce it, and an adder or state tax is needed to reach the mid-50s. Depreciation uses restored 100% bonus depreciation; solar that qualifies for §48E remains 5-year MACRS property. [20]

> **Tax review required.** Figures are illustrative arithmetic, not tax advice. A qualified tax professional should confirm ownership structure, beginning-of-construction evidence, sourcing compliance and monetization before any funding commitment.

07B / CAPITAL AND DEPLOYMENT

Finance the portfolio. Build week by week.

A commercial ownership pathway

Homeowners can no longer claim the federal residential solar credit for systems installed in 2026, but businesses still can. If a commercial VPP operator or third-party owner owns the systems and meets the federal rules on construction timing, component sourcing and labor, it may claim the 30% business clean-electricity credit and depreciate the equipment. In our model, that could cut the roughly $21,000 outside-support need per home to about $12,000, or lower with bonus depreciation. It's a pathway to evaluate with tax professionals, not a guaranteed result, and new solar generally has to be in service by the end of 2027.

That structure could make third-party ownership under a VPP financially workable for data-center sponsors, venture-capital firms or infrastructure investors. The opportunity is to fund a portfolio of installed assets and contracted services, not to assume a return before bids, tax eligibility and payment obligations are established. Tax eligibility conditions and the existing §48E/depreciation figures in section 07A remain controlling; a credit is not cash until it can be used or monetized.

PowerSol's operational experience—not an industry average

Joseph Kenney reports that PowerSol can install and bring about **10 homes online per week per three- or four-person crew**. This is a company-reported planning figure, not independently audited performance or a guarantee for every roof.

Illustrative crews	Homes/week	Time for 10,000 homes
10	100	100 weeks
20	200	50 weeks, roughly one year

Assumes steady parallel work, ready sites, continuous funding and equipment. Permitting, inspection, weather and utility interconnection can change delivery. Energized homes still need VPP telemetry, enrollment, dispatch tests and independently verified service.

Different clocks, complementary resources

Georgia Power dates the Vogtle 3–4 expansion start to June 2009; Units 3 and 4 entered service in July 2023 and April 2024. This is a documented project, not a universal nuclear timetable. EIA's 2026 assumptions use two-year lead times for combustion turbines and three for combined-cycle generation—not a guaranteed three-to-four-year independent data-center grid. Fuel, permits, equipment queues and interconnection remain project-specific.

> VPPs complement firm generation and grid upgrades. The opportunity is to bring distributed resources online in stages while larger infrastructure proceeds, not to equate their reliability or replace firm supply.

Sources: PowerSol/Joseph Kenney, reported operational experience, November 2026; tax sources [15–20]. Georgia Power, Plant Vogtle; EIA, AEO 2026 Electricity Market Module, Table 3.

08 / CONTRACTS AND REGULATION

Keep large-load obligations intact

Florida Statutes section 366.043 defines qualifying large-load customers using an anticipated monthly peak of at least 50 MW at one location, measured over a 15-minute interval, with colocation provisions. It requires public-utility tariffs and protections against shifting large-load costs and risks to other ratepayers. The tariff-filing deadline was October 1, 2026; a statutory deadline does not mean any particular tariff has been approved. [3]

On November 3, 2026, the Florida Public Service Commission's vote sheet in Duke Energy Florida's large-load tariff proceeding records approval, as modified, of the staff recommendation to deny the tariff as filed, with leave to refile. That is not an approved tariff or a final order. [14]

Preferred pilot: sponsor-funded, utility-managed service

Adapt RMI's utility-sleeved structure to a Florida-approved pilot: a sponsor funds incremental community resources; competitively selected operators deliver service; the utility validates and dispatches within contract limits; and the commission recognizes only justified value. This is a recommendation, not a current entitlement. [6]

Capacity-transfer alternative: explore only after establishing a lawful accreditation and trading mechanism. Florida is outside an organized RTO/ISO market; a PJM product cannot be imported unchanged. **Reliability-reinforcement alternative:** couple a VPP with enforceable campus demand flexibility and backup arrangements, subject to utility and regulatory approval. [1,6]

Terms that must precede deployment

Specify minimum service commitments, phased load ramps, connection costs, security, cancellation and termination charges, and remedies if the campus fails to materialize. Do not grant a blanket offset against full cost of service for community spending. Credit only incremental, measured benefits accepted by the utility and regulator, without double counting.

Campus flexibility requires technical tests: which computing or cooling loads can shift, for how long, with what notice, recovery ramp and maximum annual interruptions? Do not assume emergency backup generation can run without permit and fuel constraints. A VPP failure must trigger a defined replacement or campus-curtailment obligation, not a call on households' protected reserves.

Jurisdiction and procurement

Publish equipment and administration fees; invite multiple qualified manufacturers, distributors and installers. Score lifecycle cost, interoperability, warranties and verified delivery. Use transparent regional lots, conflict disclosures, prompt milestone payments and final holdbacks tied to operation. Keep independent evaluation separate from sales and procurement.

Counsel should map utility retail-service law, leases versus energy sales, interconnection and export rules, compensation, privacy, consumer finance and public procurement. Public power and cooperatives need applicable board approvals. FERC Order 2222 concerns DER access to organized wholesale markets; it does not itself authorize a Florida retail VPP payment. [12]

> Invite FPL, Duke Energy Florida, TECO and affected municipal and cooperative utilities by service territory. University research is evidence for design, not utility approval.

09 / COMMUNITY ACCEPTANCE

Earn trust through visible, measurable value

Pew's July 20–August 9, 2026 survey of 10,548 U.S. adults found 50% viewed data centers as mostly bad for home energy costs and 49% as mostly bad for nearby quality of life, up from 38% and 30% in January. This is national opinion evidence, not a Florida siting vote or proof that a VPP will change attitudes. [13]

A community compact with enforceable obligations

Before final commitments, publish who pays for power, roads, emergency response and water infrastructure; construction versus permanent jobs; tax concessions and net fiscal effects; and who receives energy upgrades. Include noise limits, setbacks, traffic routes, air permits, generator testing hours, water budgets and complaint remedies. A solar offer does not resolve every siting impact.

Use public meetings, tenant and homeowner representation and independent advice before enrollment. Publish quarterly participant bills and net savings, outage support, local contract value, apprenticeship completion, unresolved complaints and nonparticipant effects. Separate one-time construction receipts from recurring operating revenue; avoid recurring school or payroll commitments funded by temporary windfalls.

Water and cooling

Evaluate site-specific dry, closed-loop, direct-to-chip, hybrid and reclaimed-water options with engineering review. Publish potable and reclaimed volumes, peak-day limits, water-use effectiveness and drought response. Closed-loop server cooling does not automatically mean no site water use, and a waterless generator does not establish a waterless computing campus. Berkeley Lab distinguishes onsite and electricity-related water demand. [4,5]

09A / WATER AND COOLING

What about water? Specify the design.

Water concerns deserve an engineering answer, not dismissal. Berkeley Lab estimated **66 billion liters** of direct U.S. data-center consumption in 2023 and nearly **800 billion liters** of separate electricity-related water consumption. These are national estimates, not a Florida site's budget. [4]

The golf-course comparison is not universal

GCSAA's 2025 report gives a 2024 national median of **68.9 acre-feet per golf facility**, about **22.5 million gallons/year** of irrigation applied—not a Florida average. EESI reports medium-sized data centers using up to roughly **110 million gallons/year** for cooling and large sites up to **5 million gallons/day**. Large evaporative-cooled campuses can exceed the golf benchmark substantially.

Zero-evaporation cooling can use less cooling water than that irrigation benchmark, but this compares cooling only—not total facility or electricity-related water footprints. Separate withdrawal, consumption and return flow; assess the same site boundary and time period.

Practical options and their limits

- **Reclaimed/non-potable water:** Florida DEP reports about **958 million gallons/day** reused beneficially in its 2024 inventory. This is existing use, not spare supply for new campuses. Microsoft reports reclaimed/recycled-water use in several markets.
- **Closed-loop and low-water heat rejection:** Microsoft's December 2024 design announcement describes zero evaporation for cooling after initial fill; new sites were expected online beginning late 2027. Restrooms and other uses remain. Closed server loops can still reject heat through evaporative towers; examine the full system.
- **Dry/air cooling:** DOE documents air-side and liquid-cooling options and climate/operational constraints. Reducing cooling water may increase electricity consumption; compare both.
- **Seawater/lake heat exchange:** Google's operating Hamina facility uses seawater cooling. Florida applications require site-specific feasibility, withdrawal/discharge permission, intake protection, thermal and ecological safeguards. Nearby water is not an unrestricted resource.

> **Proposed Florida requirement:** large-load agreements should require suitable reclaimed/non-potable supply or low-water cooling where technically and environmentally feasible. Publish annual and peak-day withdrawal/consumption, drought rules, infrastructure costs and discharge effects. Assign required infrastructure costs to the developer. Environmental concerns belong in design from the start.

Sources: Berkeley Lab [4]; GCSAA 2025 report, Table 2; EESI, June 25, 2025; Florida DEP 2024 Reuse Inventory; Microsoft, December 9, 2024 design announcement; DOE/FEMP cooling guidance; Google, Hamina.

10 / FIRST 100 DAYS

Design fast. Deploy in stages. Publish results.

Window	Concrete output / decision owner
Days 1–20	A neutral convener seats the utility, regulator, local government, residents and renters, emergency managers, data center, lenders and contractors. Sponsor funds independent feasibility; publish conflicts and eligible service territory.
Days 21–45	Utility identifies constrained hours and zones and required response. Evaluator sets baselines and capacity tests. Counsel maps authority and needed approvals. Community panel sets resilience and access requirements.
Days 46–70	Issue open procurement with separate hardware, software and service pricing; compare solar and storage, retrofits and flexibility. Obtain a binding finance term sheet, replacement reserves, participant contracts and storm protocols.
Days 71–100	Publish the engineering and economic case, ratepayer analysis and community compact. Secure required approvals, select initial lots conditionally and hold a public go/no-go review. Commission a small test cohort only when permits and utility readiness allow.

100 days is a design and approval target, not a promise of 400 energized homes. A $10 million, 400-property planning case implies $25,000 per property, 4 MW DC solar and 12 MWh storage at 10 kW/30 kWh each, pending site surveys, competitive bids, warranty reserves and interconnection schedules.

Proposed pilot gates, set before contracting

Require 100% inspected and authorized energized systems; no unresolved critical safety or cyber findings; zero documented unauthorized reserve dispatches; at least 90% of contracted MW in 90% of eligible test events; independent total-bill checks and remediation; and no unapproved incremental cost shifted to nonparticipants. These are proposed acceptance thresholds, not research-established standards. Weather exclusions and sample adequacy must be agreed in advance.

Operate through at least one full peak season and a storm-readiness exercise; publish costs and failures as well as benefits. Expand to 1,000–2,000 properties only after independent review, and make a separate scale decision for 10,000. Segment communications, require encryption and least privilege, maintain audit logs, test fail-safe utility override and retain data portability if an operator exits.

> **Disclosure:** Joseph Kenney is a PowerSol USA co-founder and a potential bidder. This statewide framework seeks no exclusive award; PowerSol supports open, competitive bidding. Independent procurement, verification and community representation are essential. Illustrative economics are not certified engineering, committed funding or legal entitlement.

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