Connecticut Residential Energy Storage Solutions
Independent Market Assessment

Prepared by
David Haeg
Journey Catalyst

Prepared for
Connecticut Green Bank

Date
June 2026

1. Executive Summary

Connecticut's residential Energy Storage Solutions ("ESS") program has meaningful underlying value to customers and the grid, but the market is not yet mature enough to deliver that value consistently. The central finding of this assessment is that ESS is constrained less by a lack of incentive value and more by market friction. Contractors are not consistently offering batteries, most homeowners ("customers") do not fully understand the storage value proposition, and the Program's enrollment and activation process contains too many weak links. Even after enrollment, installed batteries are not always performing as expected or visible to customers, while accountability remains fragmented across too many stakeholders.

This market assessment began with a financing-oriented question: whether the Connecticut Green Bank ("Green Bank") should develop or support a storage financing concept to address slow residential battery adoption in Connecticut - a reasonable starting point. Batteries remain expensive, and the shift from upfront incentives to a primarily performance-based compensation structure makes the value harder for customers and contractors to use at the point of sale. While the evidence suggests that financing may help at the margin, it is not the primary constraint. Along with potential impacts from state-specific program design, policy uncertainty and utility processes, the larger issue is market maturity: the residential storage market is not yet consistently selling, explaining, activating, operating, or proving the value of batteries in the state.

The ESS Program was expecting an immature residential storage market to perform like mature grid infrastructure. These are the necessary growing pains of market development: Green Bank, Public Utilities Regulatory Authority ("PURA"), utilities, contractors, Original Equipment Manufacturers ("OEMs"), Third-Party Owners ("TPOs"), and customers are all trying to balance grid value, customer protection, private-market competition, and practical adoption in a market no one can fully predict. This market assessment is intended to support that same honest learning process so the next set of choices can respond to the reality of what's happening in the market at this time.

The good news is that the central policy premise for ESS still makes sense. Residential batteries can provide customer resilience, preserve solar value during outages, support local and system-wide grid needs, and create a platform for future rate design and grid services. Construct 5[1] is also directionally stronger than earlier program designs (e.g., “Set It and Forget It” or passive dispatch through upfront incentive) because it more directly links compensation to actual performance. It turns the battery from a one-time rebate with strings attached into an asset that can earn value over time. The challenge is that this value is hard to understand and quantify, hard to explain and sell, hard to activate, hard to estimate, and hard to prove.

This market assessment identifies four primary barriers limiting ESS’ growth:

1. Batteries are not consistently entering the sales conversation.
2. The customer value proposition is real but not yet being communicated consistently.
3. Enrollment, activation, and performance visibility are too fragile.
4. TPOs and OEMs can help scale the market, but need clearer pathways and guardrails.

In Connecticut, contractors appear to be a major constraint to ESS market growth, because storage is often not introduced during the solar sales conversation - it’s viewed as a complication to a solar sale. Solar has a simple story that contractors have years of experience telling: lower your bill and earn back your investment. Batteries add cost, require explanation, introduce technical questions that a salesperson can’t always answer, and complicate a sale that solar contractors already know how to close. Even when company leadership understands that solar-plus-storage is the future, that message often does not translate to frontline sales behavior. Overall, this dynamic drastically limits the potential market size: What isn’t offered can’t be sold.

The market needs to recognize there are different customer needs and segments, and motivating them requires nuanced communication, which generally is not happening in customer/contractor interactions. There was also an initial question around customer perceptions of control of the battery. The interviews suggest that customers want to feel that the battery remains theirs, that backup reserve is protected by default, that they understand when and why dispatch occurs, and that compensation is clear. When this happens, customers see dispatch as an earning opportunity and want their battery used more. If not, the program can feel like the utility or another party is controlling an asset the customer thought they owned. The new Construct 5 incentive structure is aimed at addressing most of these concerns.

Third-party ownership is likely to become one of the most important near-term pathways for scaling residential storage. TPOs can reduce upfront cost, monetize tax benefits, standardize equipment, manage enrollment, simplify the customer experience, and absorb performance risk across a fleet of batteries. However, TPOs are not automatically customer-aligned. If ratepayer-funded performance value flows primarily to private owners while customers receive little visible financial benefit, the model may be perceived as risky for customers, ratepayers, and program trust. A strong TPO pathway needs transparent value sharing, clear customer disclosure, performance accountability, and long-term service responsibility.

OEMs are also central. Battery performance depends on equipment capability, software, metering, connectivity, dispatch readiness, and data quality. Some OEMs are ready to support grid services and may be well positioned to take on performance accountability. Others remain more oriented toward backup power and

[1] Construct 5 is a new incentive structure launched in Energy Storage Solutions on April 1st, 2026, which consists of higher performance incentives and a lower or no enrollment incentive in certain situations. This moves away from a higher upfront incentive with risks of clawback implications for nonperformance. Current incentive levels are listed on the Energy Storage Solutions website https://energystoragect.com/

generator replacement. The Program may need to move from a broad list of “eligible equipment” toward a more transparent performance-based and actively managed set of validated pathways that can reliably deliver grid value.

The utility perspective reinforces that this is not just a sales problem. One utility interviewed views distributed batteries as part of the future grid, but reliable data, telemetry, dispatch, interconnection, and customer communications remain significant challenges. Building a virtual power plant (“VPP”) on customer Wi-Fi is inherently fragile. Interconnection may be cumbersome, but some of that complexity reflects the real difficulty of safely integrating distributed resources into the grid. The challenge, therefore, is not simply that interconnection is complex - it is that market participants need utilities to meet published timelines, provide clearer status visibility, and make the approval process more predictable, if storage is expected to scale.

Green Bank’s highest-value role is therefore not simply to create another financing product. Financing can help, especially if future performance value can reliably be converted into lower upfront or monthly cost. The larger need is market-building. Green Bank should focus on making ESS easier to sell, easier to understand, easier to enroll in, easier to operate, and easier to verify.

The next phase of ESS should focus on five priorities:

1. Make ESS easier for contractors to understand and sell as part of the solar conversation.
2. Simplify the customer offer and make performance visible.
3. Create trusted TPO and OEM pathways.
4. Reduce operational friction in enrollment, activation, interconnection, and data.
5. Consistent support for Construct 5 as the market matures - markets require predictability.

2. Assignment, Scope, and Methodology

The original assignment was to determine whether a Green Bank-supported storage financing concept was needed, who would use it, what barriers were limiting adoption, and which concept directions were worth exploring. As the work progressed, it became clear that financing was necessary but not sufficient, and the focus shifted to a broader and more practical question: How can Green Bank help many more Connecticut homeowners install batteries, enroll in ESS, and participate successfully?

This assessment is based on 30+ interviews and synthesis across multiple stakeholder groups, including:

- Homeowners who installed batteries
- Residential solar and storage contractors and industry representatives
- Original equipment manufacturers
- Third-party ownership providers and BESS operators
- Utility representatives
- Academic experts and solar program practitioners

This report is not a formal audit, engineering review, or regulatory evaluation. It is a market assessment and customer journey analysis. Its purpose is to help Green Bank leadership, Program staff, PURA, and other stakeholders understand the practical barriers limiting ESS growth and identify the highest-value next steps.

3. Central Finding: Battery Storage Value Exists, but the Market Cannot Reliably Deliver It Yet

Battery storage value is currently harder to explain than solar value. Solar has a simple customer story which is: install panels, reduce your bill, and earn back your investment over time. Batteries have a more complicated story which is: backup power, outage resilience, solar continuity, battery reserve, dispatch, grid events, performance payments, dispatch event opt-out behavior, long-term earnings, and future rate design. This complexity creates friction at every stage.

- At the top of the funnel, most customers never get to hear a compelling battery sales pitch. Contractors often avoid storage because it complicates a solar sale. When storage is introduced, it may be presented as an expensive add-on rather than a valuable asset that provides backup power, keeps solar systems functioning during grid outages, and provides a 10-year incentive stream.
- At the decision stage, the customer may not be able to connect the value of a battery to their needs: backup, bill control, ESS earnings, or generator replacement. Without a clear use case, the added cost can feel difficult to justify as a customer. They may also struggle to validate the financial case for the ESS program without simple and persuasive examples of customer success.
- At the activation stage, the customer may not know whether the system is enrolled, configured, connected, metered properly, dispatch-ready, or eligible for payments, and there may be confusion of whom to call for support, for example, is it the contractor, OEM, or the utility?
- During dispatch event participation, customers may not see when events happen, how their battery responded, whether the system performed, or how their payment was calculated. That makes future payments feel abstract and limits the customer's ability to become an advocate.

For customer-owned systems, this friction makes it harder for the homeowner to understand, enroll, participate, and capture the value they paid for. Even for TPO-owned systems, the same friction (even if minimized due to their scale/integration) increases operating cost. It requires more sales effort, activation support, troubleshooting, customer service, data management, and performance risk management. The more friction the TPO absorbs, the less value remains to share with the customer.

The central market issue is therefore not only "How much is the incentive?" It's whether or not the customer can hear the value, trust the value, enroll in the value, see the value, and have someone accountable for delivering it? Today, too often, the answer is no.

That assessment should not be interpreted entirely as a market maturity challenge. This assessment did not include a formal comparison across utility territories, but stronger battery deployment in some other markets suggests that program design, utility processes, rate signals, contractor and TPO offerings, and policy stability can accelerate or inhibit adoption. Recent federal policy changes further complicate the economics and customer message for homeowner-owned systems. Connecticut should therefore distinguish between barriers that are likely to ease naturally as the market develops and barriers created or amplified by local program and policy choices.

4. Barriers Limiting ESS Growth

Barrier 1: Batteries are not consistently entering the sales conversation

Across the interviews, this is the clearest and most important finding. Contractors are the primary channel where customers learn about residential solar and storage. If contractors do not introduce batteries, the customer may never consider them. If contractors introduce batteries weakly, customers may perceive storage as an expensive, confusing, or speculative add-on.

Solar remains the simple sale. Customers call because their electric bills are high. Contractors know how to explain solar savings, financing, and payback. Batteries make the conversation harder. They add cost, require more explanation, raise technical questions, and can weaken the clean monthly-savings story that solar contractors are used to selling. If storage slows the sale, reduces close rates, adds paperwork, or is not clearly and timely compensated, many salespeople will avoid the battery conversation entirely unless the customer raises it first.

This makes storage different from solar market development a decade ago. The solar market already created a sales culture, contractor ecosystem, financing model, and customer expectation around what it means to “sell solar.” Adding batteries now means asking that existing market to change a sales playbook that already works.

The missed opportunity is that most good battery candidates never get a storage sales pitch. Batteries are easiest to sell when the customer has a clear resilience need, for example: persistent outages, wells, wooded areas, coastal exposure, work-from-home needs, medical equipment, generator fatigue, or unreliable service. But unless the contractor asks the right questions, those needs may never surface. In those cases, the customer does not reject the battery value proposition, the customer simply never hears it in a way that connects to their life.

Some contractors show that batteries can be sold when the value proposition is clear and connected to real customer needs, and the leadership at other solar companies are aware of Time of use (“TOU”) pricing and solar-without-storage caps on the horizon. The program needs to help other contractors and salespeople get better faster. Contractor education should not be treated as a side activity. It should be central to ESS market development.

Key implications:

- Storage must become part of every relevant solar conversation.
- Contractors need practical sales tools, not just Program documentation.
- Contractors need help to identify which customers are good battery candidates.
- Customer-facing awareness may need to increase so customers can begin asking about batteries before the sales visit.
- High-volume installers matter because they shape the top of the market’s funnel.

Barrier 2: The customer value proposition is real but requires nuanced communication and pathways shaped for different needs and segments

Customers are not buying “battery storage” for one single reason. Batteries function as several different products depending on the customer’s situation.

Storage is primarily a resilience product. These customers want the home to keep functioning during outages, especially if they live in wooded, rural, coastal, or grid-edge areas; rely on well water; have medical equipment; work from home; have aquariums or place a high value on their perishable food; or have experienced prior extended outages. This appears to be the most emotionally durable value proposition. Even when the system does not produce a clean financial payback, customers often remain satisfied, if it delivers peace of mind.

Storage is a solar continuity product. Several homeowners initially assumed that solar panels would power the home during an outage, then learned that solar generally shuts down when the grid is down unless paired with the right battery and control equipment. In these cases, the battery becomes the thing that makes solar useful during the moments when backup matters most.

Storage as bill-control or energy-independence strategy. These customers are trying to reduce exposure to high electric rates, future utility increases, or unpredictable monthly bills. This value proposition is more fragile. It works best when the home has efficient loads, adequate solar production, TOU rates, and realistic expectations.

Batteries as a generator alternative or complement. Some customers found batteries compelling as a quieter, lower-maintenance backup option. Several others paired batteries with generators to create layered resilience: solar for daytime generation, batteries for seamless backup and overnight continuity, and a generator for extended outages.

The grid-participation role of batteries. These customers like the idea that their battery can support the grid and earn performance payments. In several cases, customers wanted the battery used more frequently, and were open to more dispatch opportunities. The concern was not “do not touch my battery.” It was “show me what is happening, protect my backup reserve, and make the compensation understandable.” The earlier ESS incentive structure may have amplified control concerns because it combined large upfront incentives, passive dispatch, limited visibility, and unclear ongoing expectations with active dispatch that also has limited visibility, and unclear ongoing expectations. Construct 5 appears better aligned with customer psychology because it ties value to ongoing performance and can be framed as voluntary sharing of a customer-controlled asset.

Because of these varying needs, the ESS Program should offer clear pathways for the reasons customers actually buy batteries:

- Backup and resilience.
- Solar continuity during outages.
- Generator alternative.
- Bill control and energy independence.
- ESS earnings.
- Existing solar retrofit.
- Low-income and Underserved Communities’ resilience and access.
- Grid Edge value.

Barrier 3: Enrollment, activation, and performance visibility are too fragile

The current customer experience places too much responsibility on the homeowner. They must evaluate contractors, understand solar and battery technology, interpret financing and tax credits, confirm Program enrollment, monitor OEM app settings, understand battery dispatch behavior, track utility payments, and follow up with the right person when something seems wrong. Several homeowners did this successfully, but they were often unusually technical, persistent, or financially analytical, i.e. early adopters. This shows that the program design needs to be simple enough for mainstream customers before the market can scale.

The strongest customer experiences usually had four elements in common:

1. The homeowner had a clear use case. They knew whether they were buying backup, solar continuity, bill control, generator replacement, grid participation, or some combination of those benefits.
2. The contractor explained the system clearly and helped set realistic expectations. Good contractors helped customers understand battery sizing, backed-up loads, reserve settings, generator integration, ESS participation, OEM app setup, and post-install operation and maintenance.
3. The system was visible. Customers who could see battery behavior through an app generally felt more confident. Visibility made the system feel real and helped customers understand what the battery was doing.
4. Incentives mattered. For some customers, incentives made a purchase they already wanted more affordable. For others, incentives were the difference between moving forward and not moving forward. Even satisfied customers viewed batteries as expensive.

The weaker experiences involved expectation mismatch, poor home fit, contractor variability, enrollment uncertainty, metering problems, lack of dispatch visibility, or less clarity of which party was responsible for resolving issues after installation.

The most consistent problem was translating Program performance to incentive visibility, which many customers called a “black box”. Some customers could see what the battery was doing technically, but they couldn’t easily connect that behavior to ESS value. They want to know if they are enrolled, when events occurred, whether the battery participated, how much energy was delivered, how much they earned, when they will be paid, and who to contact if something seemed wrong.

This also affects contractors, who often receive customer questions and frustration when payments, enrollment, or performance are unclear, even when the contractor does not control the utility payment data, OEM app, or Distributed Energy Resource Management System (“DERMS”) integration. To put it mildly, contractors do not want to manage this - they want to sell and install, not manage/support a product they understand marginally well. It’s another reason they are not selling batteries.

Interconnection and utility approvals fit into the same customer journey problem. Some interconnection complexity is unavoidable because utilities need to safely integrate distributed resources into the grid. However, contractors and TPOs consistently experience approval timelines and process visibility as less predictable than published guidelines suggest. If residential storage is expected to scale, utilities need to provide clearer status visibility, more predictable timelines, and stronger follow-through.

For these reasons, an ESS performance statement or scoreboard would help customers, contractors, Green Bank, utilities, OEMs, and TPOs.

Customers and contractors should be able to easily access basic information:

- Is the system enrolled?
- Is the battery active?
- When did events occur?
- Did the battery participate?
- How much did it contribute?
- When will payment occur?
- Is anything not working?
- Who should the customer contact if they have problems?

The core issue is not simply customer communication. It is integrated accountability. The Program needs a clearer structure where one party or pathway is responsible for ensuring that the system is sold accurately, installed correctly, enrolled properly, dispatched as expected, visible to the customer, and supported after installation.

Barrier 4: TPOs and OEMs can help scale the market, but need clearer pathways and guardrails

TPOs will likely become a more important part of the market as batteries remain expensive and tax-credit treatment, financing, and performance-payment complexity make direct ownership difficult for many mainstream customers. TPOs can help by reducing upfront cost, monetizing tax benefits, standardizing installation pathways, managing equipment, and absorbing performance risk across a fleet.

Joint TPO/Battery Energy Storage System models can integrate sales, installation, customer communication, ESS enrollment, dispatch performance, and fleet risk. They can make grid-services participation feel nearly invisible to the customer while still giving the customer a clear annual benefit and standardized battery cost. That kind of model addresses many of the issues that customer-owned systems currently place on homeowners. However, without giving the customer a clear stake in the outcome of dispatch participation, it is questionable how many of their customers will choose to include batteries.

Other TPOs offer to let customers keep performance incentives and are exploring options to advance future performance value upfront. That kind of optionality could help reconcile two market needs: customers who prefer ongoing performance payments and customers who need upfront affordability.

The key point is that TPOs can have very different approaches:

- Pass performance value through to the customer.
- Retain performance value and reduce monthly cost.
- Provide a fixed annual payment.
- Advance expected future performance payments upfront.
- Share value with OEMs, aggregators, and/or financing partners.
- Capture most of the value while giving customers limited visible benefit.

The Program should define what a good TPO model must do:

- Provide a clear customer value proposition.
- Transparently disclose who receives ESS payments.

- Preserve customer backup value and reserve control.
- Assign performance risk to the party best able to manage it.
- Maintain long-term service responsibility.
- Avoid opaque contracts that undermine trust.
- Provide performance visibility.
- Protect customers if the TPO fails or underperforms.

OEMs also need clearer pathways. Battery performance depends on equipment, software, data, metering, customer app settings, and integration with DERMS and utility systems. Not all OEMs are equally ready to provide grid services. Some are building products and software around grid participation. Others are still more oriented toward backup or generator replacement. This creates a challenge for a program that is trying to treat many battery systems as functionally equivalent.

A battery should not be eligible to participate in ESS simply because it can store energy if it cannot participate reliably. The Program should consider validated pathways that meet basic standards for equipment capability, dispatch readiness, data quality, customer setup requirements, clear accountability for uptime and performance.

The challenge is balance. A program that is too open can become operationally unmanageable. A program that is too narrow can create concentration risk, reduce competition, and expose the program to “picking winners” criticism. The next phase should seek a middle path: open competition within clearer performance and customer-protection standards.

5. What These Barriers Mean for The Program and PURA

- A new ESS-specific financing product should not be the primary response to slow battery adoption. Financing may be useful, but the first-order barriers are sales behavior, customer understanding, activation complexity, partner readiness, and market trust.
- The Program may need more flexibility to simplify participation pathways and set clearer performance standards for market participants. The current Program has become difficult to manage because it includes many permutations: battery models, contractors, TPO structures, OEM and DERMS integrations, and utility processes. Openness has value, especially in a market that should allow competition, but unmanaged complexity has costs. The goal should be to define what readiness looks like in a ratepayer-funded grid services program and make participation easier for customers, contractors, and partners who can reliably deliver value.
- Consumer protection should focus less on adding paperwork and more on making sure customers actually understand what they are buying, who owns it, how value flows, and who is accountable after installation. Additional forms, disclosures, and process requirements may reduce institutional liability, but they do not necessarily create a better customer experience or a safer market. In practice, the strongest consumer protection is a program that works clearly and predictably, supported by simple and consistent communication across stakeholders.
- The Program needs enough stability for Construct 5 to work. The market cannot adapt if the rules change too quickly, especially after a major program redesign. Several market participants noted that Connecticut’s annual review process can leave providers feeling like they have only a short window to implement one set of changes before preparing for the next potential round of changes. Contractors

need time to learn the offer. TPOs need time to build products. OEMs and DERMS providers need time to stabilize integrations. Customers need proof. Utilities need data. Therefore, Program Administrators and PURA need to observe the new model long enough to understand what is working before the market is asked to adjust again and have an easier way to make adjustments to the Program rules as needed.

- ESS should be treated as a market-building challenge, not only a program coordination effort. Green Bank is already managing a highly complex program involving customers, contractors, OEMs, TPOs, DERMS providers, utilities, regulators, and ratepayer funds. The gap is that the Program may not have enough dedicated capacity to build the tools, pathways, standards, proof points, and partner alignment needed for this market to mature. If ESS is expected to scale, Green Bank will need resources not only to coordinate the Program, but to help the market participate in it successfully.

The regulatory question is therefore not simply whether the incentive level is high enough. The more important question is: *What program flexibility and operational support are needed to help the residential storage market mature while protecting customers and ratepayers?*

6. Market Pathways for the Next Phase

Because batteries serve different needs for different customers, multiple pathways should be created.

Customer-Owned: *Asset Optimizers*

For customers who are able to pay cash or qualify for financing to own their system and capture the full value of the ESS incentives. They are comfortable with some complexity and value backup, solar continuity, and long-term asset optimization.

Core offer: *Keep the power on. Keep your solar working. Earn bonus payments.*

The main need is not necessarily a new storage-specific financing product. Existing financing (such as Smart-E, other solar lenders) is likely sufficient for ownership customers. The bigger need is better packaging, more confidence in ESS value, enrollment support, and performance visibility.

What the Program needs to solve:

- Clear ESS earnings examples.
- Contractor sales materials.
- Activation support.
- Performance reporting.
- Better customer expectations around backup, reserve settings, and payment timing.

Mainstream TPO: *Shared Value*

For customers who want a simpler path to battery backup and do not want to pay upfront. They value backup, solar continuity, and predictable monthly costs more than long-term asset optimization.

Core offer: *Solar savings plus battery backup, with ESS value used to lower customer cost or provide annual payments.*

This pathway may be the most scalable near-term option, but the terms will influence the level of customer demand. A TPO can own and operate the system, manage enrollment and dispatch, absorb performance risk, and turn future ESS value into a simpler customer offer. However, the TPO pathway must be designed carefully. The customer should receive a fair and visible share of ESS value. That value could appear as:

- Lower monthly battery cost.
- Fixed upfront or annual incentive payment.
- Shared performance payment.
- Upfront payment based on future expected performance.

Green Bank should not require one exact TPO structure, but it should require transparency and customer value via TPO disclosure standards, incentive assignment clarity, customer value-sharing expectations, performance accountability, and end-of-term disclosure.

LMI or Underserved: *No-Upfront Cost Battery Access*

For LMI or underserved customers who may not be able to access standard financing but would benefit meaningfully from backup power and resilience. These customers may have the greatest need for storage and resiliency, but the least ability to pay for it upfront.

Core offer: *Get battery backup at no upfront cost, either paired with solar or as a standalone battery where solar is not practical or immediately available.*

This pathway likely requires more intentional program design than the standard customer-owned or TPO models. Standard underwriting, credit requirements, customer acquisition strategies, and risk allocation may not naturally reach Low-Income households, TPOs generally acknowledge this. If the Program wants storage to serve customers with high resilience needs and limited ability to pay, the model may need to absorb upfront cost and recover value over time through ESS participation.

One possible model would be a Green Bank-supported battery access program in which an eligible customer receives a battery at no upfront cost, participates in ESS events over a defined term, and earns ownership or a meaningful end-of-term benefit after meeting participation requirements. The battery could be paired with solar where appropriate, but a standalone battery pathway may also be worth exploring for customers who would benefit from backup and grid participation but are not ready or able to install solar due to siting or financial hurdles.

This concept would require additional diligence, especially around customer protection, ownership, maintenance responsibility, performance requirements, opt-out rights, and who receives ESS value during the agreement term. But it aligns with Green Bank’s broader equity and market-building role by using the future grid value of the battery to create access for customers who otherwise may be left out of the market.

Issues to solve:

- Upfront funding, credit enhancement, or another mechanism to cover the battery cost.

- Simple contracts and plain-English customer disclosures.
- Strong consumer protections around ownership, backup reserve, opt-out rights, maintenance, and end-of-term outcomes.
- A performance-based ownership or transfer pathway.
- Clear rules for who receives ESS value during the agreement term.
- Customer support and monitoring.
- TPO, OEM, or service-provider standards if third parties install, own, or maintain the battery.
- A decision on when standalone batteries should be eligible versus solar-plus-storage systems.

Current Battery Owners Not Enrolled in ESS

For existing battery owners not enrolled in ESS.

Core offer: *Your battery may already be able to earn money.*

This is a targeted pathway for customers who have compatible batteries already installed but are not enrolled in ESS.

Items to address:

- Data analysis of installed batteries from utilities versus ESS enrollment.
- OEM and contractor outreach.

7. Recommendations

Recommendation 1: Make ESS easier for contractors to sell

Green Bank should treat contractor sales enablement as a core program function. Contractors need a product to sell, not a project to explain and manage. ESS currently feels too much like a project. The Program should provide simple materials that help a salesperson introduce storage confidently without becoming a battery expert.

Green Bank should also consider marketing directly to customers. If customers better understand batteries before the sales visit, contractors can introduce storage as a relevant solution rather than an unexpected upsell. This could include customer education, case studies, targeted Grid Edge outreach, community-based campaigns, and co-marketing with OEMs or other market partners.

Recommended actions:

- Create simple language contractors can use to explain ESS to customers.
- Provide questions contractors can ask to identify good battery candidates.
- Create a one-page customer handout that explains solar-plus-storage, ESS payments, backup value, and basic customer responsibilities.
- Develop “How to explain ESS in 90 seconds.”
- Show simple example economics for standard, Low-Income, Underserved Communities, and Grid Edge customers.

- Create a plain-English FAQ, including explanations of outage backup, ESS participation, reserve settings, payment timing, and who to contact if something goes wrong.
- Engage high-volume installers directly and study (and formally recognize) successful contractors so their practices can be emulated by others.

The goal is to make batteries part of every relevant solar conversation.

Recommendation 2: Simplify the customer offer and make performance visible

The market should provide each customer with a relevant message:

- Customer-owned: *Keep the power on. Keep your solar working. Earn bonus payments.*
- Mainstream TPO: *Solar savings plus battery backup, with ESS lowering your cost.*
- Low-Income or underserved communities: *Go solar, get battery backup at no added cost.*
- Battery owners not enrolled in ESS: *Put your battery to work, earn bonus payments.*
- Existing solar retrofit: *Your solar won't work during an outage. A battery can keep it working and earn ESS payments.*

The program should also develop an ESS performance scoreboard, which could begin as a seasonal or annual statement before becoming a more dynamic dashboard. It should answer:

- Am I enrolled and is my battery active?
- When did events occur and did my battery participate?
- How much did it contribute and earn?
- When will I be paid?
- Is anything wrong, and who do I contact?

The goal is visibility and proof. Customers who understand what happened are more likely to trust the Program, tell others, and have something to show them.

Recommendation 3: Create trusted TPO and OEM pathways

TPOs and OEMs are likely critical to scaling ESS, but the Program needs clearer pathways and guardrails.

For TPOs, Green Bank should:

- Define minimum participation standards.
- Require clear disclosure of who receives ESS incentives.
- Require customer-facing explanation of backup reserve, opt-outs, ownership, contract term, and end-of-term options.
- Encourage and support models that share value visibly with customers.
- Identify who carries performance risk.
- Require customer support and service accountability.
- Require that customer complaints and satisfaction are reported.
- Create contingency expectations for TPO exit, bankruptcy, or underperformance.

For OEMs and technology providers, Green Bank should:

- Create validated OEM pathways.
- Require minimum data and telemetry standards.
- Clarify performance reporting requirements.
- Consider fleet-level uptime or availability expectations.
- Track underperformance by equipment pathway.
- Remove poor performers.
- Reduce reliance on unsupported or poorly integrated configurations.

Recommendation 4: Reduce operational friction in enrollment, activation, interconnection, and data

The activation process should not require customers to manage the machinery behind the Program.

Recommended actions:

- Create a clear activation checklist.
- Track milestones: submitted, approved, connected, OEM registered, settings confirmed, active in Program.
- Reduce any duplicate forms and excessive or unnecessary paperwork.
- Clarify who owns each step so customers understand the process.
- Create different activation pathways for customer-owned, TPO-owned, retrofit, and Low Income systems.
- Give customers visibility into status.
- Make support responsibility explicit.
- Work with utilities to improve interconnection status visibility and timeline accountability.
- Improve minimum data standards across utilities, OEMs, DERMS providers, TPOs, and Green Bank.
- Create a Grid Edge address lookup tool and Low-Income verification process with utilities.
- Compare permit data, interconnection data, OEM data, and ESS enrollment data to identify installed-but-not-enrolled batteries.

A customer who says “yes” should not have to become the project manager of a miniature virtual power plant.

Recommendation 5: Support Construct 5 Past Early Adoption into Mainstream Scale

Construct 5 appears directionally better aligned than earlier Program structures. It should be given time, stability, and operational support as the market evolves, allowing contractors, customers, technology providers, and utilities to learn and adapt as residential storage becomes more affordable, better understood, and easier to deliver.

Recommended actions:

- Avoid major redesign before meaningful performance data is available.
- Focus on operational fixes.
- Provide stability for TPOs, OEMs, contractors, and customers.
- Track customer-owned versus TPO performance.
- Track enrollment, activation, dispatch, payments, complaints, and customer satisfaction.

- Gather and report evidence of market adoption beyond program enrollments, e.g. contractor program awareness/understanding or attachment rates by contractor.
- Use field learning to refine the program over time.

The market needs enough stability and time to learn the new model.

8. Market Activation and Implementation Support

This assessment began as a market analysis. If Green Bank chooses to move from assessment to implementation, the next phase should focus on market activation, translating these findings into practical tools, pilots, partner frameworks, and operating changes that help the market mature.

Contractor sales enablement pilot

Develop and test the materials contractors need to make batteries part of the standard solar conversation. This could include customer qualification questions, a 90-second ESS explanation, one-page leave-behinds, example economics by customer segment, objection-handling scripts, and contractor-ready case studies. The goal would be to move ESS from “a complicated program contractors need to explain” to “a product contractors know how to sell.”

Customer journey tools and ESS scoreboard prototype

Translate the ideal ESS customer journey into practical customer-facing tools and internal process improvements. This could include clearer pathway descriptions for customer segments, an enrollment and activation checklist, a plain-English dispatch and backup reserve explainer, and a prototype ESS performance statement. The goal would be to reduce the amount of integration work currently placed on the homeowner.

TPO pathway and disclosure framework

Facilitate collaboration between the Green Bank, TPOs, OEMs, and utilities to define what a trusted TPO pathway should look like. This could include expectations for incentive assignment, customer disclosure, backup reserve, performance risk, service responsibility, end-of-term options, and customer value sharing. The goal would be to support TPO scale without allowing ratepayer-funded value to bypass the customer or create long-term trust risks.

OEM and performance pathway clarification

Define a practical set of validated OEM or technology pathways that can reliably support ESS participation. This could include customer setup guides, minimum data and telemetry expectations, fleet uptime concepts, dispatch-readiness requirements, and clearer accountability across OEMs, DERMS providers, TPOs, contractors, and utilities. The goal would be to reduce underperformance caused by unclear ownership of technical and operational responsibilities.

Installed-but-not-enrolled opportunity assessment

Use utility data sources to estimate the size of the installed-but-not-enrolled battery opportunity and identify the most promising reactivation segments. This could include existing battery owners, existing solar customers, compatible retrofit systems, Grid Edge customers, and customers with outage-driven resilience needs. The goal would be to find latent ESS capacity, the lowest-hanging fruit.

9. Conclusion

Connecticut's ESS program has not reached its goals as quickly as hoped, but it will reach its potential as the market matures. The early phase proved that residential batteries could create value for customers and the grid. It also exposed the friction that prevents the market from scaling. Customers need clearer use cases, simpler explanations, and better visibility. Contractors need tools, examples, and incentives to sell storage confidently. TPOs need a stable, workable pathway, but customers need protection from models that capture too much value. OEMs need clearer performance expectations. Utilities need better data and process predictability. Green Bank needs to coordinate these pieces into a market that works.

The strategic opportunity for the Green Bank is to help the market cross the gap between early adopters and mainstream use. That will require simplification, accountability, and proof. If the Green Bank can help contractors sell storage, help customers understand and trust it, help TPOs deliver it responsibly, help OEMs support performance, and help utilities verify value, Connecticut can move from a promising program to a thriving residential storage market.