

The Trillion-Dollar Ticking Clock

Why 'Safe Harbor' is the most critical topic in energy finance today



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Executive Summary

The 2025 One Big Beautiful Bill Act established two national deadlines that continue to shape project eligibility and capital planning decisions. Projects that commenced construction before December 31, 2025, were able to avoid Foreign Entity of Concern sourcing restrictions, a threshold that has now closed and materially reshaped the development landscape.

Looking ahead, the July 4, 2026, deadline remains the critical milestone for securing Investment Tax Credits or Production Tax Credits, making construction commencement strategy the primary determinant of incentive qualification going forward.

Large renewable projects no longer have access to the 5% Cost Safe Harbor. The Physical Work Test has become your single viable pathway for claiming that construction began. This guide explains your strategic options and practical steps for qualifying under the updated framework.

What is Safe Harbor?

Safe Harbor is an IRS standard that allows developers to prove that construction began within the required timeframe. Energy projects that satisfy Safe Harbor rules remain eligible for federal tax credits even if on-site construction finishes several years later.

The IRS uses the Safe Harbor provision to verify that developers have made meaningful progress before a statutory deadline. When evidence meets the required threshold, tax credit eligibility becomes locked in for the project's life.

Current Renewable Energy Tax Credit Structure

Development Scenario	Tax Credit Rate	Safe Harbor Status (Deadline: 12/31/2025)	Final Business Outcome
Standard Path No Labor Rules	6% Base Rate	N/A	Lowest financial return.
The "Safe Harbor" Path Meets Labor Rules	30% Bonus Rate	Deadline Met (Started construction by Dec 31, 2025)	Highest Value & Lowest Risk. Developers receive the full 30% credit and are automatically exempt from the new, stringent foreign sourcing (FEOC) audits.
The "High Risk" Path (Meets Labor Rules)	30% Bonus Rate	Safe Harbor Lapsed (Started construction between Jan 1 – July 4, 2026)	Value-driven with Added Compliance. Developers only keep the 30% credit if you pass strict, complex foreign sourcing (FEOC) audits.
The "Ineligible" Path	0%	Window Closed (Started construction after July 4, 2026)	Focus on Operational ROI. The project is no longer eligible for these tax credits.

Critical Updates with IRS Notice 2025-42

Safe Harbor rules have evolved through several policy cycles since their introduction in 2013. Each phase reshaped how developers demonstrate construction activity. The latest update now defines the strictest expectations for large renewable projects under current IRS guidance.

The Evolution of Safe Harbor

01

Phase 1 (2013)

Introduced the Physical Work option and the 5% Cost pathway for demonstrating the start of construction.

02

Phase 2 (2022 IRA)

Added the 30 percent bonus credit structure and linked it to new labor requirements for larger projects.

03

Phase 3 (2025 Act + IRS Notice 2025-42)

Removed the 5% Cost pathway for wind projects and solar projects above 1.5 MW AC.

These updates raise the bar on documentation and reduce flexibility. Projects now need clear evidence of sustained physical progress to maintain tax credit eligibility.

The FEOC Factor and the July 4, 2026 Finish Line

Beyond the deadlines for qualifying for credits, the 2025 Act introduced a new compliance layer: **Foreign Entity of Concern (FEOC) restrictions.**

These rules are designed to block components and materials from countries like China, Russia, North Korea, and Iran from being used in U.S. tax-credit-eligible projects. This creates two new challenges:

- **The Taxpayer Test:** The entity claiming the credit (i.e., the project owner) cannot be a 'Foreign-Influenced Entity' (FIE), based on its own ownership, debt, or board structure.
- **The 'Material Assistance' Test:** This is the project-killer. For the tech-neutral credits (45Y and 48E), a project is disqualified if a certain percentage of its manufactured components (like inverters, trackers, and transformers) are sourced from a 'Prohibited Foreign Entity' (PFE).

This 'Material Assistance' test creates a logistical and due diligence nightmare, forcing developers to audit the entire supply chain of every component.

However, there is a crucial distinction: These FEOC sourcing rules only apply to projects that 'begin construction' after December 31, 2025.

This made the end of 2025 a massive strategic pivot point. Projects that successfully and defensibly 'began construction' by that cutoff are grandfathered in. They can avoid the entire FEOC 'Material Assistance' compliance problem. For everyone else, the focus is now squarely on navigating these compliance rules while racing toward the July 4, 2026 credit qualification deadline.

The Physical Work Test Is the New Law of the Land

With the removal of the 5% Cost Test for large renewable projects, the Physical Work Test has become the only path for establishing the beginning of construction. This shift increases the importance of documented physical activity for you, both on-site and off-site. It also raises the stakes for timely contracting and component scheduling.

The IRS expects you to demonstrate physical progress tied directly to essential project components. The work must be measurable and unique to your project, and go beyond mere planning or preparation.

What Counts as Significant Physical Work?

Projects must show progress on core construction elements. The IRS accepts both site-based activity and off-site manufacturing when the work is specific to the project.

- **On-Site Work:** Excavation and concrete placement for turbine foundations, or installation of anchor bolts, pedestals, racking structures, or tracker posts. These activities show your direct progress toward installing major equipment.
- **Off-Site Work:** Manufacturing custom components under a binding written contract, such as project-specific transformers, turbine assemblies, inverter units, or switchgear that cannot be sold as general inventory. This work must be unique to your project and supported through rigorous production records.

What Does Not Count as Significant Physical Work?

Certain activities do not qualify as construction progress under these rules, regardless of the significant capital investment you may have already made.

- **Planning or Engineering Studies:** Design work, interconnection studies, permitting reviews, and engineering assessments are viewed as preparatory rather than construction-focused.
- **Financing Activities:** Capital raising, loan negotiations, or tax equity structuring cannot qualify as construction activity.
- **Site Preparation:** Clearing land, grading a site, or creating access roads do not qualify. These actions prepare the location but do not advance the construction of essential components.
Off-the-Shelf Purchases: Procuring equipment that exists in the manufacturer's inventory does not qualify. The IRS requires evidence that the component was custom-manufactured for the specific project under a binding contract.

Power Transformer:

Your Most Critical Safe Harbor Asset

Relying solely on on-site construction exposes you to significant risks entirely beyond your control, including permitting delays, weather constraints, local opposition, and interconnection uncertainties that can derail tight schedules.

Off-site manufacturing of custom components emerges as your most reliable and strategic path to meeting requirements, as it effectively eliminates these uncontrollable variables. The moment fabrication begins on a custom component under your binding contract, 'physical work of a significant nature' has legally commenced.

In utility-scale renewable projects, the main power transformer is uniquely positioned for this strategy:

- **Completely Custom-Engineered:** Every transformer is designed specifically for your project's voltage requirements and site conditions. There is no 'off-the-shelf' option.
- **Unquestionably Integral:** No project can operate without its transformer. It is a core and non-optional component.
- **Significant in Scope:** Manufacturing involves substantial labor, complex engineering, and specialized fabrication.
- **Independently Manufacturable:** Production can begin before any site permits are secured. This de-links credit qualification from on-site readiness.

The Dual Phase Delivery Model

Being a developer, you likely face growing uncertainty around local approvals, which can threaten your credit timelines even after your project schedules are established. A structured transformer strategy reduces this exposure by creating a pathway for you to secure credits early while maintaining flexibility on the full equipment delivery schedule.

One proven method is the Dual-Phase Delivery approach, where manufacturers begin producing specific transformer assemblies that exceed a meaningful labor threshold early. The full transformer build will continue later once your site's schedules and permits align.

Established engineering guidance for medium- and high-voltage transformers indicates that a combination, such as a conservator tank with two radiators, typically meets this threshold. This activity secures your Safe Harbor position now while allowing final delivery in later years, such as 2027 or 2028.

This approach:

- 01 Secures credits with minimal upfront capital
- 02 Preserves development schedule flexibility
- 03 Creates defensible IRS documentation through early manufacturing records
- 04 Locks manufacturing slots during a period of global transformer supply constraints

Advanced Safe Harbor Tactics for Project Developers

As a project developer, you now operate in an ecosystem where deadlines, supply constraints, and permit risks shape early-stage decisions. These five tactics will help you establish Safe Harbor in a predictable and defensible way across different project conditions.

1. The Off-Site Custom Component Strategy

This is currently the most powerful tactic in the industry. Instead of mobilizing crews to a site potentially delayed by permits, developers officially start construction off-site at a secure manufacturing facility.

You execute this by signing a 'binding written contract' for a custom component integral to the project. Legally, 'physical work of a significant nature' begins the moment fabrication starts on this item.

- **Custom Transformers:** These must be engineered specifically for your site's unique voltage and capacity needs. Partners like Ayr Energy often utilize this route to help developers secure early status.
- **Wind Components:** Custom-fabricated turbine blades or nacelles designed for specific wind regimes qualify. These long-lead items effectively lock in your start date well before they reach the project site.
- **Bespoke Solar Racking:** Tracker systems built to a project's specific topography and engineering, qualify. Generic, off-the-shelf racking systems taken from existing inventory will not meet the IRS requirements for this test.

This tactic is often faster, cheaper, and legally more precise than on-site excavation. Crucially, it allows you to meet the rigid BOC deadline even if your project permits are still pending.

2. The 'Minimal On-Site Work' Strategy

The 'Physical Work Test' focuses strictly on the nature of work rather than its cost or volume. This critical distinction allows you to satisfy IRS requirements with minimal initial capital outlay.

By executing the smallest, least-expensive action on your actual project site that unequivocally qualifies as 'physical work,' you establish your start date without requiring full-scale mobilization of construction teams.

- **Wind Projects:** Excavating a single turbine foundation, pouring one concrete pad, or setting anchor bolts for one turbine is sufficient to unequivocally establish commencement of physical work at the site.
- **Solar Projects:** Driving the first set of piles for mounting structures qualifies. Installing the initial row of racking also meets the threshold for commencing physical work on the facility.

This strategy satisfies the BOC (Beginning of Construction) requirement for the entire project. It locks in your credit rate immediately while starting the four-year continuity clock with the lowest possible upfront construction cost.

3. The 'Single Project' Aggregation Strategy

This portfolio-level strategy is highly effective for large developments planned in multiple phases over several years. It uses IRS rules allowing multiple separate facilities to be legally treated as one single project.

By demonstrating physical work on just the first phase of a large solar or wind farm, a developer can legally 'begin construction' on the entire aggregate capacity under the 'single project rule.'

- **Factual Integration:** Phases must share common ownership, financing, or master construction contracts. The IRS looks for concrete evidence that separate phases are functionally part of one larger, integrated development.
- **Shared Infrastructure:** Utilizing a single interconnection point for multiple phases strongly supports aggregation. Shared permitting or common access roads further demonstrate to the IRS that the phases constitute a single project.

This tactic enables you to safe harbor a massive pipeline of future assets simultaneously. A single, timely act of construction on phase one effectively secures credits for all subsequent phases.

4. The 'Master Contract' Portfolio Strategy

Large developers often use this variation of the off-site strategy. It gains them significant flexibility when managing a broad pipeline of potential projects that have uncertain individual timelines.

You sign a binding 'master supply agreement' for a pool of custom components, such as 100 transformers. As manufacturing begins on this pool, you effectively create a roster of 'safe-harbor' equipment.

- **Binding Master Agreements:** The manufacturer must commence physical work on components within this specific pool. The contract must be binding and for custom equipment to create the safe harbor 'inventory' for future allocation.
- **Unallocated Components:** Equipment does not initially need to be assigned to a specific site. This allows initiating manufacturing before finalizing exactly which project will receive which specific transformer.

This provides maximum strategic flexibility regarding FEOC compliance cutoffs. You can initiate manufacturing and lock in exemptions before deciding final site allocations for the equipment.

5. Proactive Documentation of 'Excusable Disruptions'

This is a vital defensive tactic essential for protecting against stricter 'continuous construction' requirements. It prepares you for potential IRS audits by creating a preemptive shield against claims of broken project continuity.

If your project must pause due to external factors, you must meticulously document the cause immediately. This real-time evidence is crucial for proving the delay was outside your direct control.

- **Utility Correspondence:** Save every email or letter documenting interconnection delays. These official records from third parties are your strongest defense if the IRS questions gaps in physical work on the site.
- **Legal & Force Majeure:** Keep detailed records of all permit challenges or legal hold-ups. Archive any force majeure notices received from suppliers immediately to validate supply chain disruptions that halted on-site progress.

Under new rules, simple 'continuous efforts' may not suffice after four years. Proactive documentation is your only way to prove a delay was an 'excusable disruption' and avoid invalidating your valuable tax credits.

Safe Harbor Execution: Locking In Your Credits Before a Shovel Hits the Ground

Successfully executing a transformer-led Safe Harbor strategy requires four critical elements. These act as your defensive shield against future regulatory scrutiny.

The 'Binding Contract': Your First Line of Defence

This document is the foundation of your Safe Harbor claim. To satisfy strict IRS expectations, structure contracts around three core clauses:

- **Custom Fabrication Clause:** The agreement must explicitly define the component as an engineered-to-order item designed exclusively for your specific project, rather than an off-the-shelf product available to any buyer.
- **Non-Cancellable Terms:** You need to include substantial damages or significant penalty clauses within the terms to unequivocally demonstrate a firm financial commitment to the project in the eyes of the IRS.
- **Manufacturing Timeline:** Locking in firm delivery dates before finalizing the contract helps align factory production loads efficiently while avoiding the typical congestion that occurs at the end of the year.

Selecting a Safe Harbor Partner: A Due Diligence Checklist

Under current regulations, a manufacturer effectively becomes a custodian of your tax credit eligibility. Your due diligence must focus on:

- **Manufacturing Capacity:** You must confirm that actual production capacity exists in the near term because many suppliers are already fully constrained through 2027, which makes securing an early allocation vital.
- **Proven Execution Record:** Look for a partner with verifiable experience in delivering multi-gigawatt Safe Harbor projects, as this track record serves as strong evidence of their process maturity and repeatability.
- **FEOC Compliance Planning:** A transparent supply chain paired with robust contingency planning is essential to ensure you fully meet the strict Foreign Entity of Concern requirements by the critical 2025 deadline.

Payment and Progress: Aligning Capital with Physical Work

To establish a defensible 'continuous program of construction,' financial commitments must mirror physical realities. Do not rely on generic milestone payments.

Instead, structure progress-linked payments tied to verifiable fabrication steps—such as design completion, raw-material procurement, welding, and final inspection. Shared digital project folders with real-time status trackers further solidify this transparency, providing auditors with an unbroken timeline of activity.

Build Your Audit-Proof Case

The burden of proof for the Physical Work Test is high. You are essentially building a dossier ready for intense third-party validation.

Leading independent engineering firms like DNV, STS, Doble, and Burns & McDonnell routinely audit these claims for tax equity investors. They expect a comprehensive evidence package that goes beyond basic purchase orders:

- **Approved Technical Drawings:** You need the final, approved technical drawings that prove the component was custom-designed and engineered specifically for your project's requirements, not a standard inventory item.
- **Procurement Documentation:** You must retain POs for all materials and outsourced production, plus the corresponding material certificates that definitively prove the country of origin, which is essential for passing FEOC checks.
- **Time-stamped Fabrication Photos:** Auditors require time-stamped manufacturing photos that provide irrefutable visual proof of specific components being actively manufactured on dates aligned with your project timeline.
- **Granular Work-Hour Logs:** Maintain granular work-hour logs that verify 'significant labor' was genuinely expended on your specific components, distinguishing active manufacturing progress from mere passive storage of materials.
- **Milestone Validation:** You must keep all pro forma invoices tied to progress payments, along with official inspection reports that validate the completion and quality of each manufacturing stage.
- **Final Physical Work Certificate:** This capstone document, provided by your manufacturer, the Physical Work Certificate, formally certifies that significant work has been completed, summarizing the labor and timeline for an auditor's review.

Crucially, you must maintain a rigid chain of traceability. Safe Harbor components must have unique serial numbers contractually linked to your final transformer. This prevents any risk of 'double-counting' assets across different projects, which is an immediate red flag for auditors.

Building a Defensible Safe Harbor Case

01 Contracts

Include custom clauses and non-cancellable terms

02 Due Diligence

Verify manufacturer capacity and track record

03 Payments

Tie directly to verifiable fabrication milestones

04 Photos

Maintain time-stamped visual proof of manufacturing

05 Traceability

Link unique serial numbers to contracts

How a 'De-Risked' Safe Harbor Maximizes Project Value?

Tax equity investors currently face heightened anxiety regarding two critical implementation risks:

- Ambiguous 'begin construction' dates that might fail an audit
- Emerging FEOC compliance complexities

These uncertainties can significantly devalue otherwise viable renewable energy projects in the current tight financial market.

A transformer-led Safe Harbor strategy, executed effectively, solves both problems. By establishing a definitive deadline, directly addresses both concerns simultaneously. By establishing a definitive and audit-proof construction start date before the new year, developers legally grandfather their projects against incoming and restrictive foreign sourcing rules.

Grandfathered status makes your project highly attractive to cautious investors. It creates a clean compliance profile, eliminating the need for complex future audits. This ensures your full credit value is locked in, removing the risk of disqualification based on where components were sourced.

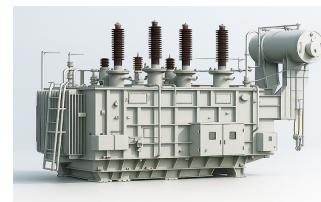
[Ayr Energy](#) uniquely enables this de-risked approach by offering guaranteed manufacturing capacity and unmatched execution speed. Our proven volume experience ensures your Safe Harbor components will be delivered compliantly, locking in your financial future before the window closes.

Secure Your Credits with Ayr Energy

Ayr Energy is a US manufacturer of power transformers, driven by industry veterans with over 250 years of combined engineering experience. Our state-of-the-art ISO-certified manufacturing facilities feature a world-class test lab. We ensure all equipment is fully tested and compliant with ANSI/IEEE standards.

01 | Generation Step-Up (GSU) Transformers

Up to 500 MVA, 765kV



02 | Inverter Duty Transformers (Skidded)

Up to 10 MVA, 34.5kV



03 | Pad-Mount Transformers

Up to 10 MVA, 34.5kV



Do not leave your vital tax credits to chance as manufacturing capacity tightens across the industry. Connect with our sales team today to secure your manufacturing slot and legally lock in your project's future before the critical deadlines pass.



[Book a slot](mailto:contact@ayr.energy) or just write to us at contact@ayr.energy and we would be happy to help.

