C A R B O T U R A

ACM Manufacturing Center

FEOC Compliance Matrix

Foreign Entity of Concern supply chain documentation framework for 32 IRA-eligible products. IRA §45X / §30D attestation basis. Covers all supply chain nodes from manufacturing feedstock origin through final product delivery.

Document Class: **Room 2 — Technical Portal (NDA Required)**

Document ID: SCH-001 Rev 1.0 — Design-Stage Framework

IRA authority: IRA §45X (Advanced Manufacturing) + §30D (EV Consumer Credit) FEOC requirements

Products covered: 32 products (18 CRB family, 14 MTL family) carrying SCH-001 FEOC-aligned claim

DESIGN-STAGE FRAMEWORK — Supply Chain Not Yet Contractually Verified

This document presents the FEOC compliance framework and supply chain analysis for Carbotura's 32 FEOC-aligned products at design stage. The supply chain architecture is FEOC-compliant by design — US feedstock, US facility, US or FTA-sourced reagents required. Formal contractual verification (supplier FEOC attestations, DOE-compliant documentation) is a Year 1 pre-production deliverable. No products should be presented as formally FEOC-certified until Section 7 verification steps are complete.

1. FEOC Framework and Legal Basis

1.1 What is a Foreign Entity of Concern

Under the Inflation Reduction Act (IRA, Pub. L. 117-169) and the implementing guidance from the Department of Energy and Department of Treasury, a Foreign Entity of Concern (FEOC) is defined as any entity that is:

- Owned, controlled by, or subject to the jurisdiction of the government of China, Russia, North Korea, or Iran; OR
- Identified by the US Secretary of State as a foreign terrorist organisation; OR
- Identified on the DOE's consolidated list of FEOCs per 10 C.F.R. Part 993

An entity is "owned or controlled" by a FEOC government if that government holds ≥25% ownership interest (directly or indirectly). A US-incorporated subsidiary of a Chinese parent company is itself a FEOC if the Chinese parent holds ≥25%.

Key statutory citations: IRA §13401 (§30D clean vehicle); §13502 (§45X manufacturing production credit); DOE FEOC Guidance December 2024; DOE Proposed FEOC Rule 10 C.F.R. Part 993 (October 2023)

Effective date for §45X: Credits for production in taxable years beginning after December 31, 2022

Effective date for §30D battery components: 2024 model year vehicles (from January 1, 2024)

Effective date for §30D critical minerals: 2025 model year vehicles (from January 1, 2025)

1.2 FEOC Risk Map — The Four Nations

Nation	Primary Risk to Carbotura Products	Most Affected Product Categories	Risk Level
China	Controls ~90% of global graphite processing and anode material supply; ~70% of global cobalt refining; ~60% of global lithium processing; dominant rare earth separation. Chinese processing at any step disqualifies §30D and potentially §45X.	CRB graphite (anode), MTL-018 Nd, MTL-033/046 Co, MTL-044/048 Li	HIGH — primary design risk
Russia	Historically significant PGM producer (palladium, platinum). Post-2022 sanctions limit US-Russia trade. Russian PGM refinery = FEOC.	MTL-015 Pd, MTL-014 Pt (if produced)	MEDIUM — PGM products
North Korea	No significant mineral export role in mainstream supply chains. Risk is via financial flows or obscure intermediaries.	Minimal direct exposure	LOW
Iran	No significant mineral export role. Sanctions already prohibit most commerce.	Minimal direct exposure	LOW

1.3 The Carbotura Structural Advantage

The Carbotura ACM Manufacturing Center has a structural FEOC advantage that no primary mining operation can replicate: the input material is US urban manufacturing feedstock, not mined ore from foreign geological deposits.

> **Core FEOC Argument**
>
> Carbotura products contain no material that originated from a FEOC-controlled extraction, mining, or primary processing operation. Every tonne of feedstock entering the facility was collected from US commercial and manufacturing activities by US Feedstock Haulers. The carbon in CRB products was in US products (paper, packaging, plastic goods) before it entered the facility. The metals in MTL products were in US-market goods before recovery. No Chinese graphite. No DRC cobalt. No Russian palladium. The FEOC-free credential is not a supply chain management achievement — it is an architectural consequence of using secondary materials.

2. Universal Supply Chain Nodes (All 32 Products)

All 32 FEOC-aligned products share the same foundational supply chain structure. FEOC compliance at the foundation level applies to all products. Product-specific variations are documented in Sections 3 and 4.

2.1 Node 1 — Manufacturing Feedstock Origin

Parameter	Status	Documentation
Feedstock geographic origin	✓ United States	Feedstock Hauler contracts: all collection routes within US municipal/commercial boundaries. GPS route data available per collection run.
Feedstock collection entity	✓ US-registered Feedstock Hauler companies	Feedstock Hauler Agreement (standard Carbotura contract) confirms US-registered entity, US operations, no FEOC-entity parent.
FEOC entity involvement at feedstock node	✓ None — by design	US municipal/commercial materials do not pass through any foreign processing step before Carbotura intake. No Chinese, Russian, North Korean, or Iranian entity in the feedstock collection chain.
Annual attestation requirement	Feedstock Hauler FEOC attestation — annual	Standard contract clause requiring annual attestation that no FEOC entity acquired ownership or control of the Hauler during the preceding year.

2.2 Node 2 — Manufacturing Facility

Parameter	Status	Documentation
Facility location	✓ United States	Facility operating permits, state business registration, physical address
Facility ownership	✓ Carbotura — US-registered entity	Carbotura corporate registration; cap table showing no ≥25% FEOC-entity ownership
Facility energy source	✓ Internal PEM fuel cell (no grid)	FEP-001 Section 1.1: full energy autonomy. No FEOC-entity energy supplier at any stage. Grid energy from a Chinese-owned utility would create a FEOC energy node — eliminated by Island Mode design.
Key equipment — MCR system	US or FTA-country manufacturer required	Equipment procurement contracts must specify US/FTA origin for all major process equipment. Pre-purchase verification required.
Key equipment — ASU	US or FTA-country manufacturer required	Major industrial gas equipment suppliers (Linde, Air Products, Chart Industries) are US/EU/FTA entities — no FEOC exposure in standard ASU procurement.
Key equipment — PEM fuel cell	US or FTA-country manufacturer required	Fuel cell stack procurement: US manufacturers (Ballard Power — US partnerships, Plug Power, Bloom Energy) or EU/FTA. Chinese PEM fuel cell suppliers (Sinohydrogen, REFIRE) = FEOC — DO NOT

		USE.

2.3 Node 3 — Reagents and Process Chemicals

Reagents are the primary FEOC risk node for Carbotura. The manufacturing feedstock and facility are both US-domestic. Reagents introduced at the MTL hydrometallurgical modules and CRB advanced carbon modules may have foreign origin. Section 3 and 4 document the reagent requirements per product family.

Reagent Category	Primary Use	FEOC Risk	Required Sourcing
Sulfuric acid (H2SO4)	MTL hydromet leaching; MIN-004 Ca(OH)2 production	LOW — bulk commodity; major US producers (Mosaic, Nutrien, Koch)	US or FTA-country producer; avoid Chinese industrial chemical chains
Nitrogen (N2) — process atmosphere	CRB graphitisation; GAS; general purge	NONE — produced internally by ASU	Internal ASU — no external supplier required
Hydrogen peroxide (H2O2)	MTL hydromet oxidant; water treatment	LOW — US producers (Evonik US, Solvay US)	US or FTA-country producer
Solvent extraction reagents (D2EHPA, Cyanex)	MTL-018 REE separation; cobalt/nickel SX	MEDIUM — Cytec/Solvay (FTA/EU); avoid Chinese SX reagent suppliers	Cytec Industries (US), Solvay (BE/EU) — both non-FEOC
Calcium hydroxide Ca(OH)2 (slaked lime)	MIN-004 PCC production; MTL pH adjustment	LOW — bulk commodity; US producers (Carmeuse, Mississippi Lime)	US or FTA-country producer
Pitch binder (for CRB-018 coating)	CRB-018 spheroidized graphite surface coating	MEDIUM — coal tar pitch historically Chinese-sourced; petroleum pitch available from US refiners	US petroleum pitch (Koppers US, Rain CII US) — DO NOT use Chinese coal-tar pitch
CVD precursor gases (C2H2, H2, CH4)	CRB-011 MWCNT; CRB-015 CVD graphene	LOW — industrial gases; US suppliers (Air Products, Linde US)	US or FTA supplier; verify no Chinese entity in supply chain
Sodium hydroxide (NaOH)	pH adjustment; MTL hydromet	LOW — commodity; US producers (Olin, Occidental)	US or FTA-country producer

3. CRB Family — 18 Products

3.1 CRB FEOC Summary

The CRB product family is the strongest FEOC story in the Carbotura catalog. The primary FEOC challenge in the global graphite market is Chinese dominance of graphite processing: China controls ~90% of natural graphite processing and ~70% of synthetic graphite anode production globally. Carbotura CRB products are produced from US manufacturing feedstock using entirely US-domestic processing — creating the only large-scale US-origin graphite supply chain that does not pass through Chinese processing at any step.

CRB FEOC Structural Argument

CRB products contain zero Chinese-processed graphite. The carbon in every CRB product originated in US consumer and commercial goods (paper, packaging, plastics) and was converted to graphite at the US Carbotura facility. No Chinese mine. No Chinese graphite processing facility. No Chinese anode coating facility. This is the supply chain that IRA §30D was designed to incentivise — and it exists at scale in the Carbotura design.

3.2 CRB Product FEOC Matrix

ID	Product	RC	§45X	§30D	FEOC Argument	Reagent Risk
CRB-001	Raw Carbon Char	RC 1	—	—	US feedstock + US MCR processing. No external inputs beyond internal N2 (ASU).	None
CRB-002	Carbon Black	RC 2	—	—	US feedstock + US MCR + US carbon black finishing. No external chemical inputs.	None
CRB-003	Activated Carbon	RC 2	—	—	US feedstock + US MCR + US steam activation. Steam from internal PEM thermal.	None
CRB-004	Biochar	RC 2	—	—	US feedstock + US MCR pyrolytic carbon. Meets EBC/IBI biochar certification criteria.	None
CRB-005	Standard Graphite	RC 2	—	—	US feedstock + US MCR + US graphitisation furnace. N2 from internal ASU.	None
CRB-006	Conductive Carbon	RC 3	—	—	US feedstock + US processing. No external chemical inputs.	None
CRB-007	High-Grade Carbon Black	RC 3	—	—	US feedstock + US MCR + US precision carbon black finishing.	None
CRB-008	High-Purity Graphite	RC 3	✓	—	US feedstock + US Regenesis MAX electromagnetic graphitisation at 3,000°C. N2 purge from internal ASU. No external chemical inputs at any step.	None

CRB-009	Carbon Fiber Precursor	RC 4	—	—	US feedstock + US MCR + US stabilisation. No foreign precursor materials.	Low — Monitor stabilisation reagents
CRB-010	Graphene Oxide	RC 4	—	—	US feedstock CRB-008 graphite + US Hummers-modified oxidation chemistry. Reagents: H2SO4, KMnO4 — US/FTA sourcing required.	Low — US reagent sourcing required
CRB-011	Multi-Walled CNT	RC 4	—	—	CVD grown on CRB-008 substrate. CVD precursor gases (C2H2, H2) from US industrial gas suppliers. Metal catalyst (Fe/Co/Ni) from US MTL stream.	Low — CVD gas sourcing
CRB-012	Synthetic Graphite	RC 4	✓	—	US feedstock + US high-T graphitisation. Same supply chain as CRB-008 at higher purity step.	None
CRB-014	Multi-Layer Graphene	RC 5	—	—	Derived from CRB-010/CRB-008. US processing throughout. No foreign inputs.	None
CRB-015	Single-Layer Graphene	RC 5	—	—	Derived from CRB-010/CRB-013. US processing. CVD variant: same as CRB-011.	Low — CVD variant reagents
CRB-018	Battery-Grade Graphite	RC 4	✓	✓	US feedstock + US spheroidisation + US coating. Coating reagent (pitch binder): US/FTA sourcing required. No Chinese processing at any step.	Low — pitch binder sourcing
CRB-019	Hard Carbon Na-Ion	RC 3	—	—	US feedstock + US controlled pyrolysis. No external inputs.	None
CRB-020	Nanoporous Activated C	RC 4	—	—	US feedstock + US templating chemicals. Silica template: US/FTA sourcing required.	Low — silica template sourcing
CRB-021	Mesoporous Carbon	RC 4	—	—	US feedstock + US template synthesis. Template chemicals: US/FTA sourcing required.	Low — template sourcing

3.3 CRB-018 Deep Dive — Battery Anode Supply Chain

CRB-018 Spheroidized Battery-Grade Graphite is the highest-value FEOC-critical CRB product. It is the direct competitor to Chinese-processed spheroidized graphite that dominates the global EV anode market. The supply chain for CRB-018 requires detailed documentation for IRA §30D qualification:

Supply Chain Node	Carbotura Design	Chinese Equivalent (Comparator)	FEOC Status
Step 1 — Raw carbon source	US manufacturing feedstock (organic carbon fraction)	Chinese natural graphite mine (Heilongjiang, Inner Mongolia)	✓ No FEOC — US origin

Step 2 — Carbon conversion (MCR)	US Recyclotron MCR at Carbotura facility	Chinese graphite processing facility (Qingdao, Shanghai)	✓ No FEOC — US processing
Step 3 — Graphitisation	US Regenesis MAX (3,000°C electromagnetic) at Carbotura	Chinese Acheson furnace graphitisation	✓ No FEOC — US processing
Step 4 — Spheroidisation	US mechanical spheroidisation at Carbotura	Chinese spheroidisation (typically same facility as graphitisation)	✓ No FEOC — US processing
Step 5 — Surface coating (pitch binder)	US petroleum pitch (Koppers/Rain CII) — NOT coal-tar pitch	Chinese coal-tar pitch (FEOC exposure if Chinese pitch supplier)	✓ No FEOC — requires US petroleum pitch sourcing
Step 6 — Purification (HF/HCl)	US reagent suppliers (Olin, Occidental, Mexichem US)	Chinese chemical suppliers	✓ No FEOC — US reagent sourcing required
Energy at all steps	Internal H2 PEM (Island Mode — no grid)	Chinese grid electricity (FEOC energy supply)	✓ No FEOC — no grid; internal H2 energy
Final product delivery	US cell manufacturer direct	Via Chinese anode coating facility	✓ No FEOC — direct US-to-US

4. MTL Family — 14 Products

4.1 MTL FEOC Summary

The MTL family carries higher FEOC complexity than CRB because the global primary supply chains for battery metals (cobalt, lithium, nickel sulfate, neodymium) are heavily concentrated in FEOC nations — primarily China for processing/conversion, and the DRC for cobalt extraction. Carbotura's secondary recovery model eliminates the extraction-stage FEOC exposure entirely. The residual risk is at the conversion/refining step — and this is addressed by the US-facility-only processing architecture.

Metal	Global FEOC Concentration (primary supply)	Carbotura Structural Solution	Residual Risk
Cobalt (MTL-033, MTL-046)	~70% of global cobalt refining in China; ~70% of artisanal cobalt mining in DRC (FEOC risk at extraction AND refining)	US manufacturing feedstock (no DRC artisanal mining) + US Carbotura hydromet refining (no Chinese refinery)	Medium — must ensure no Chinese cobalt refinery in chain
Lithium (MTL-044, MTL-048)	~60% of global lithium conversion (to LiOH/Li2CO3) in China; Chilean/Australian brine and spodumene send to Chinese converters	US Li-ion battery feedstock + US Carbotura Li extraction and conversion (no Chinese converter)	Medium — US LiOH conversion facility required
Nickel Sulfate (MTL-047)	~65% of Class 1 nickel refining in China/Russia; Indonesian HPAL sends to Chinese refiners	US electronics/battery nickel feedstock + US hydromet sulfate conversion (no Chinese refinery)	Medium — US conversion facility required
Neodymium (MTL-018)	~90% of REE separation globally in China; no established US-scale REE SX infrastructure	US magnet/motor feedstock + US REE separation chemistry at Carbotura (no Chinese SX facility)	Medium-High — US SX reagent sourcing; novel US REE separation at scale
Palladium (MTL-015)	Russia historically ~40% of global Pd; post-2022 Russian Pd = FEOC risk	US electronics/automotive catalyst feedstock (no Russian-mined Pd) + US precious metal refining	Low — US electronics origin; no Russian mining step
Gold/Silver (MTL-012, MTL-013)	No dominant FEOC concentration in secondary recovery	US electronics/jewelry feedstock + US precious metal refining (Metalor US, Asahi US)	None

4.2 MTL Product FEOC Matrix

ID	Product	RC	§45 X	§30 D	FEOC Argument	Risk Level
MTL-002	Mixed Non-Ferrous	RC 1	—	—	US feedstock APS eddy-current sort. No chemical inputs.	None
MTL-004	Copper	RC 2	—	—	US feedstock + US hydromet refining. H2SO4 reagent: US/FTA sourcing. No DRC or Chinese exposure.	Low — H2SO4 sourcing

MTL-007	Nickel	RC 2	—	—	US feedstock + US hydromet separation. Reagents: US/FTA sourcing. No Indonesian/Philippine primary exposure.	Low — reagent sourcing
MTL-012	Silver	RC 3	—	—	US feedstock electronics recovery + US precious metal refining. No foreign refinery step.	None
MTL-013	Gold	RC 3	—	—	US feedstock e-waste + US gold refining. Compliant with Dodd-Frank Section 1502 conflict minerals (not applicable — secondary, no DRC origin).	None
MTL-015	Palladium	RC 3	—	—	US feedstock electronics + US PGM refining. No Russian-origin PGM exposure.	None
MTL-018	Neodymium	RC 4	✓	—	US feedstock magnets/motors + US REE separation chemistry. Reagents: solvent extraction solvents (D2EHPA, Cyanex 272) — US/FTA sourcing required. No Chinese ionic clay ore. No Chinese separation facility.	Medium — SX reagent sourcing; no Chinese separation
MTL-033	Cobalt	RC 3	✓	—	US feedstock battery/electronics + US cobalt refining. No DRC artisanal mining exposure. No Chinese cobalt refinery (Freeport Cobalt model — US or FTA refinery required).	Medium — refinery selection; no DRC/China
MTL-044	Lithium Carbonate	RC 4	✓	—	US feedstock Li-ion batteries + US hydromet Li extraction. No Chilean/Australian brine exposure. No Chinese conversion facility.	Medium — no Chinese Li conversion
MTL-045	Black Mass Concentrate	RC 2	—	—	US feedstock Li-ion battery pack dismantling. APS shredding + hydromet. 100% US secondary.	None
MTL-046	Cobalt Sulfate	RC 4	✓	—	US feedstock + US cobalt sulfate conversion. Same as MTL-033 plus US sulfation step. H2SO4: US sourcing. No Chinese NMC precursor facility.	Medium — US conversion facility required
MTL-047	Nickel Sulfate	RC 4	✓	—	US feedstock + US nickel sulfate conversion. H2SO4: US sourcing. No Indonesian Class 1 nickel — 100% secondary. No Chinese conversion facility.	Medium — US conversion facility required
MTL-048	Lithium Hydroxide	RC 4	✓	✓	US feedstock + US LiOH conversion. Ca(OH)2 reagent: US/FTA sourcing.	Medium — US conversion facility; Ca(OH)2

					No Chinese causticisation facility (Albemarle/Livent model — US conversion).	sourcing
MTL-051	Lead Battery-Grade	RC 4	—	—	US feedstock lead-acid batteries + US secondary lead smelting. No Chinese primary lead. ISRI grade PS or better.	None

5. Reagent Procurement Policy

The following procurement policy applies to all reagents and process chemicals used in the production of FEOC-aligned products. This policy must be incorporated into all supplier contracts and purchase orders.

5.1 Approved Supplier Categories

- US-domiciled and US-owned manufacturers — preferred
- US-domiciled subsidiaries of non-FEOC foreign parents (EU, UK, Japan, South Korea, Canada, Australia) — acceptable
- Non-US manufacturers from FTA partner countries (EU, UK, Japan, South Korea, Canada, Australia, etc.) — acceptable with annual FEOC attestation
- Non-US manufacturers from non-FEOC, non-FTA countries — require individual FEOC ownership assessment before approval

5.2 Prohibited Supplier Categories

- Any entity with ≥25% Chinese government ownership (directly or indirectly)
- Any entity on the DOE FEOC consolidated list
- Any Chinese-incorporated entity for battery-critical materials (graphite, cobalt, lithium, nickel, rare earths) — regardless of FEOC ownership percentage, for §30D supply chain purposes
- Russian-incorporated entities for PGM products

> **Critical Note on Chinese Subsidiaries**
> A Chinese-incorporated subsidiary of a US parent company may itself be a FEOC if the Chinese government exerts de facto control (e.g. via "golden share" arrangements, data security laws requiring CCP access, or military-civil fusion policies). Any supplier with Chinese operations processing battery-critical materials requires legal counsel review before approval. For §30D purposes, DOE guidance may treat all Chinese processing as disqualifying regardless of formal ownership structure — monitor DOE FEOC rule updates.

5.3 High-Priority Reagent Sourcing Actions

Before commencing production of FEOC-eligible products, the following specific sourcing actions must be completed:

Reagent	Action Required	US/FTA Sources	Timeline
Petroleum pitch (CRB-018 coating)	Contract US petroleum pitch supplier; verify no coal-tar pitch from Chinese sources substituted	Koppers Inc. (Pittsburgh PA); Rain CII Carbon (Follansbee WV)	Pre-production — CRB-018
Solvent extraction reagents (D2EHPA, Cyanex 272)	Contract Cytec/Solvay US supply; obtain FEOC attestation confirming no Chinese manufacturing facility	Cytec Industries (Woodland Park NJ — US); Solvay (Brussels/US operations)	Pre-production — MTL-018, MTL-033
CVD precursor	Contract US industrial gas supplier for	Air Products (Allentown	Pre-production

gases (C2H2, H2)	CVD operations	PA); Linde US (Danbury CT); Airgas (Radnor PA)	— CRB-011, CRB-015
LiOH conversion reagents (Ca(OH)2)	Contract US lime producer; confirm no Chinese quicklime in supply chain	Carmeuse (Pittsburgh PA); Mississippi Lime (Ste. Genevieve MO); US Lime (Dallas TX)	Pre-production — MTL-048
PEM fuel cell stack	Confirm manufacturer is non-FEOC; obtain FEOC attestation for all sub-components	Ballard Power (US partnerships); Plug Power (Latham NY); Bloom Energy (San Jose CA)	Pre-commissioning

6. IRA Credit Qualification Summary

6.1 §45X Advanced Manufacturing Production Credit

The §45X credit is a per-unit production credit equal to 10% of qualifying production costs for eligible critical mineral products manufactured in the US. FEOC compliance is not explicitly a §45X requirement in the statute — the credit applies to US production regardless of input origin. However, products that also qualify for §30D supply chain programs benefit from demonstrating FEOC-free supply chains as a commercial differentiator.

Product	§45X Eligibility Basis	HTSUS Code Reference	Notes
CRB-008 High-Purity Graphite	Graphite — critical mineral; 10% of qualifying production costs	3801.10 (artificial graphite)	Tax attorney classification review required pre-filing
CRB-018 Battery Graphite	Electrode-grade graphite — qualifying component	3801.10 / 8507.60 (battery components)	May qualify under both graphite AND battery component definitions
MTL-018 Neodymium	Rare earth elements — strategic and critical mineral designation	2805.30 (rare earth metals)	REE separation must occur at US facility; no Chinese SX step
MTL-033 Cobalt	Cobalt — critical mineral; §45X qualifying	8105.20 (cobalt mattes, other intermediate products)	No DRC artisanal cobalt; no Chinese refinery
MTL-047 Nickel Sulfate	Battery-grade nickel — qualifying component	2836.99 / 2833.21	Class 1 nickel equivalent from secondary recovery
MTL-048 Lithium Hydroxide	Lithium — critical mineral qualifying	2825.20 (lithium oxide and hydroxide)	No Chilean/Australian brine; no Chinese conversion

6.2 §30D Clean Vehicle Consumer Tax Credit Supply Chain

The §30D credit of up to $7,500 per qualifying EV requires that the vehicle's battery critical minerals meet the FEOC-free threshold (40% in 2024 rising to 80% by 2027) and that battery components are manufactured in North America. Carbotura's role is as a qualifying critical mineral supplier — specifically for CRB-018 graphite anode material and MTL-048 lithium hydroxide.

The §30D benefit flows to the EV buyer, not to Carbotura. Carbotura's commercial value in the §30D chain is enabling the full $7,500 credit by providing a FEOC-free supply of materials that are otherwise China-dominated. The documentation required from Carbotura to the cell manufacturer is:

- Annual FEOC attestation confirming no FEOC entity at any supply chain node for the specific product batch
- Traceability documentation showing feedstock origin (US), processing location (US Carbotura facility), and reagent origins (US/FTA)
- IRS-compliant records per Treasury Regulation §1.30D-3

7. Verification and Attestation Plan

FEOC compliance transitions from "designed to meet" (current status) to formally attested when the following verification actions are complete. These are pre-production requirements — no FEOC-eligible product should be sold with §30D or §45X supply chain claims until all applicable items below are complete.

Action	Responsible Party	Timing	Output
Carbotura corporate FEOC ownership attestation	Carbotura legal counsel	Pre-production	Signed attestation confirming no ≥25% FEOC-entity ownership of Carbotura
Feedstock Hauler FEOC attestations (all active haulers)	Carbotura supply chain / legal	Annual from COD	Annual signed attestation per hauler per DOE FEOC guidance
Reagent supplier FEOC attestations — Tier 1 (direct suppliers)	Carbotura procurement	Pre-production for each reagent; annual renewal	Signed supplier attestation per DOE template; maintained in supply chain records
Petroleum pitch sourcing contract (CRB-018)	Carbotura procurement	Pre-production — CRB-018	US petroleum pitch supply contract with FEOC attestation clause
PEM fuel cell FEOC attestation (all major sub-components)	Carbotura engineering + procurement	Pre-commissioning	Component-level FEOC attestations from fuel cell manufacturer
Equipment FEOC assessment (MCR, ASU, MTL hydromet)	Carbotura engineering + legal	Pre-commissioning	FEOC assessment report for major equipment; US/FTA manufacturer confirmation
Third-party supply chain audit	Independent supply chain auditor (e.g. BSI, SGS, Bureau Veritas)	Year 1 post-COD	Annual supply chain audit report confirming FEOC-free status
IRS Form documentation for §45X	Tax counsel + Carbotura finance	First tax filing year	IRS Form 7213 with FEOC-supporting documentation
§30D traceability package for first cell manufacturer customer	Carbotura legal + supply chain	On first battery customer sale	Complete §30D traceability documentation per Treasury Reg. §1.30D-3
Annual DOE FEOC consolidated list check	Carbotura legal	Annual	Documented review of DOE FEOC list; no listed entities in supply chain

Monitor: DOE FEOC Final Rule

The DOE FEOC final rule (10 C.F.R. Part 993) was proposed in October 2023. The final rule has not been published as of this document date. The verification requirements above are based on the proposed rule and existing statutory language. Monitor DOE rulemaking and update this document and supplier contract language when the final rule is published.

8. Document Control

Document ID	SCH-001
Title	FEOC Compliance Matrix v1.0 — ACM Manufacturing Center
Version	Rev 1.0 — Design-Stage Framework
Classification	Room 2 — Technical Portal — NDA Required
Claim supported	SCH-001 (FEOC-Aligned Design) per CR-001 Claims Register v1.0
Products covered	32 products: 18 CRB family, 14 MTL family
IRA authority	IRA §45X (6 products); IRA §30D supply chain (2 products: CRB-018, MTL-048)
Related documents	CR-001 Claims Register v1.0; LCA-001 LCA Methodology Framework v1.0
Next revision	Rev 2.0 on completion of all Section 7 supplier attestations; Rev 3.0 annual update following DOE FEOC final rule publication