Commentary and Critique **Critical Essay**
Vol. 12 (2026) · ISSN 3006-6220 journal.pe.ac/Commentary-and-Critique

Conditionalities on Paper, Waivers in Contracting: Public Risk, Private Upside, and Social Mandates in U.S. and European Industrial Subsidies

Matthew Ellerton[a], Farhod Rakhimov[a], Natalie Goh[a]

[a]Academy of Public Policy and Economics, London E1 0SG, United Kingdom

Corresponding author: Matthew Ellerton, matthew.ellerton@pe.ac.

Published 15 November, 2026.

DOI: https://doi.org/10.62432/APPE.CC.2026.12.58

Article webpage: https://journal.pe.ac/Commentary-and-Critique/paper/view/633946

Abstract

Post-2022 industrial subsidy programs in the United States and the European Union attach ambitious public conditionalities to capital support, promising workforce child care, prevailing construction wages, excess-profit sharing, and resilient clean-technology supply chains. Drawing on statutory texts, executive funding notices, and oversight evaluations from the U.S. Government Accountability Office and the European Court of Auditors through November 2026, this essay explains why prominent social and financial covenants diverge sharply in legal durability during implementation. Modern industrial subsidies confront a three-stage political-economy bargaining inversion: legislative coalitions and executive agencies announce visible reciprocity rules to legitimate public outlays, inter-jurisdictional siting competition shifts agency priorities toward rapid capital commitments, and execution exposes authorities either to post-announcement corporate hold-up in bilateral grant negotiations or to statutory cost-cap opt-outs in unfunded public tenders. Comparative analysis across four legal instruments shows that survival depends on statutory entrenchment and legislative procedure. Automatic tax-code multipliers under the U.S. Inflation Reduction Act and statutory CHIPS construction wage and buyback rules held firm, whereas administratively layered CHIPS child-care and cash-flow upside clauses were removed or revised in amended awards, and European Net-Zero Industry Act procurement rules remain bounded by 15% to 20% cost-escalation exemptions. Enforceable reciprocity requires statutory rate multipliers paired with volume stabilizers, parent-consolidated warrants or margin-collared royalties, and public contract registries.

Keywords: industrial policy; public conditionalities; semiconductor subsidies; prevailing-wage tax credits; European state aid; bargaining power

1. Introduction

Industrial subsidies returned to the center of Western economic statecraft after 2022 accompanied by explicit promises of public reciprocity. Moving beyond earlier eras of unconditional corporate tax holidays and ad hoc bailouts (Jensen & Malesky, 2018; Slattery & Zidar, 2020), flagship initiatives in the United States and the European Union pledged to attach binding social, labor, and financial conditionalities to public capital support. In the United States, the $52.7 billion CHIPS and Science Act combined $39 billion in semiconductor manufacturing grants (governed by statutory bans on stock buybacks, statutory construction prevailing-wage mandates, and administrative Notice of Funding Opportunity [NOFO]

© 2026 Academy of Public Policy and Economics · Open Access (CC BY 4.0).

covenants on workforce child care and excess-cash-flow upside sharing for awards above $150 million) with an uncapped Section 48D semiconductor investment tax credit enacted at 25% in 2022 and raised to 35% in July 2025 (United States Congress, 2022a; National Institute of Standards and Technology, 2023; United States Congress, 2025). Enacted one week after CHIPS, the Inflation Reduction Act conditioned fivefold clean-energy tax-credit multipliers directly on prevailing wages and registered apprenticeships (United States Congress, 2022b; Bistline et al., 2023). In the European Union, the 2023 European Chips Act and the June 2024 Net-Zero Industry Act paired indicative domestic manufacturing benchmarks with non-price sustainability and supply-chain resilience rules in public procurement and renewable energy auctions (European Parliament and Council of the European Union, 2023; European Parliament and Council of the European Union, 2024; McNamara, 2024).

By November 2026, oversight evaluations by the U.S. Government Accountability Office and the European Court of Auditors revealed sharp divergence between conditionalities announced ex ante and obligations enforced in execution. Auditing 40 initial semiconductor awards across 19 companies ($30.9 billion in direct grants and $5.5 billion in loans) and subsequent contract amendments across 14 companies, the Government Accountability Office documented that while statutory guardrails held, the Department of Commerce amended award agreements to remove employee child-care mandates and removed or revised upside-sharing covenants across restructured projects (U.S. Government Accountability Office, 2024; U.S. Government Accountability Office, 2025; U.S. Government Accountability Office, 2026). In Europe, Articles 25 and 26 of the Net-Zero Industry Act coupled phased implementation dates extending into December 2025 and July 2026 (Article 49) with statutory disproportionate-cost exemptions triggered whenever compliance raises procurement prices above 20% or auction support costs above 15% (European Parliament and Council of the European Union, 2024), while four European Court of Auditors special reports documented concentrated national state aid, incomplete conditionality monitoring, and wide gaps between 2030 capacity targets and committed public funds (European Court of Auditors, 2023; European Court of Auditors, 2024a; European Court of Auditors, 2024b; European Court of Auditors, 2025). Conversely, statutory fivefold prevailing-wage and apprenticeship multipliers embedded in the Internal Revenue Code survived intact even when Congress curtailed clean-energy credit timelines in July 2025 (U.S. Department of the Treasury, 2024; United States Congress, 2025).

Recent work on the new economics of industrial policy presents conditionalities as the institutional mechanism aligning public subsidies with inclusive growth (Aiginger & Rodrik, 2020; Juhász et al., 2024; Mazzucato & Rodrik, 2026), whereas macro-finance critiques of the "derisking state" argue that modern subsidies uniformly socialize risk while privatizing reward (Gabor, 2021; Bulfone, 2023). Neither literature adequately accounts for *within-era institutional variation*: why certain labor and governance conditions endure intact while adjacent social and financial covenants within the same industrial strategy are diluted, waived, or bounded by cost-escape thresholds.

This essay advances a comparative political-economy explanation linking endogenous legislative instrument choice to a three-stage bargaining inversion. At Stage I (statute and funding-notice design), legislative voting rules and sectoral contracting complexity determine whether public reciprocity is codified into statutory formulas, layered administratively onto executive funding notices to compensate for legislative blocks, or paired with statutory cost caps under incomplete fiscal union. At Stage II (interjurisdictional siting rivalry), interstate and transatlantic subsidy races shift implementing agencies' performance metrics toward rapid capital-expenditure announcements and preliminary term sheets (Clausing & Wolfram, 2023; Di Carlo & Schmitz, 2023). At Stage III (bilateral contracting and tender execution), conditionalities face two distinct erosion channels: in discretionary grant programs (CHIPS and bespoke national State Aid), oligopolistic firms exercise post-announcement hold-up to extract waivers of non-statutory covenants; in unfunded multi-level procurement (NZIA Articles 25 and 26), national budget constraints activate statutory cost-difference opt-outs whenever domestic manufacturing premiums ex-

ceed 15% to 20%. Comparing four transatlantic policy vehicles demonstrates that enforceability hinges on *statutory automaticity*: automatic tax-code multipliers and statutory grant prohibitions resist Stage III erosion far more reliably than executive funding-notice covenants or unfunded procurement mandates.

Section 2 develops the three-stage bargaining-inversion framework and explains why legislative procedures and sectoral industrial organization generate divergent Stage I legal forms. Section 3 examines the United States contrast, both across and *within* the CHIPS Act and the Inflation Reduction Act, updated through Public Law 119-21 and 2025–2026 GAO audits. Section 4 evaluates the European Union's Net-Zero Industry Act derogation architecture and European Court of Auditors state-aid findings. Section 5 addresses rival explanations centered on cost-shock adaptation and IPCEI clawbacks. Section 6 formulates three corporate-finance-consistent institutional reforms.

2. The Political Economy of Conditionality Erosion: Bargaining Inversion and Endogenous Legal Form

2.1. Coalition Politics, Siting Rivalry, and Two Pathways of Stage III Erosion

Dynamic inconsistency is a classic hazard of industrial policy when states cannot credibly withdraw subsidies from underperforming domestic firms (Rodrik, 2014; Juhász et al., 2024). Post-2022 Western industrial strategies invert that commitment problem: governments seek to attract capital-intensive greenfield facilities controlled by a narrow global oligopoly of profitable frontier producers: three leading-edge logic foundries, a small tier of gigafactory cell manufacturers, and specialized electrolyzer and grid-equipment suppliers (Bulfone, 2023; European Court of Auditors, 2025). That concentrated market structure reshapes public-private leverage across three sequential stages (Figure 1, Panel a).

During **Stage I (Statutory Enactment and Administrative Layering)**, normative ambition and public bargaining leverage peak. Assembling legislative coalitions across national-security hawks, labor unions, care-economy advocates, green parties, and fiscal conservatives requires visible reciprocity rules (Allan et al., 2021; McNamara, 2024). Conditionalities enter Stage I, however, at two distinct legal tiers. Where legislative procedures permit, parliaments codify reciprocity directly into *statutory text* (such as Internal Revenue Code prevailing-wage multipliers, CHIPS statutory buyback bans and construction wage rules, or EU procurement resilience articles). Where decisive legislative veto players block progressive social or profit-sharing mandates during statutory passage, executive ministries frequently attempt to compensate post-enactment through *administrative layering*, inserting child-care or cash-flow-sharing rules into agency funding notices (NOFOs) without explicit statutory entrenchment (National Institute of Standards and Technology, 2023; Mazzucato & Rodrik, 2026).

Once authority is established, **Stage II (Jurisdictional Siting Rivalry)** reorients bureaucratic incentives. Implementing agencies, from the U.S. Department of Commerce CHIPS Program Office to national economics ministries across Germany, France, and smaller EU Member States, compete inside an international and subnational subsidy race (Slattery & Zidar, 2020; Clausing & Wolfram, 2023). Because frontier fabs and battery plants are lumpy, mobile investments courted simultaneously by rival jurisdictions, political principals reward officials for securing rapid capital-expenditure announcements and non-binding Preliminary Memoranda of Terms ahead of electoral cycles (Jensen & Malesky, 2018).

Public announcements set up **Stage III (Contracting and Tender Execution)**, where erosion operates through two institutionally distinct mechanisms:

1. *Post-announcement bilateral corporate hold-up (discretionary firm-specific grants)*: Having staked political credibility on an announced semiconductor fab or battery gigafactory, agencies face acute reputational loss if construction stalls. Controlling private engineering data on cleanroom inflation, yield curves, and equipment lead times, recipient firms credibly argue during confidential contract finalization or post-award restructuring that non-statutory social buildouts or cash-flow clawbacks

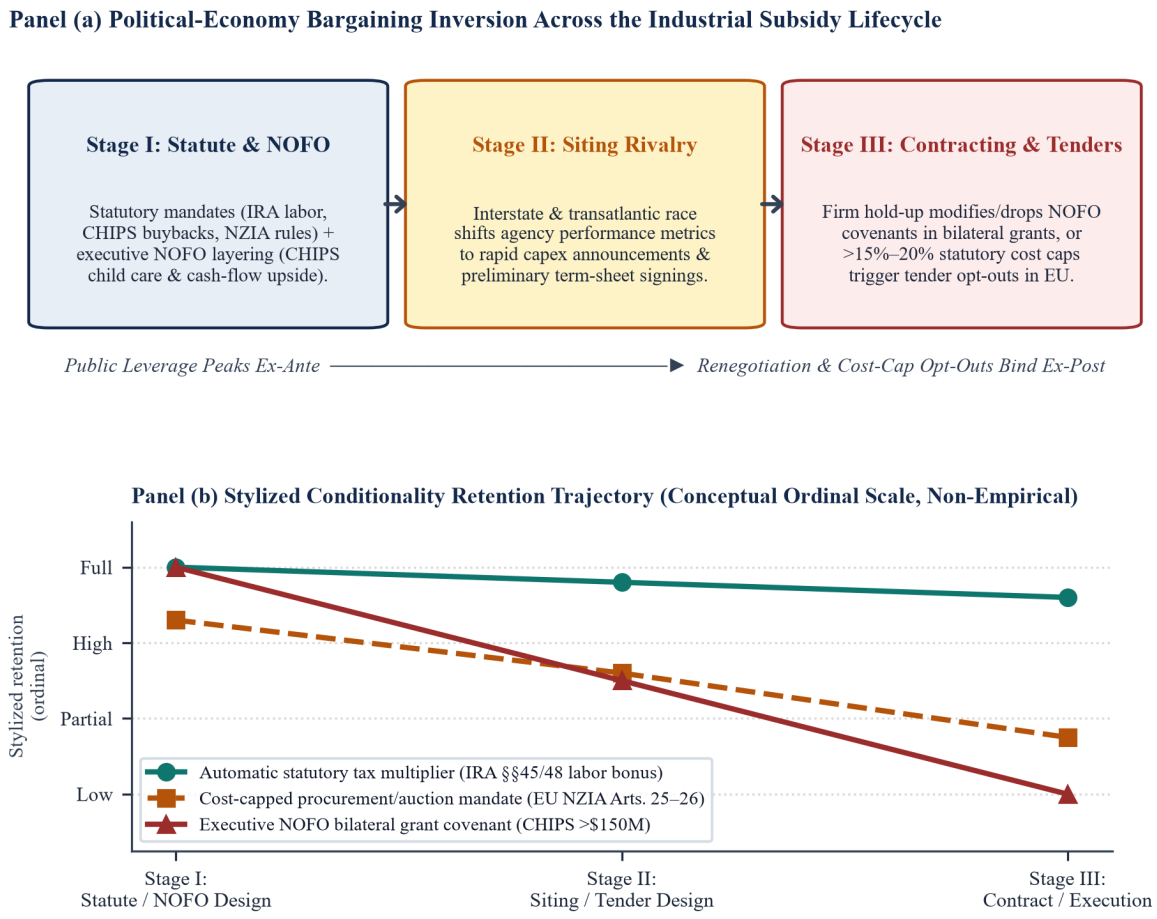

Figure 1. Political-economy bargaining inversion and stylized conditionality retention across subsidy legal forms.

Notes. Panel a traces shifts in public leverage and bureaucratic incentives from statutory enactment and executive NOFO layering (Stage I) through siting competition (Stage II) to bilateral grant contracting and public tender execution (Stage III). Panel b depicts *stylized conceptual retention trajectories on a non-empirical ordinal scale* (Low to Full) illustrating relative vulnerability to Stage III waiver or opt-out across three legal architectures analyzed in Sections 3 and 4: automatic statutory tax multipliers (IRA §§ 45/48, showing minor ex-post audit/cure friction), cost-capped procurement/auction rules (EU NZIA Arts. 25–26, starting below Full because >15%–20% derogations and Art. 49 phase-in delays are written into the Stage I statute), and administratively layered bilateral grant covenants (CHIPS NOFO >$150M, excluding non-waivable CHIPS statutory guardrails).

threaten project viability, inducing officials to waive or revise administrative covenants to preserve physical milestones (Gabor, 2021; U.S. Government Accountability Office, 2026).

2. *Fiscal-federalism cost-cap opt-outs (unfunded supranational procurement mandates)*: Where a supranational legislature enacts domestic-resilience tender criteria without providing a common fiscal transfer fund (EU NZIA), national finance ministries and municipal utilities confront direct budget and ratepayer trade-offs. Here, erosion occurs during competitive tender evaluation via statutory disproportionate-cost thresholds (>15% to >20%) explicitly designed to release contracting authorities whenever domestic manufacturing premiums exceed national fiscal tolerance (European Parliament and Council of the European Union, 2024).

2.2. *Endogenous Stage I Instrument Choice: Legislative Rules and Incomplete Contracting*

Why do legislatures choose discretionary bilateral grants in one sector and automatic tax multipliers or capped procurement rules in another, even within the same legislative session? In August 2022, the

117th U.S. Congress enacted discretionary grants plus a flat tax credit for semiconductors (Pub. L. 117-167) and automatic 5x labor-conditioned tax credits for clean energy (Pub. L. 117-169) seven days apart. Two structural forces explain Stage I instrument selection (Table 1):

First, *constitutional voting and fiscal-competence rules* channel coalition bargains into different legal vehicles. Passing the CHIPS Act under regular Senate order required 60 votes for cloture (passing 64–33), enabling discretionary grant appropriations and bipartisan national-security, buyback, and Davis-Bacon construction rules while empowering Senate conservatives to block statutory child-care or profit-sharing mandates, which the executive branch then layered administratively onto the February 2023 NOFO. Conversely, Democrats enacted the Inflation Reduction Act on a 50-vote party-line basis under Senate budget reconciliation (2 U.S.C. § 644, the Byrd Rule), which barred non-budgetary regulatory mandates and channeled labor coalition demands directly into Internal Revenue Code rate multipliers (6% base versus 30% bonus). In the European Union, unanimity barriers to common EU taxation and debt issuance precluded an IRA-scale federal tax credit, steering Brussels toward qualified-majority Single Market procurement rules (Article 114 TFEU) paired with national cost-escape valves (Di Carlo & Schmitz, 2023; McNamara, 2024).

Second, *sectoral industrial organization and incomplete contracting* constrain tax-code automation. Clean-energy generation (kWh sold under IRC §§ 45/45Y) and standardized component manufacturing (solar modules or battery cells sold under § 45X) involve homogeneous, easily metered outputs suited to anonymous tax filings. Leading-edge sub-3-nanometer semiconductor fabrication involves bespoke node transitions, defense secure-enclave deliverables, and entity-specific foreign-capacity guardrails across three global foundries. Because anonymous tax credits (§ 48D) cannot verify node progression or bespoke defense milestones, governments pair tax credits with milestone-gated bilateral grants (U.S. Government Accountability Office, 2025), creating a structural trade-off between technological targeting and Stage III renegotiation exposure (Figure 1, Panel b).

Table 1. Legal architecture, legislative origin, and Stage III vulnerability across four transatlantic industrial subsidy instruments.

Policy instrument	Fiscal & legal vehicle	Upside-sharing / clawback rule	Labor, social & resilience mandate	Stage III waiver or statutory opt-out mechanism	Primary statutory & audit source
U.S. CHIPS Direct Grants (>$150M awards)	$39B discretionary grants + confidential contracts (*Pub. L. 117-167*)	Statutory foreign-capex clawback (§4652(a)(6)); NOFO cash-flow cap (75% of grant)	Statutory buyback ban (§102(g)) & Davis-Bacon (§4652(f)); NOFO child-care plan	Statutory rules non-waivable; NOFO child-care & upside clauses removed/revised in amendments	Congress (2022a); NIST (2023); GAO (2024, 2025, 2026)
U.S. Clean-Energy & Semi. Tax Credits (IRC)	Uncapped credits (§§45, 48, 45Y, 48E, 48C, 45X) & §48D (25% -> 35% in 2025)	Zero upside profit sharing (0% across §45X & §48D)	Statutory 5x bonus (6% to 30%) for wage & apprenticeship on §§45/48/45Y/48E/48C (0% on §45X/§48D)	Zero executive waiver power on 5x rule; exposed only to Stage I statutory cutoffs (*Pub. L. 119-21*)	Congress (2022b, 2025); Treasury TD 9998 (2024)
EU Net-Zero Industry Act (Reg. 2024/1735)	Indicative targets (40% EU 2030) + national tender/auction rules (Art. 49 phased)	None at EU level (no new common EU fiscal fund)	Art. 25(7) tender resilience (>50% import reliance); Art. 26(7) auctions (>=30% or 6 GW)	Art. 25(9)–(11) opt-out if 0 suitable bids or >20% cost gap; Art. 26(5) opt-out if >15% cost gap	EU Reg. 2024/1735 (June 2024, Arts. 5, 25, 26, 49)

(continued)

Table 1 (continued)

Policy instrument	Fiscal & legal vehicle	Upside-sharing / clawback rule	Labor, social & resilience mandate	Stage III waiver or statutory opt-out mechanism	Primary statutory & audit source
EU Chips Act, IPCEI & Crisis State Aid (TCTF)	National State Aid + €3.3B EU Chips Pillar 1 R&D budget	Project DCF claw-back in IPCEI first deployment (2021/C 528/02); absent in broad TCTF	European spillover & first-of-a-kind capacity pledges in national aid awards	Member State fiscal asymmetry; gaps in Commission tracking of realized aid & conditions	EU Reg. 2023/1781; ECA SR 21/2024 & SR 12/2025

Notes. Compiled from United States Congress (2022a), United States Congress (2022b), United States Congress (2025), National Institute of Standards and Technology (2023), U.S. Department of the Treasury (2024), U.S. Government Accountability Office (2024), U.S. Government Accountability Office (2025), U.S. Government Accountability Office (2026), European Commission (2021), European Parliament and Council of the European Union (2023), European Parliament and Council of the European Union (2024), European Court of Auditors (2024b), and European Court of Auditors (2025).

3. United States Industrial Subsidies: Within-CHIPS Legal Splits and Statutory Tax Multipliers

3.1. CHIPS Direct Grants Versus Section 48D: A Natural Within-Program Test of Legal Entrenchment

Division A of the CHIPS and Science Act (Public Law 117-167, August 2022) appropriated $52.7 billion, including $39 billion for manufacturing incentives and $11 billion for advanced microelectronics R&D, paired with an uncapped Advanced Manufacturing Investment Credit under 26 U.S.C. § 48D initially set at 25% of qualified semiconductor equipment and facility investment (United States Congress, 2022a). Comparing statutory provisions against executive NOFO rules *within* the CHIPS program provides a sharp empirical test of legal entrenchment.

In statutory text, Congress codified three explicit obligations on direct-grant recipients: a prohibition on using CHIPS funds for stock buybacks or common-stock dividends (Pub. L. 117-167, Div. A, § 102(g), 15 U.S.C. § 4651 note), a 10-year clawback barring material expansion of leading-edge semiconductor capacity in foreign countries of concern (15 U.S.C. § 4652(a)(6)), and mandatory federal Davis-Bacon prevailing wages for all construction laborers and mechanics on grant-assisted facilities (15 U.S.C. § 4652(f), incorporating 42 U.S.C. § 3212) (United States Congress, 2022a). By contrast, workforce and construction **child-care plans** and **excess-cash-flow upside sharing** (capped at 75% of the direct grant award) appeared nowhere in the statute; the Department of Commerce layered both onto its February 2023 funding notice (2023-NIST-CHIPS-CFF-01) for applicants requesting more than $150 million (National Institute of Standards and Technology, 2023). In Decision B-335175 (GAO-24-106696), the U.S. Government Accountability Office (2024) held that the NOFO constituted a substantive rule under the Congressional Review Act precisely because it imposed extra-statutory eligibility conditions.

Subsequent implementation tracked this statutory-versus-administrative boundary along exact legal lines. Across initial awards evaluated in **GAO-26-107882** (December 2025), spanning $30.9 billion in direct grants and $5.5 billion in loans across 40 projects at 19 companies through July 2025, Commerce included upside-sharing clauses in 27 of 40 project agreements, tied to confidential firm-modeled cash-flow projections, while administering child care flexibly through local stipends, referrals, or partnerships (U.S. Government Accountability Office, 2025). As major recipients restructured investment timelines amid shifting administration priorities across 2025 and 2026, **GAO-26-109121** (August 2026, covering 49 projects across 24 companies with $13.1 billion, or 42%, disbursed) documented that Commerce amended existing awards for 14 companies: removing employee child-care requirements, removing upside-sharing

agreements entirely for two projects and revising upside-sharing calculations for a third (alongside ad hoc federal equity negotiations), and canceling or scaling back $7.8 billion of the $11 billion R&D appropriation (U.S. Government Accountability Office, 2026). Throughout every single restructuring, the *statutory* Davis-Bacon wage mandate (§ 4652(f)), buyback prohibition (§ 102(g)), and foreign-capacity guardrails (§ 4652(a)(6)) remained legally non-waivable. Meanwhile, on 4 July 2025, Public Law 119-21 raised the parallel IRC § 48D semiconductor investment tax credit from **25% to 35%** for property placed in service after 31 December 2025, still carrying **zero** upside sharing and **zero** prevailing-wage mandate (United States Congress, 2025; Figure 2, Panel a). Executive NOFO covenants yielded under bilateral renegotiation even as unconditional statutory tax subsidies expanded.

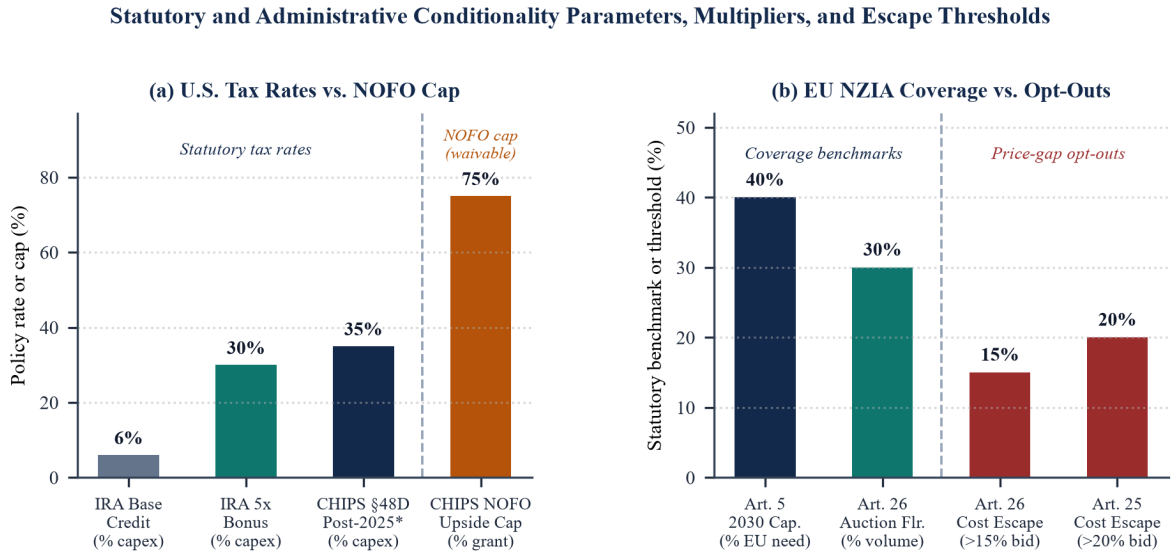

Figure 2. Statutory and administrative conditionality parameters, bonus multipliers, and cost-exemption thresholds across U.S. and EU industrial policies.

Notes. Vertical dashed lines separate distinct denominator categories. In Panel a, the left three bars report *statutory U.S. tax-credit subsidy rates as a percentage of qualified capital investment*: the Inflation Reduction Act base rate (6%) versus 5x prevailing-wage and apprenticeship bonus rate (30%) (IRC §§ 45/48/48E; United States Congress, 2022b; U.S. Department of the Treasury, 2024), and the IRC § 48D semiconductor investment credit raised from 25% (2022–2025) to 35%* for property placed in service after 31 December 2025 under Public Law 119-21 (0% upside sharing; United States Congress, 2025). The rightmost bar reports the *administrative NOFO recoupment ceiling* (75% of the direct grant award above privately modeled cash-flow triggers, waivable in contract amendments; National Institute of Standards and Technology, 2023; U.S. Government Accountability Office, 2026). In Panel b, the left two bars report EU Net-Zero Industry Act (Regulation (EU) 2024/1735, OJ L, 2024/1735, 28.6.2024) coverage benchmarks (Art. 5 40% indicative 2030 EU capacity; Art. 26(7) 30% minimum annual renewable auction volume), separated from statutory disproportionate-cost opt-out thresholds (Art. 26(5) >15% auction cost gap; Art. 25(10) >20% procurement price gap) (European Parliament and Council of the European Union, 2024).

3.2. Inflation Reduction Act Credits: Automatic Labor Multipliers and Legislative Phase-Out Risk

Clean-energy facility tax credits under the Inflation Reduction Act (Public Law 117-169) demonstrate how encoding social mandates into statutory tax rates neutralizes Stage III executive waivers (Bistline et al., 2023; Clausing & Wolfram, 2023). Under Internal Revenue Code Sections 45, 48, 45Y, 48E, and 48C, statutory base credits equal just one-fifth of the headline incentive (6% investment credit or 0.3 cents/kWh base production credit) unless the taxpayer satisfies both Davis-Bacon prevailing-wage rules across facility construction, alteration, and repair and registered-apprenticeship labor-hour shares stepping

from 10% (pre-2023) and 12.5% (2023) to a 15% steady-state mandate for construction beginning after 31 December 2023, unlocking the 5x (30% or 1.5 cents/kWh) rate (United States Congress, 2022b; Figure 2, Panel a).

Treasury Decision 9998 (89 FR 53184, June 2024) operationalized these statutory formulas with mechanical payroll remedies that preclude confidential regional waivers (U.S. Department of the Treasury, 2024). Under 26 U.S.C. § 45(b)(7)(B), curing a prevailing-wage shortfall to preserve the 5x credit requires paying affected workers full back wages plus interest alongside a $5,000-per-worker statutory penalty to the IRS; where underpayment reflects intentional disregard (§ 45(b)(7)(B)(iii)), the statute **triples (3x) the back-pay-plus-interest restitution** to workers and **doubles the IRS penalty to $10,000 per worker**, while unexcused apprenticeship shortfalls incur $50 per labor hour ($500 per hour for intentional disregard under § 45(b)(8)(D)). Elective pay (§ 6417) and credit transferability (§ 6418) reinforce compliance through private market discipline, as tax-credit buyers require independent payroll audits and tax-insurance indemnities prior to purchase.

At the same time, two internal boundaries qualify the IRA model. First, IRC § 45X Advanced Manufacturing Production Credits pay per-unit domestic output subsidies on battery cells, solar modules, inverters, and critical minerals with zero Davis-Bacon multiplier, zero dividend restrictions, and zero windfall-margin recoupment (subject only to scheduled 2030–2032 phase-outs for non-mineral components under § 45X(b)(3)). Second, while statutory tax formulas block *Stage III executive waivers*, they remain subject to *subsequent Stage I legislative retrenchment*: in July 2025, Public Law 119-21 imposed accelerated construction/service cutoffs on wind and solar credits (§§ 45Y, 48E), terminated § 45X wind-component credits after 2027, and tightened Foreign Entity of Concern restrictions, while leaving the 5x prevailing-wage and apprenticeship multiplier untouched on all qualifying projects (United States Congress, 2025).

4. European Union Industrial Policy: Phased Procurement Rules, Cost Escape Caps, and Fiscal Fragmentation

4.1. The Net-Zero Industry Act: Non-Price Mandates Bounded by Statutory Opt-Outs

Constrained by the absence of federal tax-and-borrowing capacity, the European Union constructed its industrial response around indicative benchmarks, public-tender criteria, and relaxed national state-aid ceilings (Di Carlo & Schmitz, 2023; McNamara, 2024). Adopted in June 2024 (OJ L, 2024/1735, 28.6.2024), **Article 5** of the Net-Zero Industry Act sets indicative targets for Union manufacturing capacity across strategic net-zero technologies to reach at least 40% of annual EU deployment needs by 2030 and 15% of world production by 2040 (European Parliament and Council of the European Union, 2024).

To stimulate demand without creating a common EU subsidy fund, **Article 25** mandates minimum environmental sustainability and supply-chain resilience contributions in public procurement, where **Article 25(7)** triggers mandatory resilience conditions (capping dominant third-country supply at 50% of tender value) whenever a single third country accounts for more than 50% of EU supply for a net-zero technology or its main specific components (or at least 40% following two consecutive years of >=10 percentage-point annual share increases). In parallel, **Article 26** requires Member States to apply non-price pre-qualification and award criteria (weighted 15% to 30%) across at least 30% of annual auctioned renewable energy volume, or at least 6 gigawatts per Member State per year (**Article 26(7)**; European Parliament and Council of the European Union, 2024).

Statutory phase-in delays and explicit cost-difference derogations substantially narrow these mandates in execution (Figure 2, Panel b; Table 2). First, under **Article 49(3)–(4)**, renewable-auction requirements took effect only from **30 December 2025**, while Article 25 procurement rules applied solely to central purchasing bodies and contracts >= €25 million until **1 July 2026**. Second, under **Article 25(9)–(11)**, contracting authorities may set aside sustainability or resilience requirements where technical exclusivity

leaves a single operator (Art. 25(9)(a)), where **no suitable tenders** (0 suitable bids) were submitted (Art. 25(9)(b) and Art. 25(11)), or where compliance would entail a "disproportionate cost," legally presumed under **Article 25(10)** whenever the resulting price difference exceeds **20%**. Likewise, **Article 26(5)** exempts Member States from applying non-price renewable auction criteria when compliance would raise support costs by a disproportionate margin presumed above **15%** (European Parliament and Council of the European Union, 2024). While these caps shield municipal budgets and electricity consumers in fiscally constrained Member States, a 15% to 20% threshold binds systematically in segments, such as solar photovoltaic modules and battery cells, where East Asian scale advantages exceed 20% (Clausing & Wolfram, 2023; European Court of Auditors, 2023), institutionalizing lawful tender opt-outs precisely where infant-industry cost gaps are widest.

Table 2. Statutory promises versus administrative and tender execution across U.S. GAO and EU Court of Auditors evaluations (2023–2026).

Sector & jurisdiction	Headline Stage I target or covenant	Verified Stage II–III execution & audit finding	Oversight & statutory source
U.S. Semiconductors (CHIPS Direct Grants)	Statutory buyback/Davis-Bacon rules + NOFO child-care & 75% upside cap (>$150M)	Statutory rules held; across 14 amended company awards, child care removed & upside removed (2 projects) or revised (1)	GAO B-335175 (2024); GAO-26-107882 (Dec 2025); GAO-26-109121 (Aug 2026)
U.S. Clean Energy & Semi. Tax (IRC)	5x labor bonus (6% to 30%, 15% post-2023 apprentice share); §48D (25% -> 35%)	5x labor cure/penalty formula (TD 9998) intact; Pub. L. 119-21 cut wind/solar windows while raising unconditioned §48D to 35%	Treasury TD 9998 (2024); Pub. L. 119-21 (July 2025)
EU Net-Zero Procurement & Auctions (NZIA)	40% EU 2030 benchmark; Art. 25 tenders & Art. 26 auctions (>=30% / 6 GW)	Phased to Dec 2025 / July 2026 (Art. 49); lawful opt-outs if 0 suitable tenders or price gap >20% (Art. 25(10)) / >15% (Art. 26(5))	Regulation (EU) 2024/1735 (OJ L, 28.6.2024)
EU Microchips (Reg. 2023/1781 Chips Act)	Reach 20% share of global microchip value production by 2030	Commission controls only €3.3B (Pillar 1); relies on national State Aid & private capex; 20% target judged "very unlikely"	ECA Special Report 12/2025 (April 2025)
EU Crisis & Transition State Aid (TCTF)	Align national crisis & green-transition subsidies with EU industrial goals	Approvals concentrated in fiscally strong Member States; shortcomings in Commission tracking of realized aid & conditions	ECA Special Report 21/2024 (Oct 2024)
EU Hydrogen & Batteries (REPowerEU / Alliance)	10 Mt domestic + 10 Mt imported H2 by 2030; competitive EU battery chain	Hydrogen targets set politically across >€18.8B scattered funds; battery plants stalled amid energy costs & U.S. §45X rivalry	ECA SR 15/2023 (June 2023) & SR 11/2024 (July 2024)

Notes. Compiled from primary legal acts and supreme audit reports published on or before 13 November 2026: U.S. Department of the Treasury (2024), U.S. Government Accountability Office (2024), United States Congress (2025), U.S. Government Accountability Office (2025), U.S. Government Accountability Office (2026), European Parliament and Council of the European Union (2024), European Court of Auditors (2023), European Court of Auditors (2024a), European Court of Auditors (2024b), and European Court of Auditors (2025).

4.2. Supreme Audit Evidence on State-Aid Concentration and Target Detachment

Four performance audits by the European Court of Auditors across 2023–2025 (Table 2) corroborate the structural limits of decentralized national state aid. In **Special Report 21/2024**, auditors found that crisis-era State Aid approvals culminating in the Temporary Crisis and Transition Framework heavily favored fiscally strong Member States (led by Germany and France), while the European Commission lacked comprehensive tracking of *actual* aid disbursed versus approved envelopes and lacked systematic

verification of industrial-policy conditionalities attached to national schemes (Di Carlo & Schmitz, 2023; European Court of Auditors, 2024b).

Sectoral audits confirm how fiscal decentralization magnifies corporate leverage. In **Special Report 12/2025** on the EU Chips Act (Regulation (EU) 2023/1781), the European Court of Auditors (2025) documented that the Commission directly manages only €3.3 billion (Pillar 1), leaving total investment dependent on Member State State Aid for "first-of-a-kind" fabs and multinational capital budgets; auditors concluded that the Act is "very unlikely to be sufficient" to reach the 20% global market-share target by 2030 as reliance on a few global foundries exposes host governments to investment delays and subsidy renegotiations. Similarly, **Special Report 11/2024** found that EU 2030 targets of 10 million tonnes each of domestic and imported renewable hydrogen reflected political compromise rather than cost-grounded analysis across >€18.8 billion in fragmented funding (European Court of Auditors, 2024a), while **Special Report 15/2023** showed European battery gigafactory announcements stalling or demanding enhanced national aid when confronted with high European electricity costs and uncapped U.S. Section 45X subsidies (European Court of Auditors, 2023).

5. Rival Explanations and Institutional Boundaries

Two substantive counter-interpretations warrant direct assessment.

First, defenders of administrative flexibility argue that removing or revising CHIPS child-care and upside-sharing terms (GAO-26-109121) or invoking EU cost-cap opt-outs reflects benign adaptation to post-2022 cleanroom inflation, interest-rate tightening, and changing technology priorities rather than bargaining inversion (Juhász et al., 2024). Input-cost shocks in semiconductor and electrolyzer plants are undeniable (European Court of Auditors, 2023; European Court of Auditors, 2025). Yet macroeconomic shocks cannot explain *selective, asymmetric concession*: within the very same restructured CHIPS awards, statutorily codified Davis-Bacon construction wages (15 U.S.C. § 4652(f)), buyback bans (§ 102(g)), and foreign-capacity guardrails (§ 4652(a)(6)) remained untouched while Congress simultaneously expanded unconditional IRC § 48D semiconductor tax credits from 25% to 35% (Pub. L. 119-21), whereas extra-statutory NOFO child-care and upside-sharing clauses bore the concessions (United States Congress, 2025; U.S. Government Accountability Office, 2026). Legal entrenchment, rather than cost inevitability, governed which public claims survived.

Second, European state-aid specialists note that Important Projects of Common European Interest (IPCEI) approved under Commission Communication 2021/C 528/02 incorporate project-level *claw-back mechanisms* recovering State Aid if first-industrial-deployment returns exceed ex ante discounted cash-flow projections (European Commission, 2021). While IPCEI clawbacks avoid the zero-recoupment design of IRC §§ 45X and 48D, two structural limits noted by the European Court of Auditors (2024b) constrain their reach: discounted cash-flow baselines still depend on firm-supplied engineering projections negotiated confidentially with national ministries, and crisis/transition State Aid approved outside IPCEI under the Temporary Crisis and Transition Framework bypassed uniform clawback rules.

Two evidentiary boundaries apply. First, finalized CHIPS Direct Funding Agreements and national IPCEI project schedules remain commercially redacted as of November 2026, precluding external calculation of firm-specific recoupment thresholds; that contractual secrecy is itself a primary accountability flaw. Second, domestic legal design cannot eliminate cross-border subsidy races without plurilateral subsidy caps among the United States, the European Union, and East Asian manufacturing powers (Clausing & Wolfram, 2023).

6. Designing Enforceable Reciprocity: Three Institutional Reforms

Translating industrial policy with conditionalities (Mazzucato & Rodrik, 2026) into durable law without subsidizing unconditioned private windfalls (Gabor, 2021) requires matching reciprocity instruments to corporate-finance realities and insulating them from Stage III hold-up.

First, legislatures should *embed core labor and social mandates into automatic statutory multipliers paired with volume or price fiscal stabilizers*. The survival of both the IRA's 5x prevailing-wage and apprenticeship tax differential (TD 9998) and the CHIPS Act's statutory Davis-Bacon mandate (15 U.S.C. § 4652(f)) proves that statutory payroll rules outlast executive NOFO covenants. Where frontier R&D or defense-specific fabs still require milestone-gated grants, workforce care and training commitments should be structured as fixed statutory co-funding percentages transferred directly to municipal care and vocational institutions rather than bespoke corporate "plans." Conversely, to curb open-ended tax-expenditure liability on homogeneous production credits (§ 45X or § 48D), automatic statutory multipliers should be paired with cumulative volume phase-downs or commodity-price phase-out corridors.

Second, governments should *replace confidential project-level cash-flow formulas with parent-consolidated equity warrants or margin-collared recoupment schedules*. Project-specific excess-cash-flow clauses invite intra-group profit shifting and ad hoc contract removal; equally, ad hoc distress-driven equity conversions negotiated bilaterally during award restructurings (GAO-26-109121) lack uniform taxpayer safeguards (U.S. Government Accountability Office, 2026). Yet naive recoupment substitutes carry corporate-finance pitfalls of their own: warrants issued on an unlisted domestic project special-purpose vehicle (SPV) of a foreign multinational lack a liquid market valuation and remain vulnerable to parent-level intellectual-property and transfer-pricing extraction, whereas unconditioned gross-revenue royalties act as cascading turnover taxes that penalize negative-margin ramp-up phases and pass higher costs into downstream clean-tech prices. Statutory recoupment on capital grants or tax credits above $100 million / €100 million should therefore require *parent-level listed non-voting equity warrants or synthetic stock-appreciation rights* (backed by statutory anti-dilution rules), or, where foreign state or corporate law precludes parent equity claims, *margin- or commodity-price-collared royalty schedules* that trigger recoupment only when observable industry operating margins or output prices exceed statutory bands.

Third, legislatures in Washington and Brussels should enact *mandatory public contract registries alongside common fiscal backing for procurement resilience*. Trade-secret redactions legitimately protect lithography recipes or catalyst chemistry, never the financial covenants governing public funds. Statute should require publication within 30 days of execution, and within 30 days of any contract amendment (CHIPS / State Aid) or cost-cap opt-out (NZIA Arts. 25(10) and 26(5)), disclosing finalized disbursement milestones, statutory warrant or collar terms, and realized compliance audited annually by the Government Accountability Office and the European Court of Auditors (European Court of Auditors, 2024b; U.S. Government Accountability Office, 2026). Combining statutory automaticity, parent-consolidated or margin-collared recoupment, and mandatory contract disclosure anchors public reciprocity across the entire subsidy lifecycle.

Statements

Data availability. All statutory provisions, administrative funding notices, tax regulations, and supreme audit evaluations examined in this essay are publicly available through official United States and European Union repositories as of 13 November 2026, including GovInfo and the Federal Register (Public Laws 117-167, 117-169, and 119-21, and Treasury Decision 9998), the NIST CHIPS Program Office archive (NOFO 2023-NIST-CHIPS-CFF-01), the U.S. Government Accountability Office database (B-335175 / GAO-24-106696, GAO-26-107882, and GAO-26-109121), EUR-Lex (Regulations (EU) 2023/1781 and 2024/1735, and Communication 2021/C 528/02), and the European Court of Auditors archive (Special Reports 15/2023, 11/2024, 21/2024, and 12/2025). Exact identifiers and URLs appear in the references.

Author contributions. Matthew Ellerton formulated the three-stage bargaining-inversion framework, structured the transatlantic comparison, and led manuscript drafting. Farhod Rakhimov analyzed European Union Net-Zero Industry Act derogation clauses and European Court of Auditors state-aid reports. Natalie Goh examined U.S. CHIPS statutory and funding-notice provisions, Inflation Reduction Act and Public Law 119-21 tax rules, and GAO oversight reports. All authors contributed to substantive revisions and approved the final essay.

AI declaration. OpenAI Codex was employed in a strictly auxiliary capacity to cross-index statutory clause numbers across U.S. and European Union legal instruments and to verify the Python code generating the comparative policy figures. Every statutory threshold, audit citation, and visual element was independently verified by all authors, who conducted the entire political-economy analysis and prose composition and bear sole responsibility for the work.

Funding. This research was supported internally by the Academy of Public Policy and Economics (APPE) without external sponsorship or grant funding.

Competing interests. Matthew Ellerton, Farhod Rakhimov, and Natalie Goh hold research appointments at the Academy of Public Policy and Economics, which publishes Commentary and Critique. No external competing interests exist.

References

Aiginger, K., & Rodrik, D. (2020). Rebirth of industrial policy and an agenda for the twenty-first century. *Journal of Industry, Competition and Trade*, *20*(2), 189–207. https://doi.org/10.1007/s10842-019-00322-3

Allan, B., Lewis, J. I., & Oatley, T. (2021). Green industrial policy and the global transformation of climate politics. *Global Environmental Politics*, *21*(4), 1–19. https://doi.org/10.1162/glep_a_00640

Bistline, J., Mehrotra, N., & Wolfram, C. (2023). Economic implications of the climate provisions of the Inflation Reduction Act. *Brookings Papers on Economic Activity*, *2023*(1), 77–182. https://doi.org/10.1353/eca.2023.a919359

Bulfone, F. (2023). Industrial policy and comparative political economy: A literature review and research agenda. *Competition & Change*, *27*(1), 22–43. https://doi.org/10.1177/10245294221076225

Clausing, K., & Wolfram, C. (2023). Carbon border adjustments, climate clubs, and subsidy races when climate policies vary. *Journal of Economic Perspectives*, *37*(3), 137–162. https://doi.org/10.1257/jep.37.3.137

Di Carlo, D., & Schmitz, L. (2023). Europe first? The rise of EU industrial policy promoting and protecting the single market. *Journal of European Public Policy*, *30*(10), 2063–2096. https://doi.org/10.1080/13501763.2023.2202684

European Commission. (2021). *Communication from the Commission: Criteria for the analysis of the compatibility with the internal market of State aid to promote the execution of important projects of common European interest (2021/C 528/02)*. Official Journal of the European Union. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021XC1230(02)

European Court of Auditors. (2023). *Special Report 15/2023: The EU's industrial policy on batteries: New strategic impetus needed*. Publications Office of the European Union. https://www.eca.europa.eu/en/publications/SR-2023-15

European Court of Auditors. (2024a). *Special Report 11/2024: The EU's industrial policy on renewable hydrogen: Legal framework mostly adopted, time for a reality check*. Publications Office of the European Union. https://www.eca.europa.eu/en/publications/SR-2024-11.

European Court of Auditors. (2024b). *Special Report 21/2024: State aid in times of crisis: Swift reaction, but shortcomings in the Commission's monitoring and inconsistencies in the framework to support the EU's industrial policy objectives*. Publications Office of the European Union. https://www.eca.europa.eu/en/publications/SR-2024-21.

European Court of Auditors. (2025). *Special Report 12/2025: The EU's strategy for microchips: Reasonable progress in its implementation, but the Chips Act is very unlikely to be sufficient to reach the overly ambitious Digital Decade target*. Publications Office of the European Union. https://www.eca.europa.eu/en/publications/SR-2025-12

European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/1781 of 13 September 2023 establishing a framework of measures for strengthening Europe's semiconductor ecosystem (Chips Act)*, Official Journal of the European Union, L 229, 1–53. https://eur-lex.europa.eu/eli/reg/2023/1781/oj.

European Parliament and Council of the European Union. (2024). *Regulation (EU) 2024/1735 of 13 June 2024 on establishing a framework of measures for strengthening Europe's net-zero technology manufacturing ecosystem (Net-Zero Industry Act)*, Official Journal of the European Union, L 2024/1735 (28.6.2024). https://eur-lex.europa.eu/eli/reg/2024/1735/oj.

Gabor, D. (2021). The Wall Street Consensus. *Development and Change*, *52*(3), 429–459. https://doi.org/10.1111/dech.12645

Jensen, N. M., & Malesky, E. J. (2018). *Incentives to pander: How politicians use corporate welfare for political gain*. Cambridge University Press. https://doi.org/10.1017/9781108292337

Juhász, R., Lane, N., & Rodrik, D. (2024). The new economics of industrial policy. *Annual Review of Economics*, *16*(1), 213–242. https://doi.org/10.1146/annurev-economics-081023-024638

Mazzucato, M., & Rodrik, D. (2026). Industrial policy with conditionalities: A taxonomy and sample cases. *Industrial and Corporate Change*, dtaf063. https://doi.org/10.1093/icc/dtaf063

McNamara, K. R. (2024). Transforming Europe? The EU's industrial policy and geopolitical turn. *Journal of European Public Policy*, *31*(9), 2371–2396. https://doi.org/10.1080/13501763.2023.2230247

National Institute of Standards and Technology. (2023). *Notice of Funding Opportunity: CHIPS Incentives Program—Commercial Fabrication Facilities (2023-NIST-CHIPS-CFF-01)*. CHIPS Program Office, U.S. Department of Commerce. https://www.nist.gov/system/files/documents/2023/02/28/CHIPS-Commercial_Fabrication_Facilities_NOFO_0.pdf

Rodrik, D. (2014). Green industrial policy. *Oxford Review of Economic Policy*, *30*(3), 469–491. https://doi.org/10.1093/oxrep/gru025

Slattery, C., & Zidar, O. (2020). Evaluating state and local business incentives. *Journal of Economic Perspectives*, *34*(2), 90–118. https://doi.org/10.1257/jep.34.2.90

United States Congress. (2022a). *CHIPS Act of 2022, Public Law 117-167, Division A, 136 Stat. 1366 (codified at 15 U.S.C. §§ 4651–4659 and 26 U.S.C. § 48D)*. https://www.govinfo.gov/content/pkg/PLAW-117publ167/pdf/PLAW-117publ167.pdf.

United States Congress. (2022b). *Inflation Reduction Act of 2022, Public Law 117-169, 136 Stat. 1818 (clean-energy and manufacturing credit provisions at 26 U.S.C. §§ 45, 45X, 45Y, 48, 48C, 48E, 6417, and 6418)*. https://www.govinfo.gov/content/pkg/PLAW-117publ169/pdf/PLAW-117publ169.pdf.

United States Congress. (2025). *Public Law 119-21, 139 Stat. (enacted July 4, 2025; amending 26 U.S.C. § 48D semiconductor investment credit rate to 35% and modifying §§ 45X, 45Y, and 48E phase-outs and foreign-entity rules)*. https://www.govinfo.gov/content/pkg/PLAW-119publ21/html/PLAW-119publ21.htm.

U.S. Department of the Treasury. (2024). *Increased credit or deduction amounts for satisfying certain prevailing wage and registered apprenticeship requirements (Treasury Decision 9998, 89 FR 53184,*

26 C.F.R. Part 1), Federal Register, Vol. 89, 53184–53276. https://www.govinfo.gov/content/pkg/FR-2024-06-25/pdf/2024-13331.pdf.

U.S. Government Accountability Office. (2024). *Department of Commerce—Notice of Funding Opportunity for Commercial Fabrication Facilities under the CHIPS Incentives Program (Decision B-335175 / GAO-24-106696)*. https://www.gao.gov/products/b-335175

U.S. Government Accountability Office. (2025). *Semiconductors: Information on projects funded to strengthen U.S. supply chain (GAO-26-107882)*. https://www.gao.gov/products/gao-26-107882

U.S. Government Accountability Office. (2026). *Semiconductors: Commerce needs plan to meet CHIPS for America R&D requirements (GAO-26-109121)*. https://www.gao.gov/products/gao-26-109121