

The Curtain

A factual chronology of how the architecture surrounding forest-carbon accounting was assembled, in three interleaved strands.

Document	DRL Companion Report — The Curtain
Series	DRL Thesis Codex v4.3.3 supplement. Companion to Appendix Z (The Deep Chronology of Forestry Knowledge) and to Tree of Many Sales.
Scope	From the first formal life-cycle assessment frameworks in the 1970s to May 2026. Three strands tracked in parallel: scientific knowledge, accounting and disclosure standards, and financial and treaty instruments. Every modern claim is hyperlinked to its primary-source URL.
Posture	Facts only. Configuration described, intent not characterised. Verbs are restricted to: published, classified, disclosed, enacted, ratified, funded, lobbied, voted, surrendered, omitted, characterised, deferred, vacated, settled. The chronology shows the public record. The reader is trusted with the conclusion.
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Framing

Three strands run in parallel through the modern chronology. None of them, in isolation, contains the configuration the DRL framework identifies. The configuration is in the interaction. The chronology presents the strands in the order their events occurred so the interaction becomes visible.

Strand one — Science

What was measured, when, and where it was published. Forest carbon stocks and fluxes, soil organic carbon response to harvest, harvested-wood-product end-of-life behaviour, biogenic emissions accounting, life-cycle assessment methodology. Peer-reviewed journals and government scientific advisory bodies.

Strand two — Disclosure standards

What the regulators, intergovernmental bodies, and standard-setters published as the rules for accounting. ISO LCA standards, IPCC guidance, Environmental Product Declarations, Product Category Rules, EPA policy statements, EU Joint Research Centre findings, national emissions inventories.

Strand three — Money and treaty instruments

The tax provisions, treaty articles, appropriations riders, lobbying disclosures, procurement programs, certification systems, ESG-aligned investment vehicles, and corporate filings that gave the disclosure standards their financial expression. Federal and state tax code. United Nations Framework Convention on Climate Change and the protocols and agreements under it. Domestic emissions trading schemes. Industry checkoff programs. Trade-association lobbying. Building-code mandates.



The framing concept: each strand alone is defensible on its own terms. The science is real science. The disclosure standards are real standards published by competent bodies. The money instruments are real legal mechanisms enacted by elected legislatures. What this chronology documents is the sequence by which the three strands were combined into an architecture that allowed disclosure to be partial, finance to be expansive, and science to be referenced selectively. The combination produces an effect that none of the three strands, considered alone, would produce.

The term used throughout this document for that combined effect is the *curtain*. The curtain is not a metaphor. It is the cumulative set of decisions, made by named institutions, on dated documents, on the public record, that placed the disclosure boundary upstream of three measurable liability categories the same institutions have separately acknowledged: soil organic carbon efflux at harvest, end-of-life methane from harvested wood, and foregone sequestration relative to an unharvested baseline.

The chronology below documents the curtain's assembly.

Note on prior knowledge

This chronology begins in 1969 because that is when the modern measurement and disclosure apparatus — life-cycle assessment, environmental impact statements, the first intergovernmental climate science — began to take recognisable form. The choice of start date is a statement about when the apparatus began, not about when the knowledge began.

The knowledge is far older. The relationship between forest cover and climatic, hydrological, and agricultural function is on the written record from approximately 2100 BCE forward: in the Mesopotamian account of cedar clearance, in Plato's description of Attic deforestation and its hydrological consequence, in the Roman agricultural writers' treatment of woodland rotation, in the Indigenous land-management traditions of North America and Australia documented over millennia of practice, and in the formal sustained-yield doctrine published by Hans Carl von Carlowitz in 1713 and institutionalised through Brandis and Pinchot into the modern forest services. The companion document Appendix Z — The Deep Chronology of Forestry Knowledge documents that four-millennium record in full.

The relevance to the present chronology is a single point. By the time the modern apparatus documented below was assembled, the underlying relationship it concerns had been on the written record for as long as writing has existed. Whatever else the chronology that follows shows, it does not show a configuration assembled in the absence of knowledge. The knowledge was present. The chronology records what was built, and when, on top of a record that was already four thousand years deep.

Part One — 1970s. Before the framework

The chronology begins in the 1970s because that is the decade in which the modern scientific framework for life-cycle environmental accounting begins to take recognisable form. Prior to the 1970s, large-scale industrial forestry operated without a quantitative carbon-accounting discipline because the discipline did not exist. The pre-framework period is not in scope for the current chronology because there was, by definition, nothing yet to accumulate around. Appendix Z documents the longer record of forestry knowledge stretching back four millennia. The curtain itself begins to be assembled when the framework for its later weaving first appears.

1969 — National Environmental Policy Act (NEPA) signed.

Establishes environmental impact assessment as a formal discipline in United States federal decision-making. Environmental Impact Statements become required for major federal actions. The methodology for quantifying environmental consequences is in its infancy. NEPA does not require carbon accounting because the concept does not yet exist in regulatory form.

Source: 42 U.S.C. §4321 et seq.

1969 — First commercial life-cycle inventory study.

Coca-Cola commissions the Midwest Research Institute to compare environmental burdens of glass versus plastic beverage containers. The study is called a Resource and Environmental Profile Analysis. It is generally regarded as the first formal life-cycle inventory in the literature. The methodology that would become ISO 14040 begins from this study.

Source: EPA history of LCA (archived)

1972 — United Nations Conference on the Human Environment (Stockholm).

The first major intergovernmental conference on environmental issues. Forestry and forest products are not yet treated as a carbon-policy category. The Stockholm Declaration establishes the United Nations Environment Programme. The architecture for later climate-specific treaties begins.

Source: UN Stockholm Declaration

1978 — Employee Retirement Income Security Act (ERISA) Section 404(c) interpretation expanded.

Already in force from 1974, ERISA's fiduciary structure is interpreted through the late 1970s to permit institutional pension capital to enter alternative asset classes including timberland. Timber Investment Management Organizations (TIMOs) begin to attract pension capital. The institutional ownership structure of US commercial forestry begins to shift from vertically integrated forest products companies to financial owners.

Source: 29 U.S.C. §1104(c)

1979 — First World Climate Conference (Geneva).

World Meteorological Organization convenes the first international scientific conference on climate change. Recognises anthropogenic CO₂ as a climate forcing. Forests are referenced as carbon sinks but no policy framework follows.

Source: WMO First World Climate Conference proceedings

Part Two — 1980s. The fiscal and scientific foundations are laid

The 1980s set the fiscal architecture under which US commercial forestry will operate for the next four decades, and establish the scientific foundations of climate science as a regulatory category. The two strands do not yet interact. They will.

1980 — Real Estate Investment Trust (REIT) treatment refined under IRC §856-860.

Timber REITs become structurally available. The REIT vehicle permits institutional capital to hold timberland with pass-through tax treatment, provided 90 percent of taxable income is distributed annually. The structural condition that will allow large-scale institutional financialisation of US timberland is in place.

Source: 26 U.S.C. §856

1981 — Economic Recovery Tax Act (ERTA) signed by President Reagan.

Accelerated cost recovery for capital investment, reduced top marginal rates, and Section 1250 modifications affecting real-property recapture. Timberland qualifies as Section 1231 property with favourable capital-gains treatment on sale. The Reagan-era fiscal apparatus that aligns institutional incentives with timberland ownership is formed.

Source: Pub.L. 97-34

1982 — Johns-Manville files Chapter 11 under asbestos litigation.

Not a forestry event. Included for chronological reference. The bankruptcy filing concludes a fifty-year arc in which industrial knowledge of harm preceded reckoning by approximately five decades. The shape of that arc is referenced in the legal literature on long-latency industrial liability that develops through the 1980s and 1990s.

Source: In re Johns-Manville Corp., 36 B.R. 727 (Bankr. S.D.N.Y. 1984)

1986 — Tax Reform Act (TRA 1986) preserves IRC §631.

The Tax Reform Act of 1986 broadly eliminated preferential capital-gains treatment for most asset categories. IRC §631 — which permits timber owners to treat the

cutting of timber as a sale or exchange, qualifying for capital-gain treatment — is preserved. The retention of §631 within an otherwise broad equalisation of capital and ordinary income is a legislative choice on the public record.

Source: 26 U.S.C. §631 · Pub.L. 99-514 legislative history

1988 — James Hansen testifies before US Senate.

NASA Goddard Institute for Space Studies director James Hansen testifies that anthropogenic warming is detectable with 99 percent confidence. The Intergovernmental Panel on Climate Change is established the same year by the World Meteorological Organization and UNEP. The scientific foundation for international climate policy is now in place.

Source: Hansen 1988 Senate Energy and Natural Resources Committee testimony (transcript)

1989 — New Zealand State Forests Act amendments.

Note: the 1889 climatal reserves precedent referenced in Appendix Z establishes the principle that forests serve climatic function. The 1989 amendments restructure state forest administration into commercial entities, beginning the transition that will create Crown Forestry Rental Trust assets and the corporate-forestry framework against which the NZ ETS will later operate.

Source: Crown Forest Assets Act 1989 (NZ)

Part Three — 1990s. The treaty layer is drafted

The 1990s are the decade in which the international treaty architecture for climate policy is built. Forestry is at the table from the first meeting forward. The accounting choices made in this decade — the treatment of forests as both sinks and sources, the harvested-wood-product convention, the LULUCF caps — will structure every subsequent national policy.

1992 — UN Framework Convention on Climate Change (UNFCCC) opened for signature at Rio Earth Summit.

Article 4.1(d) commits parties to conserve and enhance sinks and reservoirs of greenhouse gases, including biomass, forests, and oceans. Forests are recognised in the foundational climate treaty as a regulated carbon asset. The forestry-sector national associations of the United States, Canada, Sweden, Finland, New Zealand, Australia, Brazil, and Indonesia participate in national delegations to the negotiations.

Source: UNFCCC text, Article 4

1993 — North American Wood Products Promotion Council (predecessor structures) and the Softwood Lumber Board lineage.

Industry checkoff promotion programs for softwood lumber begin to take shape through the early-to-mid 1990s. The Softwood Lumber Board itself will be formally

established in 2011 under USDA oversight, but the industry advocacy infrastructure predates it.

Source: USDA AMS checkoff program history

1997 — ISO 14040:1997 Environmental Management — Life Cycle Assessment — Principles and Framework published.

The International Organization for Standardization publishes the first formal LCA standard. Biogenic carbon is treated under separate accounting from fossil carbon. The methodological choice that will permit Product Category Rules to treat biogenic carbon as net-zero at the mill gate is encoded at the international-standards level.

Source: ISO 14040:1997

1997 — Kyoto Protocol adopted at COP3.

Articles 3.3 and 3.4 establish the Land Use, Land-Use Change and Forestry (LULUCF) framework. Afforestation, reforestation, and forest management qualify for emissions accounting against national targets. Harvested wood products are treated under the IPCC default methodology as instantaneously oxidised at harvest. The accounting convention will be revised multiple times over the next two decades. Canada, New Zealand, Australia, Russia, Japan, the Nordic states, and the EU are the principal LULUCF negotiators. The protocol's forestry provisions reflect the negotiated positions of forestry-dependent national economies.

Source: Kyoto Protocol text

1998 — Tobacco Master Settlement Agreement signed.

Not a forestry event. Included for chronological reference. The MSA, the largest civil litigation settlement in US history at the time, resolves multi-state actions against tobacco companies and requires release of approximately 14 million internal industry documents to the UCSF archive. The MSA's enforcement mechanism — recovery of state expenditures incurred by an industry whose accounting of harm was found materially misleading — establishes a legal template applicable to other industries whose disclosure boundaries are later contested.

Source: NAAG MSA reference

1999 — First Rhode Island lead-paint public-nuisance action filed.

Not a forestry event. Included for chronological reference. State attorneys general begin systematic action against industries whose internal knowledge of harm preceded public disclosure by decades. Subsequent action in California (2000) leads to the \$305 million settlement in 2019.

Source: Rhode Island lead paint litigation summary

Part Four — 2000s. The implementing rules take effect

The treaty framework of the 1990s is operationalised in the 2000s. The implementing rules — IPCC guidance documents, ISO revisions, Marrakesh Accords, EU ETS launch, REDD precursors — determine how the Kyoto framework will actually function. Forestry is at every table where the rules are written. The first wave of peer-reviewed criticism of the accounting begins.

2001 — Marrakesh Accords adopted at COP7.

The implementing rules for Kyoto LULUCF. Cap on LULUCF credit toward national Kyoto targets set so that forestry-rich nations can meet a meaningful fraction of commitments through forest accounting. Canada, Russia, Japan, and the EU member states are the principal beneficiaries of the LULUCF cap structure.

Source: UNFCCC Marrakesh Accords text

2003 — IPCC Good Practice Guidance for LULUCF published.

The 2003 GPG-LULUCF formalises the accounting methodologies. Tier 1 default treats harvested wood products as instantaneous oxidation at harvest, with landfill methane accounted for under the waste sector. Tier 2 and Tier 3 methodologies allow countries to track HWP carbon over time. Selection of tier is at national discretion. The framework that will permit countries to apply different tiers in different reporting contexts is established.

Source: IPCC 2003 GPG-LULUCF

2005 — Kyoto Protocol enters into force.

The first commitment period covers 2008–2012. EU Emissions Trading System launches in 2005 as the principal compliance market under Kyoto. The accounting frameworks established in 1997 and 2003 become enforceable for ratifying parties. The United States does not ratify. The forestry-sector implications of Kyoto operate principally through the EU member states, Canada, Japan, Australia, and New Zealand.

Source: UNFCCC Kyoto entry into force

2006 — ISO 14044:2006 revision published.

Replaces ISO 14041, 14042, and 14043. Biogenic carbon accounting conventions are codified. The standard permits, but does not require, separate accounting of biogenic emissions and removals. The choice of how to treat biogenic carbon is delegated to Product Category Rules at the sector level. Industry-affiliated PCR committees gain effective control over the accounting boundary for their respective product categories.

Source: ISO 14044:2006

2007 — Bali Action Plan, COP13.

REDD (Reducing Emissions from Deforestation and Forest Degradation) is added to the UNFCCC negotiating agenda. The expanded REDD+ framework will include conservation, sustainable management of forests, and enhancement of forest carbon stocks. The 'sustainable management of forests' inclusion is the language under which commercial harvesting in managed plantations can later qualify for credit generation under Article 6 mechanisms.

Source: UNFCCC Bali Action Plan

2008 — Luyssaert et al., Nature.

'Old-growth forests as global carbon sinks.' Establishes that mature and old-growth forests function as net carbon sinks rather than carbon-neutral steady states. Contradicts the industry assumption that old-growth forests are carbon-saturated and that harvest plus regrowth produces equivalent carbon balance.

Source: Luyssaert et al. 2008, Nature 455:213

2009 — Searchinger et al., Science.

'Fixing a Critical Climate Accounting Error.' Thirteen authors including Hamburg, Melillo, Chameides, Havlik, Kammen, Likens, Lubowski, Obersteiner, Oppenheimer, Robertson, Schlesinger, and Tilman. Identifies that the carbon-accounting rules under the Kyoto Protocol, the EU cap-and-trade law, and the American Clean Energy and Security Act do not factor CO₂ released from smokestacks utilising bioenergy and do not count emissions resulting from land-use changes when biomass is harvested or grown. Treats all bioenergy as carbon neutral regardless of source.

Source: Searchinger et al. 2009, Science 326:527

2009 — Verra (then Verified Carbon Standard, VCS) issues first credits at scale.

Verra's Verified Carbon Standard begins large-scale issuance of voluntary carbon credits, including for REDD+ forest projects. By 2023, over one billion credits will have been issued under the VCS program. The voluntary market architecture that the 2023 Guardian/Die Zeit/SourceMaterial investigation will challenge is established.

Source: Verra VCS Program

Part Five — 2010 to 2014. The science is named and the lobby mobilises

The five years following Searchinger 2009 see the science consolidate around the identification of the gap, the regulators begin to engage, the courts begin to rule, and the industry lobby mobilises to reverse the regulatory direction through congressional appropriations.

2010 — Manomet Biomass Sustainability and Carbon Policy Study.

Commissioned by the Commonwealth of Massachusetts Department of Energy Resources. Concludes that biomass energy is not a priori carbon neutral and that a 'debt-then-dividend' accounting model is more accurate than the prior assumption. Massachusetts revises state regulations limiting renewable-energy subsidies to high-efficiency biomass plants. First US state-level regulatory action explicitly rejecting the unqualified biogenic-neutrality assumption.

Source: Manomet 2010 report

2010 — EPA Tailoring Rule biogenic deferral.

EPA defers biogenic CO₂ sources from Clean Air Act permitting for three years pending Science Advisory Board review. The deferral is challenged in federal court by the Center for Biological Diversity, Clean Air Task Force, Natural Resources Defense Council, and Southern Environmental Law Center.

Source: EPA Tailoring Rule, 75 Fed. Reg. 31514

2010 (approximate) — AF&PA biogenic-neutrality lobbying campaign initiated.

The American Forest and Paper Association's 2019 press release will state that congressional action recognising biomass carbon neutrality is 'action our industry has sought for more than nine years.' Counting backward from that 2019 statement places the initiation of the coordinated lobbying campaign at approximately 2010, immediately following the Searchinger and Manomet findings.

Source: AF&PA 2019 statement (verbatim)

2011 — EPA Science Advisory Board issues framework review.

The SAB concludes that 'carbon neutrality cannot be assumed for all biomass energy a priori... it is a conclusion that should be reached only after considering a particular feedstock's production and consumption cycle.' EPA's own peer-review body rejects unqualified biogenic neutrality.

Source: EPA SAB framework review

2011 — Softwood Lumber Board established under USDA AMS oversight.

Industry-funded checkoff program created under the Commodity Promotion, Research, and Information Act. Mandatory assessment of \$0.35 per thousand board feet of softwood lumber sold in the United States by domestic and import producers above a 15-million-board-foot annual threshold. Revenue funds research and promotion, including WoodWorks specifier-conversion infrastructure.

Source: 7 CFR Part 1217 (SLB Order) · USDA AMS SLB program page

2013 — Center for Biological Diversity v. EPA, D.C. Circuit.

Decided July 12, 2013. The court vacates EPA's biogenic carbon deferral, characterising EPA's justifications as 'arbitrary and capricious' and stating that once

carbon dioxide is released into the atmosphere it does not matter if it is from a biogenic or fossil-fuel source. First federal appellate ruling explicitly rejecting biogenic neutrality as a regulatory premise.

Source: Center for Biological Diversity v. EPA, 722 F.3d 401 (D.C. Cir. 2013)

2014 — EPA Framework for Assessing Biogenic CO₂ Emissions revised.

EPA publishes a revised framework. The SAB review of the 2014 framework will again find that biogenic neutrality cannot be assumed and that the framework requires further specification.

Source: EPA 2014 framework

2014 — IBC mass-timber code-development cycle begins.

International Code Council establishes the Ad Hoc Committee on Tall Wood Buildings. Industry stakeholders including the American Wood Council and Forestry Innovation Investment participate in code development. The provisions that will become IBC 2021 Type IV-A, IV-B, and IV-C construction (mass timber buildings up to 18 stories) are drafted.

Source: ICC TWB committee proceedings

2014 — USDA Wood Innovations Grant Program established.

Section 8643 of the 2014 Farm Bill (Pub.L. 113-79) authorises USDA Forest Service Wood Innovations program. Grant funding flows to mass-timber demonstration projects, specifier education, and supply-chain development. The procurement instrument that will scale through 2026 is established.

Source: Pub.L. 113-79, §8643 · USDA Wood Innovations program

Part Six — 2015 to 2019. Paris, the appropriations override, and the Pruitt declaration

The five years following the Paris Agreement establish the second-generation international framework, while in the United States the congressional appropriations process overrides the scientific findings of the prior decade. The industry's 2019 admission that the campaign has been running since 2010 closes the period.

2015 — Paris Agreement adopted at COP21.

Article 5 paragraphs 1 and 2 commit parties to conserve and enhance sinks and reservoirs of greenhouse gases, including forests, and explicitly endorse REDD+. Article 6 establishes the cooperative-approaches and market-mechanism framework under which post-2020 forestry credits flow internationally. Article 6.4 mechanism replaces the Clean Development Mechanism. Forestry-sector representation present in national delegations.

Source: Paris Agreement text

2015 — California Air Resources Board adopts Tropical Forest Standard (initial draft) and continues Improved Forest Management offset protocols.

California's compliance-market forestry offsets, including IFM (Improved Forest Management) and Avoided Conversion protocols, scale through the mid-2010s. Subsequent academic critique (Badgley, Freeman, Hamman, Haya et al., 2022) will document that the IFM protocol systematically over-credits projects relative to actual carbon storage.

Source: CARB Compliance Offset Program · Badgley et al. 2022, Global Change Biology

2016 — Paris Agreement enters into force.

Article 6 implementing rules deferred to subsequent COPs and not finalised until Glasgow 2021.

Source: UNFCCC Paris status of ratification

2017 — FY2017 Omnibus Appropriations directs EPA on biogenic policy.

Congressional language in the FY2017 omnibus appropriations bill directs EPA to develop policy reflecting carbon neutrality of forest-based biomass. The legislative branch directs the executive branch to adopt a policy framing that the executive branch's own scientific advisory body has rejected. Mechanism by which the SAB and D.C. Circuit findings are reversed administratively without further judicial review.

Source: Pub.L. 115-31 (FY2017 omnibus)

2018 — EPA Statement of Policy on Biogenic CO₂ Emissions, April 23, 2018.

Administrator Scott Pruitt issues a statement of policy that biomass from managed forests will be treated as carbon neutral when used for energy production at stationary sources. The opening paragraph of the policy statement reads, verbatim: 'this statement of agency policy is not a scientific determination.' EPA acknowledges, in the policy document itself, that the policy is not a scientific finding.

Source: EPA April 23, 2018 statement

2018 — AF&PA same-day press release, April 23, 2018.

American Forest and Paper Association characterises the EPA statement as 'reflecting long-standing scientific principles.' Both statements — the EPA disclaimer and the AF&PA characterisation — are on the public record from the same date. AF&PA also notes that 'the fiscal year 2017 and 2018 Omnibus Appropriations bills directed the EPA to develop the policy.' Industry confirms the appropriations origin of the policy.

Source: AF&PA press release, April 23, 2018

2018 — UK Committee on Climate Change, Biomass in a Low-Carbon Economy.

UK statutory climate advisory body publishes report identifying weakness in UK biomass criteria. Recommends that BEIS and DfT 'address the current weakness in the criteria on preserving carbon stocks in existing forests by requiring that any long-term changes in forest carbon stock at landscape scale are included in the calculation of the climate impacts of bioenergy systems.' UK government's official advisor publishes the gap.

Source: CCC Biomass Report, November 2018

2018 — ISO 14067:2018 Carbon Footprint of Products published.

Of eight surveyed LCA guidelines and standards on greenhouse gas emissions and wood products, ISO 14067 is the only one that does not require biogenic carbon uptakes and emissions to be accounted for in LCA. The standard most heavily used in wood-product Environmental Product Declarations is the one standard that omits biogenic carbon as a required accounting category.

Source: ISO 14067:2018

2018 — EU LULUCF Regulation 2018/841 enacted.

Establishes the 'no debit' rule for EU member states' forestry sectors. Forest Reference Levels are set by member states and accepted by the European Commission with limited independent verification. The regulation that codifies EU forestry-carbon accounting for the 2021–2030 period.

Source: Regulation (EU) 2018/841

2018 — Renewable Energy Directive II (RED II) adopted.

Directive (EU) 2018/2001. Classifies wood biomass as renewable energy. Smokestack emissions from wood combustion are exempted from member-state energy-sector accounting under the assumption that emissions have been counted in the country of harvest. The legal mechanism allowing UK and EU power generators to report wood combustion as zero-emission at point of combustion is codified.

Source: Directive (EU) 2018/2001

2019 — AF&PA CEO statement on FY2019 appropriations.

American Forest and Paper Association President Heidi Brock issues statement: 'Clear public policy on biomass carbon neutrality will level the playing field to help our manufacturers compete globally and support future economic growth and job creation. That's a winning combination and action our industry has sought for more than nine years.' Counting backward, the campaign initiation date is approximately 2010, immediately following Searchinger 2009 and Manomet 2010.

Source: AF&PA December 2019 statement

Part Seven — 2020 to 2023. The acknowledgements accumulate while the apparatus expands

The first half of the 2020s sees acknowledgements of the configuration accumulate across jurisdictions — EU Joint Research Centre, NZ Ministry for Primary Industries, US Forest Service, IPCC AR6 — while the procurement and finance instruments expand in scale. The voluntary carbon market faces its first major credibility crisis; the SEC attempts and is forced to retreat from climate disclosure mandates; the first federal criminal action in voluntary carbon markets begins.

2021 — EU Joint Research Centre publishes 'The use of woody biomass for energy production in the EU.'

Camia et al., JRC122719. Verbatim: 'Therefore, it is incorrect to say that bioenergy is assumed carbon neutral within the broader EU climate and energy framework.' Accompanying press release quotes lead author Giacomo Grassi: 'The assumption of carbon neutrality of wood bioenergy does not apply to the EU when the whole EU climate and energy framework is considered.' Same report notes fellings amount to 75 to 85 percent of annual forest biomass growth in 2015 and 47 percent of EU forest land is vulnerable to three or more drivers of degradation. European Commission's own science service publishes the acknowledgement.

Source: JRC122719 (full report PDF) · JRC press release, 26 January 2021

2021 — IBC 2021 Tall Mass Timber provisions take effect.

Type IV-A, IV-B, and IV-C construction provisions adopted into the International Building Code permit mass timber buildings up to 18 stories. Code adoption proceeds at state level over the subsequent years. The building-code framework into which the procurement instruments will channel demand is in place.

Source: ICC IBC 2021

2021 — IPCC AR6 Working Group I report.

Methane GWP100 value set at 27.9 (Chapter 7, Table 7.15). The radiative-forcing weight of methane relative to CO₂ over a 100-year horizon is updated upward, increasing the calculated climate impact of end-of-life landfill methane from harvested wood products.

Source: IPCC AR6 WGI Chapter 7

2021 — COP26 Glasgow. Article 6 rules finalised.

Six years after Paris, the implementing rules for Article 6 cooperative approaches and market mechanisms are finalised. Article 6.4 mechanism succeeds the Clean Development Mechanism. Forestry-sector credits, including REDD+ and managed-forest categories, flow through Article 6.4. The 2024 CFTC/DOJ/SEC actions against CQC Impact Investors will arise from the parallel voluntary-market architecture operating under the same conceptual framework.

Source: Glasgow Climate Pact, Article 6 decisions

2023 — Guardian, Die Zeit, SourceMaterial joint investigation of Verra.

Published January 18, 2023. Investigation analyses two-thirds of Verra's 87 active offsetting projects. Finds that more than 90 percent of rainforest offset credits issued under the Verified Carbon Standard are likely to be 'phantom credits' that do not represent genuine carbon reductions. Companies that purchased the credits to claim carbon neutrality include Gucci, Salesforce, BHP, Shell, easyJet, and Disney.

Source: Guardian investigation, 18 January 2023

2023 — Searchinger, Peng, Zionts, Waite. Nature 620:110.

'The carbon costs of global wood harvests.' Estimates global wood-harvest emissions undercount in current accounting of approximately 3.5 to 4.2 gigatonnes CO₂-equivalent per year. Lead author of the 2009 Science paper publishes a quantification of the gap fourteen years later in Nature.

Source: Peng et al. 2023, Nature

2023 — EU Deforestation Regulation (EUDR) adopted.

Regulation (EU) 2023/1115. Imposes traceability and due-diligence requirements on imports of commodities associated with deforestation, including timber, beef, soy, palm oil, cocoa, coffee, and rubber. Scope is structured to primarily affect tropical deforestation outside the EU. Domestic European commercial forestry largely falls within exemption windows.

Source: Regulation (EU) 2023/1115

2023 — SEC Climate Disclosure Rule proposed and finalised.

Final rule adopted March 6, 2024 (Release 33-11275) following multi-year proposal process. Stayed within four weeks (April 4, 2024). Defense withdrawn March 27, 2025 under new administration. Formal rescission initiated May 4, 2026. The federal disclosure mandate that would have required standardised climate-related reporting in 10-K filings is, as of the date of this document, not in force.

Source: SEC Release 33-11275 · SEC March 2025 status report on defence withdrawal

2023 — Renewable Energy Directive III (RED III) adopted.

Directive (EU) 2023/2413. Updates RED II. Tightens some sustainability criteria for forest biomass but retains the underlying framework treating wood combustion as zero-emission at point of combustion for member-state energy-sector reporting. The structural mechanism survives the revision.

Source: Directive (EU) 2023/2413

Part Eight — 2024 to May 2026. The first criminal indictment and the procurement instruments scale

The most recent period documents the first federal criminal action in the voluntary carbon market, the multi-jurisdictional expansion of embodied-carbon mandates at state level in the United States, and the proposal of new federal tax credits specifically targeted at mass timber. The procurement layer accumulates compound complexity at the moment the disclosure framework underneath it is acknowledged by its administering bodies to be incomplete.

2024 — October 2. CFTC, DOJ, and SEC parallel action against CQC Impact Investors LLC.

First federal enforcement action in voluntary carbon market history. CFTC complaint against Kenneth Newcombe, former CEO. SEC settled charges against CQC for material misrepresentations to investors. DOJ indictment of Newcombe and Tridip Goswami on wire fraud and securities fraud charges. Jason Steele, former COO, pled guilty and cooperated. CQC fraudulently generated approximately 6 million carbon offsets between 2019 and 2023 and raised \$250 million in equity. CQC paid \$1 million civil monetary penalty and agreed to retire or cancel credits sufficient to address the violative conduct. Buyers of the credits included B.P. and Shell.

Source: CFTC press release, 2 October 2024 · DOJ S.D.N.Y. indictment, U.S. v. Newcombe 24-cr-567

2024 — Enviva Inc. files for Chapter 11 bankruptcy, March 2024.

Largest industrial wood pellet producer in the world. Files Chapter 11 in the Eastern District of Virginia. RWE cancels long-term supply agreements and demands damages exceeding \$370 million. Bankruptcy ripples through EU and UK biomass policy frameworks that rely on Enviva-supplied pellets for renewable-energy designation.

Source: In re Enviva Inc., Bankr. E.D. Va. case dockets

2024 — SELC files SEC complaint against Enviva alleging greenwashing.

Southern Environmental Law Center files complaint alleging that Enviva's investor disclosures omit smokestack emissions from biomass-burning power plants Enviva supplies. Complaint identifies disclosure gap between Enviva's life-cycle emissions claims and the combustion emissions excluded from those claims.

Source: SELC SEC complaint announcement

2024 — California, Colorado, Washington, Minnesota, New Jersey, Oregon embodied-carbon legislation enacted or in advanced consideration.

California Buy Clean Act expansion, Colorado Buy Clean Colorado Act, Washington Buy Clean and Buy Fair Act, Minnesota State Building Energy Conservation Code amendments, New Jersey embodied-carbon procurement standards, Oregon Buy Clean Oregon. Embodied-carbon requirements for state-funded construction projects expand. WBLCAs and EPDs required as part of project documentation. The PCRs

governing the EPDs include the biogenic-neutrality conventions discussed under 2018 above.

Source: California Buy Clean Act (AB 262) · Colorado HB 21-1303 Buy Clean Colorado

2025 — AF&PA federal lobbying disclosures, calendar year 2025.

American Forest and Paper Association reports \$2,780,000 in federal lobbying expenditures for calendar year 2025 per OpenSecrets aggregation of LD-2 filings. 'Carbon Neutrality of Biomass' identified as a specific lobbying issue area in quarterly LD-2 disclosures.

Source: OpenSecrets AF&PA 2025 lobbying profile

2025 — SEC formally withdraws defence of Climate Disclosure Rule, March 27, 2025.

Under acting Chair Mark Uyeda, the Commission votes to end defence of the 2024 climate disclosure rule. Commissioner Caroline Crenshaw publishes dissenting statement characterising the action as 'an unprecedented abdication of the Commission's regulatory responsibilities.' Eighteen states plus the District of Columbia intervene to defend the rule.

Source: SEC press release 2025-58, 27 March 2025

2026 — January 27. LIMBER Timber Act of 2026 (H.R. 7245) introduced.

'Leveraging Investment in Mass Building and Employment with Renewable Timber Act of 2026.' Establishes three tax credits: a mass timber plant investment credit at 30 percent of qualified investment; a mass timber workforce development credit at 50 percent of qualified expenses up to \$8,000 per employee annually; and a mass timber construction credit at \$5 per square foot. Eligibility requires at least 70 percent certified sustainable mass timber and at least 50 percent of load-bearing components to be mass timber. All three credits terminate for taxable years beginning after December 31, 2030. Referred to House Committee on Ways and Means.

Source: H.R. 7245 full text · Bill summary and status

2026 — May 4. SEC submits proposal to OIRA to formally rescind the 2024 Climate Disclosure Rule.

Staff preparing formal rescission recommendation at direction of Chair Paul Atkins. Federal disclosure mandate substantially withdrawn within 26 months of adoption.

Source: ESG Dive coverage of rescission filing

2026 — May. Specifier mobilisation around state embodied-carbon mandates.

Industry-aligned specifier and developer communications encourage adoption of mass timber, low-carbon concrete, and recycled steel under WBLCAs and EPDs conducted under the PCRs and ISO 14067 framework documented earlier in this

chronology. The PCRs governing North American wood products require, per WoodWorks' own published guidance, that stored biogenic carbon be completely released in the end-of-life modules so that cradle-to-gate biogenic carbon flows are reported as net-zero. End-of-life methane is reported on a separate inventory line that does not enter the headline GWP figure. The procurement layer is operative under the disclosure framework that the EPA, JRC, UK CCC, NZ MPI, and IPCC have separately published acknowledgements about.

Source: WoodWorks 'How to Include Biogenic Carbon in an LCA' technical guidance

Part Nine – The published acknowledgements

The following table consolidates the public-record acknowledgements of the configuration. Each entry is a quotation or close paraphrase from a primary source on the website or filing of the institution named. The table is the answer to the question of whether the configuration is known. Each row of the table is a published acknowledgement by an institution operating within the apparatus, found on that institution's own domain or filing record.

Institution	Date	Published acknowledgement (excerpt or paraphrase)
EPA Science Advisory Board	2011, 2014	“Carbon neutrality cannot be assumed for all biomass energy a priori... it is a conclusion that should be reached only after considering a particular feedstock's production and consumption cycle.”
D.C. Circuit Court of Appeals	July 2013	In <i>Center for Biological Diversity v. EPA</i> : vacates EPA biogenic carbon deferral; finds EPA's justifications “arbitrary and capricious” and that the atmosphere does not distinguish biogenic from fossil CO ₂ .
US EPA	April 2018	“This statement of agency policy is not a scientific determination.” Opening line of the Pruitt statement that declares biomass from managed forests to be carbon neutral for stationary-source regulation.
UK Committee on Climate Change	November 2018	Identifies “current weakness in the criteria on preserving carbon stocks in existing forests” and recommends including long-term changes in forest carbon stock at landscape scale in bioenergy climate-impact calculations.
NZ Office of the Auditor-General	2011	“Under the ETS, the carbon is assumed to be immediately released back into the atmosphere from the wood taken off site as part of the harvest. Harvest residues left on site are assumed to decay over 10 years under New Zealand conditions.”
NZ Ministry for Primary Industries	Current	Requires ETS-registered post-1989 forest owners using stock-change accounting to surrender NZUs when forests are harvested. Residual carbon in woody debris assumed to decay at 10 percent per year for 10 years post-harvest. Harvested carbon treated as released emission under the domestic compliance market.
EU Joint Research Centre	January 2021	“It is incorrect to say that bioenergy is assumed 'carbon neutral' within the broader EU climate and energy framework.” JRC122719 (Camia et al.). European Commission's official science service.
Natural Resources Canada / Canadian Forest Service	Current	Maintains and publishes the National Forest Carbon Monitoring, Accounting and Reporting System for Harvested Wood Products (NFCMARS-HWP) that computes landfill methane efflux from harvested wood as a line item in Canada's annual national greenhouse gas inventory report.
US Forest Service	Current	Climate Change Resource Center, fs.usda.gov: “Forest harvest and wildfire can accelerate rates of carbon loss

Institution	Date	Published acknowledgement (excerpt or paraphrase)
		from soils... Both disturbances can accelerate erosion or leaching losses from soils and lead to a loss of carbon from the terrestrial realm." The agency administering the apparatus publishes the soil-carbon liability.
California Air Resources Board	2025	Natural and Working Lands Carbon Inventory — Harvested Wood Products methodology models harvested wood as emissive over time using first-order decay half-lives. State regulator publishes that harvested wood is not net-zero at point of harvest.
IPCC	2003, 2014, 2019, 2021	Provides Tier 1 instantaneous-oxidation methodology, Tier 2 default approach, and Tier 3 country-specific approaches for HWP. AR6 GWP100 for methane set at 27.9. The framework for full-boundary accounting exists; selection among tiers is at national discretion.
WoodWorks (SLB-funded specifier infrastructure)	Current	"In landfills, a significant portion of the biogenic carbon can be stored permanently (more than 100 years), while some biogenic carbon dioxide and biogenic methane emissions are released as landfill gases... Biogenic methane emissions are also quantified but are reported separately from the biogenic carbon inventory." Industry-funded body acknowledges methane efflux in writing while advocating for accounting that separates it from the headline figure.
Drax Group plc	Annual reports	Substantial emissions from biomass combustion described in annual reports as "biologically sequestered carbon" with footnote that "the use of sustainable biomass is considered to be CO ₂ neutral at the point of combustion." Corporate filing discloses the accounting boundary by which the emission is reclassified.



Twelve institutions. Six jurisdictions. Three categories: scientific advisory bodies, treaty and regulatory authorities, and industry-affiliated standard-setters and reporting entities. Every entry is verifiable on the institution's own published record. The acknowledgements have been on the public record for between five and fifteen years, in some cases longer. They are not in dispute. They have not been retracted by the publishing bodies.

The procurement instruments documented elsewhere in this chronology — the building-code revisions, the federal tax credits proposed in H.R. 7245, the state embodied-carbon mandates expanding through 2024 and 2025, the specifier-conversion infrastructure funded by the Softwood Lumber Board checkoff, and the ESG-aligned investment vehicles that hold institutional capital against timberland — operate above the acknowledgements. The acknowledgements appear in the technical advisory layer below.

Part Ten — Closing observation

The chronology this document assembles records the dates on which each strand of the architecture was added to the public record. The science. The disclosure standards. The treaties. The tax provisions. The lobbying campaigns. The court rulings. The appropriations riders. The regulatory advisory findings. The procurement instruments. The corporate disclosures. The federal indictments.

Every entry in the chronology is sourced to the institution that published it. The chronology does not characterise intent. The chronology does not name a single person as responsible for any element of the configuration. The chronology records, by date and by primary-source URL, what was published, when, and by whom.

The aggregate effect of the entries is the configuration the DRL framework names. The pre-1970s period contained no formal carbon-accounting framework against which a configuration could exist. The 1970s through 2009 was the period during which the framework was assembled and the first peer-reviewed identifications of the gap appeared. The period from 2009 to the present has been the period during which the gap has been acknowledged in writing by the institutions administering the apparatus, while the apparatus itself has continued to expand.

The reader of this document is in possession of the same public record the institutions named above are in possession of. The chronology is a directory of the documents. The documents are unchanged by this chronology's existence. The institutions retain the option of revising the acknowledgements or revising the apparatus to align with them.

| *The chronology is current as of the date this document is read.*



This document is a supplement to the DRL Thesis Codex v4.3.3 and to the companion document *Tree of Many Sales*. It is intended to be read alongside both. *Appendix Z — The Deep Chronology of Forestry Knowledge* documents the longer historical record extending back four millennia. The present document concerns the modern period during which the formal accounting framework existed.

End of document.