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ENERGY TRANSITION

The Generalized Jevons Paradox and the Future of Energy

By *International Monetary Fund*

[View the full report here](#)

Notable Highlights

- ◆ The report presents the **Generalized Jevons Paradox (GJP)**, the notion that **increased efficiency in resource use leads to higher global GHG emissions, not lower.**
- ◆ Across four indicators (GHG emissions, water use, nitrogen use, and electrification) tracked from the 1900s to 2023, **efficiency and total consumption rose and fell in near-lockstep**, with correlation strengths ranging from 84-97%.
- ◆ From 1900 to 2023, **\$1 of increased global energy efficiency** was associated with an **additional 16.9 Gt (gigatons) of emissions.**
- ◆ **Growth in both total renewable energy and fossil fuel consumption** from 2000 to 2019 was **higher than in any prior 20-year period on record.**
- ◆ Without institutional change, **technological efficiency gains alone won't be sufficient** to decarbonize the global economy.
- ◆ The following Notable Findings include **details on four key factors that drive the GJP** and how they play out through companies, financial actors, and states.

Objective

- To introduce the Generalized Jevons Paradox (GJP) and reflect the direct and indirect energy/material demand effects of long-term energy and material interdependencies shaped by market and geoeconomic power, trade arrangements, and financial factors.

Background

- This report data is based on a regression analysis of the relationship between the resource-use efficiency of energy, water, nitrogen, and electricity and total raw material use/environmental footprints, as well as data on global trade flows and ecological pressures across six planetary boundaries (methodology on pg. 45, 48).
- The “Energy Transition framework” refers to theoretical economic models that assume substitutability between low- and high-emission energy sources ([Acemoglu et al.](#) and

[Stern](#)) and systems approaches grounded in technical feasibility ([IEA 2024](#) and [IPCC 2022](#)) (pg. 7).

- The Generalized Jevons Paradox (GJP) is the report authors' proposed framework, built from the Jevons Paradox (the observation that saving energy leads to more energy consumption) and "energy symbiosis" concepts (the network of material interdependencies among technologies) (pg. 28-29).

Report Findings

The Energy Transition framework (pg. 6-7):

- Conventionally, **global energies and materials are assumed to follow substitution dynamics**, where dominant energies and materials replace one another over time as they compete for market share.
- **The Energy Transition (ET) framework follows this substitution logic**, where high-carbon energy sources are substituted with low-carbon sources, driven mainly by carbon pricing and scaled through trade. This rests on **four assumptions**:
 - Tech and material dynamics mirror each other: When decarbonizing a technology, the materials and resources it depends on automatically follow suit.
 - Making fossil fuels more costly will drive the substitution with clean alternatives.
 - Clean and dirty technologies are close substitutes and can be swapped without losing output.
 - Efficiency gains translate directly into lower total energy use.

There is key evidence contradicting the ET framework (pg. 10-25):

- **The consumption of energy and nearly all materials has increased over time**, suggesting that energy and material flows follow **additive dynamics**:
 - In recent decades, a decline in global carbon intensity has coincided with rising global emissions, even as renewables now account for two-thirds of global energy investment.
 - China's renewables buildout has been paired with coal expansion, not substitution: An estimated 35-40% of wind and solar capacity recently built in China was coupled with new coal development.
- **Significant emissions are embedded**: An estimated 34%, 45%, 24%, and 50% of emissions from iron/steel, chemicals, agricultural products, and aluminum, respectively, are embedded in international trade.

- **In the coming decades:**
 - Carbon-intensive adaptation investments (e.g., sea walls requiring large quantities of concrete) and the construction/operation of **infrastructure required to meet climate mitigation goals will likely increase global emissions.**
 - Efficiency gains are likely to enable technology diffusion that could increase emissions (e.g., rapid growth in AI inducing sharp growth in data centers).

Limitations of the conventional ET framework (pg. 8):

- While deploying renewables is crucial for low-carbon development, **the ET framework does not sufficiently consider that:**
 - **Materials are heavily entwined** (e.g., an EV still includes materials and resources that are entangled with fossil-dependent processes).
 - **Technologies are interdependent** between low-carbon and fossil-based systems, particularly in hard-to-abate sectors.
 - The global **economy keeps growing**, even as clean energy's share of the energy mix rises.
 - Critical **planetary boundaries** influence energy and material flows and output.
 - **Investment dynamics** tend to reinforce dependency on carbon-intensive paths.

The Generalized Jevons Paradox (GJP) (pg. 26-39):

- **The Generalized Jevons Paradox is the notion that increased resource-use efficiency leads to higher global GHG emissions.**
- This stems from long-term energy and material interdependencies and **four key drivers** (rent-seeking and market power, geoeconomic pressures, international trade, and international financial factors) **that shape investment in ways that entrench fossil fuels in global production. These drivers play out through:**

Corporations:

- **Renewable energy profitability is structurally lower**, with internal rates of return for solar and wind averaging 5-8.5% versus ~10% for oil and gas.
- Companies can boost profitability by **controlling supply**. Fossil fuel supply is concentrated among a small number of producers, giving those firms real market power. Renewables can't do the same, given sources like sunlight and wind are universally available.

Financial actors:

- **Bailout expectations** can drive carbon-intensive investment: During the 2022 energy crisis, financial institutions' short-term profit expectations supported more investment in oil and gas and reduced investment in renewables.
- Firms are adopting **stricter profitability criteria** for project selection, reinforcing investment in carbon-intensive but more profitable sectors over cleaner alternatives.

States:

- Governments increasingly use foreign investment in low-carbon technologies to shape profitability and **extend their economic influence** abroad. Since 2022, China's low-carbon technology foreign direct investment in batteries, solar, wind, EVs, and green hydrogen has totaled over \$220 billion across 54 countries.
- Private corporations can use **state-backed legal instruments** to entrench their interests, such as regional and bilateral investment treaties.

RESPONSIBLE BUSINESS CONDUCT

OECD Responsible Business Outlook 2026

By *OECD*

[View the full report here](#)

Notable Highlights

- ◆ **69% of the 10,000 largest companies** listed on global stock markets **have committed to responsible business conduct (RBC)**, with 36% having cross-cutting RBC commitments covering a range of topics.
- ◆ Around **40% have RBC commitments in their supply chain**, with 39% committing to environmental standards and 43% to social standards.
- ◆ In 2025, **84% of the 38 OECD Member countries** and **67% of the 52 countries adhering to the MNE Guidelines** had some form of **due diligence legislation**.
- ◆ **Due diligence implementation lags:** While roughly 50% of companies have social or environmental criteria for supplier selection, fewer than 20% evaluate supplier risk against those criteria.
- ◆ **There is a materiality gap:** Across **9 out of 10 CSRD sustainability topics**, the share of non-financial companies reporting a significant negative impact on a topic exceeds the share identifying that issue as a material financial risk.
- ◆ Only **17% of companies have a formal grievance mechanism on human rights**, 10% commit to providing remuneration for human rights impacts related to the company's activities, and **8% engage stakeholders** on human rights.

Objective

- To assess how global companies practice responsible business conduct (RBC), how governments promote RBC through policies, and how governments can accelerate RBC.

Background

- The report data is based on (methodology on pg. 10, 14-15):
 - Reviews of publicly disclosed information from the 10,000 largest companies listed on global stock markets against the [OECD due diligence framework](#)

- Reviews of the responsible business policies of the 52 countries that adhere to the [MNE Guidelines](#) (the leading international RBC standard)
- “Responsible business conduct (RBC)” is defined as aligning the activities of businesses and investors with societal needs.

Report Findings

Corporate “RBC” commitments and implementation (pg. 8-11, 17-44):

- **69% of the 10,000 largest companies have a public commitment on at least one RBC issue.**
 - Commitments related to **GHG emissions (62%) and corruption (64%) are most common**, followed by forced and child labor (58%) and human rights (53%). Biodiversity commitments are the least common (25%).
 - 1 in 3 companies have publicly committed to upholding international RBC standards (i.e., the [MNE Guidelines](#) or the [UN Guiding Principles](#)).
- While **25% of companies** train or collaborate with suppliers to **improve environmental and social performance**, only **7% integrate social commitments into purchasing practices**, and fewer than 1 in 20 report supplier health and safety progress.
- 60% have a board-level or senior management sustainability committee, and **35% link executive remuneration to sustainability performance**.

Barriers to due diligence implementation (pg. 8, 28-29, 42-43, 96):

- **Extending due diligence beyond Tier 1 suppliers:** Out of 450 companies, around 70% report that their social audit programs cover Tier 1, while around 35% cover Tier 2 or Tier 3. Out of 500 companies sourcing from the mining sector, only 3% knew where all relevant raw materials came from.
- **Reporting:** Only 7% disclose salient human rights issues, and 6% disclose supplier-monitoring outcomes. Measuring human rights outcomes can be challenging, context-specific, and carry reputational or liability risks.
- **Collecting, verifying, or transferring information:** Companies often face capacity constraints and restrictions related to data protection, national security, or limits on audits and on-the-ground engagement.
- **Lack of comparability:** Government RBC measures are often misaligned in scope, design, and terminology.

How governments are promoting responsible business conduct (pg. 51-82):

- In 2025, 84% of the 34 OECD Member countries and 67% of the 52 countries adhering to the [MNE Guidelines](#) had environmental and social **due diligence legislation**. **Environmental issues are increasingly covered**, with nine due diligence measures addressing environmental impacts.
- In 2024, **over 70% of export credit agencies** of countries adhering to the [OECD Common Approaches](#) had **formal mandates** or policy statements related to climate change and related issues, and almost **60% incorporated climate risk into their risk assessment processes** or planned to do so within the next year.
- **Of the 35 countries adhering to the [MNE Guidelines](#) that had due diligence legislation as of 2025:**
 - In 2024, over **80% of public procurement spending** across adhering countries (\$8 trillion) came **from governments with mandatory RBC due diligence**.
 - Since 2020, over **70% have mandated** that their trade promotion agencies **support sustainable exports**.
 - 58% have introduced voluntary measures and/or guidelines.
 - **66% use incentives** to encourage businesses to implement RBC standards (e.g., preferential loan terms and tax credits).
 - 67% have processes for consultation on RBC policy development.
 - **All provide state-based RBC grievance mechanisms** to facilitate access to judicial remedies for harms related to corporate misconduct.

How governments can accelerate RBC (pg. 10, 96-98):

- **Incentivize corporate action on environmental and social impacts.** Address key barriers and disincentives. Incorporate remediation, stakeholder engagement, and progressive improvement into due diligence policies.
- **Help companies carry out supply chain due diligence:** Develop tools and systems to help companies identify and address upstream impacts. Enable collaboration and collective action through industry associations and government partnerships.
- **Promote better reporting:** Provide guidance on appropriate due diligence indicators. ESG raters can align metrics with reporting expectations to enable comparable data.
- **Collect robust evidence** on the implementation and impact of RBC policies.
- **Cooperate on RBC-related policies** to reduce complexity, redundancy between governments, and corporate implementation challenges.

BIODIVERSITY

Biodiversity in Sustainability Assessments—in Particular Life-Cycle-Assessments (LCA)

By *Renewable Carbon Initiative*

[View the full report here](#)

Notable Highlights

- ◆ **No single method for assessing terrestrial biodiversity impacts in life-cycle assessments (LCAs) covers all three biodiversity levels** (the diversity of genetics, species, and ecosystems) **and all five major drivers of biodiversity loss** (land- and sea-use changes, climate change, direct exploitation of organisms, alien species invasion, and pollution).
- ◆ **Challenges with including biodiversity in LCAs** include limited data availability, understanding impact pathways, varying spatial scales of data, and a lack of comparability in methodologies.
- ◆ **LCA methods should be combined with a broader assessment toolkit**, such as field measurements and certification schemes.
- ◆ **The choice of method directly influences hotspot identification and, therefore, strategy and resource allocation.** To avoid biased choices, conduct sensitivity analyses using different methods.
- ◆ The following Report Findings include a **detailed breakdown of nine leading approaches** for assessing terrestrial biodiversity impacts in LCAs and **recommendations** for utilizing biodiversity LCIA methods.

Objective

- To review and compare the nine leading approaches for assessing terrestrial biodiversity impacts in life-cycle assessments (LCAs).

Background

- Life Cycle Impact Assessments (LCIAs) refer to the step within Life Cycle Assessments (LCAs) that translates an inventory of emissions/resource flows into impact scores across categories (e.g., land use or biodiversity loss).

- The report data is based on a literature review of nine biodiversity-focused LCIA methods developed in the last decade: [ReCiPe2016](#), [IMPACT World+](#), [LC-IMPACT](#), [Product Biodiversity Footprint](#), [Biodiversity Impact Assessment+](#), [BioMAPS](#), [Global Extinction Potential](#), [UNEP-GLAM](#), and [Biodiversity Value Increment](#) (methodology on pg. 11-12).
- The approaches are assessed by their coverage of biodiversity levels (genetic, species, and ecosystem diversity) and drivers of biodiversity loss (e.g., pollution); data requirements; regionalization; methodologies; and applicability and usage.
- “Pressures” refer to key influences on drivers of biodiversity loss (e.g., overuse, water use, land use, and fertilizer use).

Report Findings

Biodiversity in LCAs (pg. 13-16):

- Some drivers of global biodiversity loss (e.g., pollution, alien species invasion) are quantifiable through LCA impact categories like climate change or land use.
- However, **no scientific consensus exists on biodiversity metrics and methodologies**, making it **difficult to quantify biodiversity impacts** and, therefore, to incorporate them into business decisions.
- **LCA results can reveal biodiversity hotspots**, enable product comparisons, help identify approaches to **mitigate impacts** and develop less harmful processes and products, and **support marketing** and public policies (e.g., LCA-based eco-labeling).

Challenges with including biodiversity in LCAs (pg. 55-59):

- **Data availability is limited across** all levels of biodiversity, management practices, and impact pathways. Species and ecosystem data gaps are especially stark: The GEP covers data for around 100,000 species, against an estimated 8.7 million species in existence.
- LCA biodiversity methods rarely consider **genetic variability**.
- **Impact pathways** are not yet fully understood for many biodiversity pressures, either because of a lack of data or modeling. For example, cause-and-effect relationships between local land-use management practices and biodiversity are difficult to establish.
- **Spatial scales:** Local biodiversity impacts may differ from global impacts, though LCA inventories may have varying spatial resolutions (e.g., where only the country of origin or production location is known).

- There are different methods for quantifying ecosystem impacts and different units for expressing biodiversity impacts, which **affects comparability** and risks double counting.

Nine biodiversity-focused LCIA methods (pg. 17-54):

NOTE: The report subchapters include a detailed breakdown of each method, including biodiversity impact categories, integration of biodiversity levels and loss drivers, spatial resolution (i.e., regional, global), applicability/usage, and the unit of biodiversity loss. **Pages 53-54 include a chart comparing all methods.**

▷ **Subchapters:** [ReCiPe2016](#) (pg. 17), [IMPACT World+](#) (22), [LC-IMPACT](#) (26), [Product Biodiversity Footprint \(PBF\)](#) (31), [Biodiversity Impact Assessment+ \(BIA+\)](#) (34), [BioMAPS](#) (36), [Global Extinction Potential \(GEP\)](#) (40), [UNEP-GLAM](#) (44), [Biodiversity Value Increment \(BVI\)](#) (48)

- **Single-indicator vs. multi-indicator methods:**
 - **Single-indicator:** [BIA+](#), [BVI](#), and [BioMAPS](#), which assess biodiversity via the land-use indicator.
 - **Multi-indicator:** [ReCiPe2016](#), [LC-IMPACT](#), [IMPACT World+](#), and [UNEP-GLAM](#) address land use, climate change, and pollution. They also cover pressures such as water use; GHG and other air emissions; and water and soil emissions.
 - **PBF** aims to **address all five drivers** of biodiversity loss. It uses an LCIA method for land use, climate change, and pollution, and a semi-quantitative method to address overexploitation and invasive species.
 - The [GEP](#) is a **single-indicator method that can be applied to several indicators**. It builds on the PBF: The PBF measures regional species loss, and the GEP calculates a scaling factor to convert the loss into global extinction risk.
- **Applicability of methods:**
 - [ReCiPe2016](#), [IMPACT World+](#), and [LC-IMPACT](#) are the **most widely used** methods. They are publicly usable and **already integrated** into LCA software.
 - [UNEP-GLAM](#) is publicly usable. LCA practitioners have manually added it to LCA software, though it is expected to be integrated into [SimaPro](#) this year.

Recommendations for utilizing biodiversity LCIA methods (pg. 61-62):

- Regularly **check for updates** in LCIA methods, models, and data to stay current.
- Multi-indicator assessments are more appropriate than single-indicator ones, provided you avoid double-counting.
- Despite the lack of scientific consensus on biodiversity metrics, **it's more important to quantify biodiversity loss using currently available methods than not to quantify it at all.**
- Clearly **document assessment approaches** to enhance exchange and widen applicability.
- Acknowledge **uncertainties** in the models and methods.
- Use **scientifically validated measures** in biodiversity-loss mitigation strategies.
- Given current methodological uncertainties, do not use biodiversity-related LCA results as the sole basis for **consumer communication**.

DIVERSITY, EQUITY, & INCLUSION

Markets Do Not Punish Firms for Maintaining DEI

By *University of California, Berkeley*

[View the full report here](#)

Notable Highlights

- ◆ S&P 500 companies that resisted President Trump's **executive order** to eliminate Diversity, Equity, and Inclusion (DEI) programs performed just as well as **compliant companies** in stock market returns and revenue.
- ◆ Direct public criticism from President Trump did not **penalize stock performance**.
- ◆ **38 anti-DEI shareholder resolutions** were submitted to firms in the 2025 proxy season; they were **voted down by an average margin of 98%**.
- ◆ **76% of workers** say they are **more likely to stay** at their jobs if their company maintains DEI.

Objective

- To analyze whether companies that resisted President Trump's **executive order** to eliminate Diversity, Equity, and Inclusion (DEI) programs suffered financially (in stock returns and revenue) compared to companies that complied.

Background

- S&P 500 companies that maintained DEI were analyzed and classified under four measures (methodology on pg. 5-7, 43):
 - Reaffirmed: 8 firms publicly stated they were keeping DEI and maintained internal programmatic continuity.
 - DEI Watch: Interest groups classified 54 firms as "committed."
 - 10-K: 29 firms mentioned DEI in their 10-K statements.
 - Shareholder: 38 firms' shareholders voted down anti-DEI resolutions.
- Revenue was measured via 10-Q/Compustat filings across eight quarters (January 2024-July 2025), excluding financial-sector firms due to a lack of comparable data.

- Stock market returns were measured as Cumulative Abnormal Returns (the portion of stock market performance not explained by broad market movements) using a Carhart four-factor model.

Report Findings

Corporate responses to Trump's DEI executive order (pg. 29-30):

- Pages A5-A6 detail **how eight companies publicly affirmed DEI following Trump's executive order.**
- **Responses to DEI pressure varied within sectors.** For example:
 - Apple resisted the order, while IBM did not.
 - Dollar Tree maintained DEI, while Dollar General scaled back.
 - Costco reaffirmed DEI, while Target and Walmart ended their programs.

The impact of maintaining DEI on stock market performance (pg. 10-15, 36):

- Stock market return coefficients varied in size but were dwarfed by their standard errors, leaving **no statistically significant difference in performance:**
 - Coefficients ranged from -0.36 to +10.88 percentage points for Reaffirmed and DEI Watch companies, with standard errors as large as 16.2.
 - Coefficients ranged from -7.91 to +3.27 percentage points for Shareholder and 10-K companies, with standard errors as high as 7.46.
- Even **direct attention from President Trump did not penalize** stock performance: President Trump criticized Apple on social media after its shareholders rejected an anti-DEI resolution, but stock market returns remained broadly stable.
- Corporate DEI commitments were associated with **positive short-term abnormal returns** from 2013 to 2022.
- **While controversies related to race and identity** (e.g., a racist statement by an executive) **can cause negative effects** on abnormal returns, **they can be “offset** when firms make more meaningful DEI investments.”

The impact of maintaining DEI on revenue (pg. 16-18):

- Resisting the executive order had **near-zero effects on corporate revenue** for Reaffirmed and DEI Watch companies (around -0.08 to +0.04) and zero effect for 10-K and Shareholder companies.

US public support for companies taking stances on issues (pg. 4, A2-A4):

- In 2025, **69% of US adults** believed it's "important for business to support DEI" (down from around 75% in 2024), and around **35% believed companies do a good/excellent job supporting DEI** (down from around 43%).
- **Rolling back DEI can also lead to consumer backlash.** For example, in 2025, Black church leaders and other activists led a [yearlong boycott](#) of Target.

CARBON ACCOUNTING

The Carbon Accounting Landscape Review

By *International Chamber of Commerce, Carbon Measures*

[View the full report here](#)

Notable Highlights

- ◆ **No GHG accounting framework in wide use today produces product-level embedded-emissions data that is** complete, accurate, comparable across suppliers, independently verifiable, and calculated consistently with the company's total reported emissions.
- ◆ Regulatory demand for product-level carbon accounting is growing, but **each regime has its own requirements**, which can **increase compliance costs and complexity** for companies while also **not optimizing emission reductions** at scale.
- ◆ **A ledger-based approach can harmonize** product-level embedded-emissions accounting rules, **drive comparability** across products, and enable data to **pass along the value chain** consistently.
- ◆ The following Report Findings lay out **criteria for a ledger-based framework** that provides decision-grade product-level data, as well as **how regulatory regimes** that require product-level carbon data **and leading product-level approaches** (e.g., the **GHG Protocol Product Standard**, **EU PEF**) **align with the criteria**.

Objective

- To explore the carbon-data landscape and provide criteria for a product-level carbon accounting framework that produces decision-useful data.

Background

- The report data is based on a qualitative review of the regulatory regimes that require product-level carbon data as of August 2026 ([European Union CBAM](#), [California LCFS](#), [China CFMS](#)) and six leading product-level approaches (the [GHG Protocol Product Standard](#), [ISO 14067](#), [EU PEF](#), [ISCC CFC](#), [PACT v3](#), and the [E-Ledgers/E-liability proto-standard](#)) (methodology on pg. 3, 6):
- The regimes and approaches were analyzed across eight criteria (in the following Report Findings) drawn from literature and the [TEP statement](#).

- “Product-level embedded emissions” refers to the greenhouse gas emissions attributable to a product within a defined system boundary.

Report Findings

Regulatory regimes requiring product-level carbon data (pg. 16-19):

- Pages 16-18 include a detailed **breakdown of the European Union CBAM, California LCFS, and China CFMS**, including how product-level embedded emissions are calculated, coverage, and verification.
- **The regimes converge on four characteristics:** tight product-level boundaries, standardized calculation methods, primary data enforced by financial consequences (secondary data is progressively more costly or more strongly penalized), and third-party verification.

Gaps in current carbon accounting approaches (pg. 13-15):

- **Quantification gaps:**
 - **Product carbon footprints (PCFs) are estimates** rather than directly measurable product properties, since emissions leave no physical imprint on the product itself. Users therefore **cannot determine whether a PCF reflects better carbon performance** or simply different calculations.
 - Without primary, supplier-specific data, **markets may default** to blunt product-category substitution **rather than rewarding lower-carbon producers**, weakening companies’ incentives to invest in lower-carbon performance.
- **Architecture gap:** Data-exchange initiatives and sector guidelines move product footprint data between counterparties, but **no widely used framework transfers** primary embedded-emissions **data across entities as accountable quantities**.

A ledger-based framework that provides decision-grade product-level data (pg. 20-24):

- **A ledger-based approach** can harmonize accounting rules, drive comparability, and help pass emissions data along the value chain consistently: **Each emission would be** recorded once at its source, allocated to the outputs that caused it, passed forward when the product is sold, and reconciled against the company’s total emissions to avoid exclusion or double-counting, with the whole record subject to verification.

- **Eight criteria for a ledger-based approach:**
 1. **Accuracy:** Emissions accounts reflect actual measurements or scientifically grounded calculations within defined boundaries, reporting periods, and consistent uncertainty assessments.
 2. **Verifiability:** All reported data is traceable through documentation and clear audit trails. Because product-level embedded emissions can reveal proprietary operational data, the system must allow verification while limiting unnecessary disclosure.
 3. **Comparability:** Accounts are comparable across defined boundaries and reporting periods. Shared building blocks are needed (e.g., common units or reporting periods) if the embedded-emissions data is used to differentiate products.
 4. **Fungibility:** Emissions are recorded in standardized units so figures can be aggregated, transferred, and netted across entities and products without losing integrity.
 5. **Data is recorded neutrally,** without deliberate or systematic bias, and the resulting account reflects a full carbon mass balance of flows to and from the atmosphere.
 6. Each unit of emissions is **counted once**.
 7. **Scope:** Emissions within the defined system boundary are fully counted across entities.
 8. **Operability:** Companies can implement the system directly rather than reconstructing it annually. It aligns with financial periods (toward near-real-time where feasible) and scales across products, facilities, and companies.
- Page 24 **maps the criteria to each regulatory regime** requiring product-level carbon data.

Leading product-level carbon-data approaches (pg. 25-33):

- Pages 28-32 **break down the six leading product-level approaches** and assess how they align with each criterion for a ledger-based approach.