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Measuring Impact: Carbon Efficiency and Avoided Emissions

A Practical Guide from Eight Versa

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INTRODUCTION

When Reality Meets Rhetoric

After working with hundreds of organisations on their sustainability journeys, we've noticed something: many companies making the biggest difference to global emissions can often look mediocre or even worse on paper.

A heat pump manufacturer scaling production? Rising emissions. The software company optimising global logistics networks? Growing energy demand. The LED producer replacing inefficient lighting worldwide? Material consumption trending upward.

Meanwhile, companies shutting down operations or outsourcing them to other companies can claim spectacular emission reductions. Something's clearly amiss with our measurement frameworks.

This Guide focuses on the next frontier of climate action: understanding and measuring *avoided emissions* (sometimes referred to as "Scope 4"), the reductions that occur outside a company's value chain through the use of its products or services.

Part 1: Understanding Carbon Efficiency

Carbon Efficiency isn't about creative accounting; it's a productivity measurement applied to emissions. Simply put: Output per Tonne of CO_2e.

Consider two scenarios:

- **Company A:** Reduces emissions 20% by cutting production 20%
- **Company B:** Increases emissions 10% whilst doubling output

Traditional metrics celebrate Company A. Carbon Efficiency recognises that Company B has fundamentally transformed its business model, delivering twice the value with marginally more carbon. In a world that needs more renewable energy, more insulation, more electric vehicles, which approach actually helps?

The Mathematics Matter

Carbon Efficiency = Revenue (or Units) / Total CO_2e Emissions

Year 1: £10m revenue / 1,000 tCO_2e = £10,000 per tonne
Year 2: £15m revenue / 1,200 tCO_2e = £12,500 per tonne
Improvement: 25% more efficient

The business grew, absolute emissions rose, but carbon productivity improved significantly. Under NCS protocols, that's verified real progress.

Selecting Your Core Metric

Every organisation needs to carefully select the right intensity metric for their business model. We've guided companies through this decision.

Common options include:

- **Revenue (inflation-adjusted):** Works well for diverse businesses and services
- **Units produced:** Ideal for manufacturers with consistent product lines
- **Active users:** Perfect for digital platforms and SaaS companies
- **Floor space:** Suitable for retail and warehousing
- **Passenger/tonne kilometres:** Transport and logistics sectors

The key is choosing a metric that reflects your actual value creation and remains consistent over time. Revenue often works as a starting point, but the best metric is one that tells your authentic efficiency story. NCS protocols accommodate various metrics, provided they're justified and consistently applied.

Part 2: The Avoided Emissions Revolution

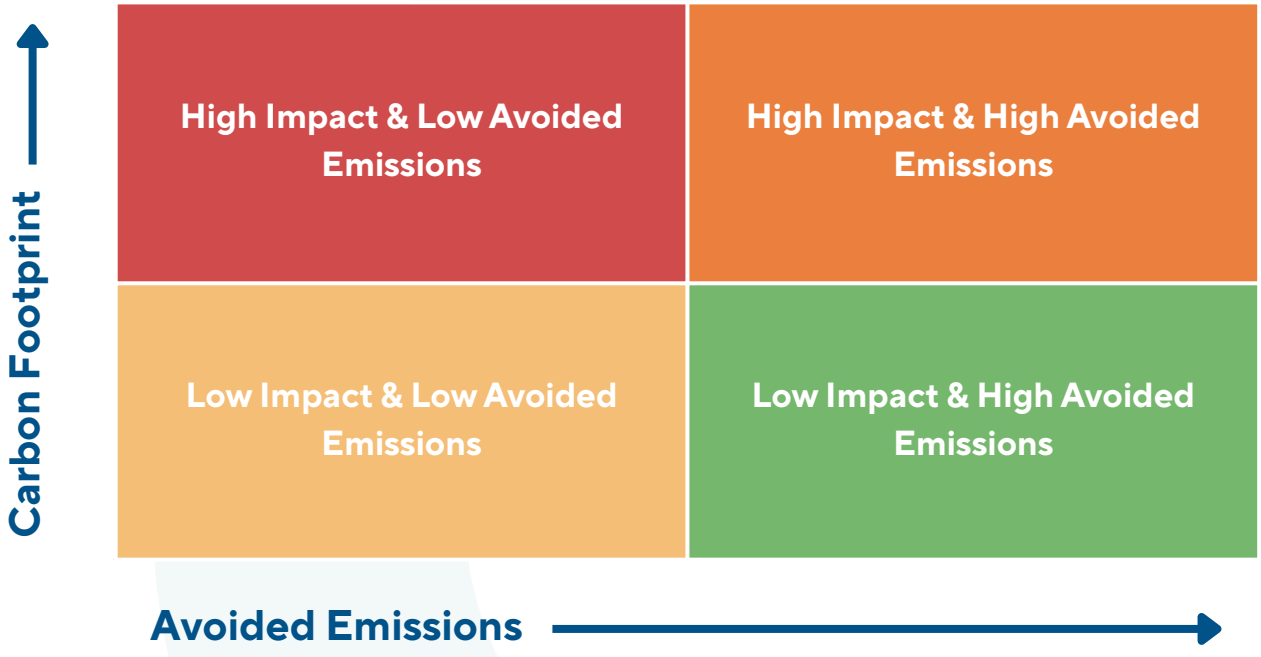
The World's First Verified Framework

This is something crucial that most sustainability advocates rarely talk about: *Avoided emissions*; the emissions prevented outside your value chain through the use of your products or services. It's often been discussed qualitatively or being used as marketing fluff. The NCS Avoided Emissions certification changes that.

How it Works

1. **Baseline Establishment:** What would customers use without your product?
2. **Substitution Calculation:** Emissions difference per functional unit
3. **Market Verification:** Actual deployment and replacement rates
4. **Net Impact Assessment:** Your operational emissions alongside the avoided emissions enabled

Impact vs Avoided Emissions



The diagram above shows how to simply map a company's climate impacts via the size of its carbon footprint Vs. it's downstream benefits via Avoided Emissions.

Any company expected to have large *avoided emissions* should quantify them using a recognised *avoided-emissions* methodology. A company with a low carbon footprint and high *avoided emissions* may find that it is enabling more emissions to be saved than it emits once a comprehensive analysis is completed.

Avoided Emissions in Practice

Avoided emissions are calculated by comparing a verified baseline scenario (what would have happened without the product or service) with the real-world outcome enabled by the low-carbon solution. The result is a quantified measure of climate benefit, verified under the NCS methodology.

Each of these examples demonstrates how both footprint reduction and avoided emissions can be quantified and verified.

Case Study 1: Industrial IoT Platform; Efficiency Through Insight

- **Operational emissions:** 50 tCO_2e annually
- **Avoided emissions:** 1,000 tCO_2e across client operations
- **Net contribution: –950 tCO_2e (20 × positive impact)**

How it works:

1. **Baseline:** Clients previously operated production lines reactively, with frequent unplanned shutdowns and inefficient energy use.
2. **Intervention:** The IoT platform installs smart sensors and analytics that optimise equipment operation and maintenance cycles.
3. **Substitution:** Energy consumption per manufactured unit drops by an average of 12%.
4. **Verification:** Independent NCS assessment confirms 1,000 tCO_2e avoided across the client portfolio.

Result: For every tonne of carbon the platform emits, it prevents twenty from being released elsewhere. Under NCS protocols, this constitutes a verified avoided-emissions factor of 20:1.

Case Study 2: Building Maintenance Contractor; Extending Asset Life

- **Operational emissions:** 3,500 tCO_2e (vehicle fleet and operations)
- **Avoided emissions:** 20,000 tCO_2e per year
- **Net contribution: –16,500 tCO_2e**

How it works:

1. **Baseline:** Without regular preventive maintenance, HVAC systems fail early, requiring new units to be manufactured and installed.
2. **Intervention:** Predictive servicing extends equipment life by 30% and optimises building energy performance.
3. **Substitution:** Avoided manufacturing emissions of 8,000 tCO_2e plus 12,000 tCO_2e from reduced energy demand.
4. **Verification:** NCS assessment confirms real-world deployment and substitution rates across 1,000 sites.

Result: Though operationally carbon-intensive, the service generates far greater climate savings than it consumes, verified as a net-positive contribution under NCS Avoided Emissions.

Part 3: Choosing Your Pathway

Self-Assessment Checklist:

Carbon Efficient Pathway - consider this if:

□ Your business is growing faster than 5% annually
□ You're investing heavily in R&D or capacity
□ Your products/services enable efficiency elsewhere
□ Absolute reductions would likely require curtailing growth
□ You operate in hard-to-abate sectors

Carbon Neutral Pathway - consider this if:

□ Your operations are relatively stable
□ You have mature reduction strategies in place
□ Your stakeholders specifically demand neutrality
□ You can afford quality offsets (budget 1-2% of revenue)
□ Your Scope 3 is manageable and measurable

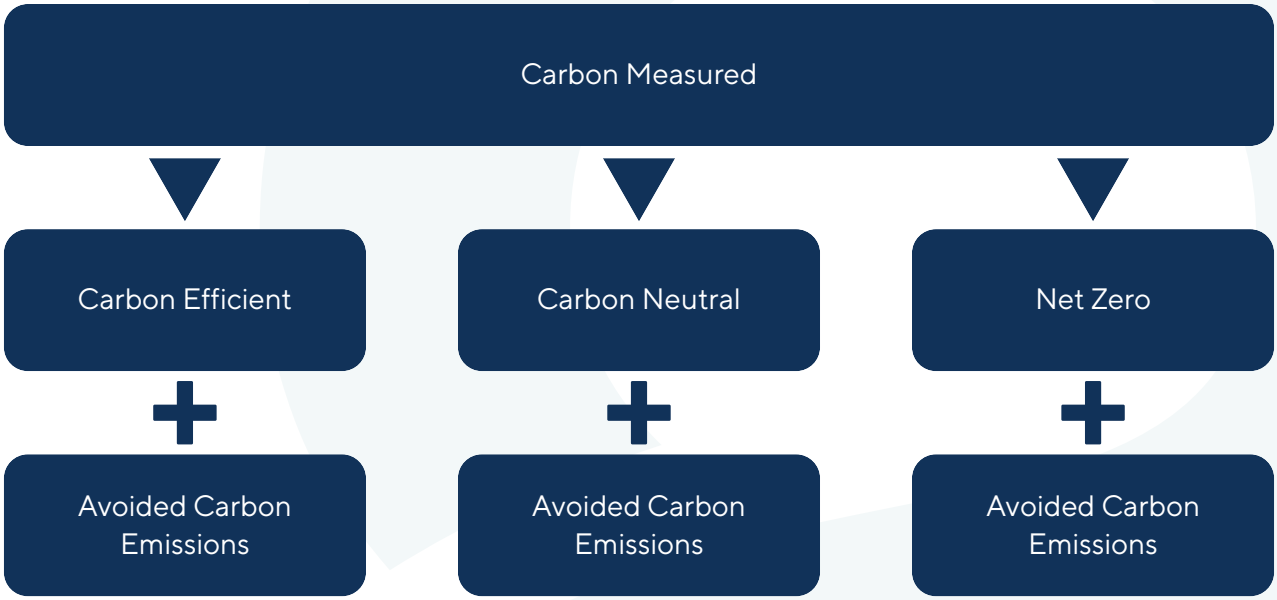
Net Zero Pathway - consider this if:

□ You've already achieved significant reductions (>20% from baseline)
□ Your business model allows for sustained absolute cuts
□ You have board-level commitment to fundamental transformation
□ Your sector has clear technological pathways to deep decarbonisation
□ You're prepared for comprehensive supply chain overhaul
□ You can maintain 4%+ annual reductions for multiple decades

Avoided Emissions Certification - consider this if:

□ Your products replace higher-carbon alternatives
□ Customers buy from you specifically for efficiency
□ You can quantify substitution impacts
□ Your innovation pipeline focuses on sustainability
□ Traditional metrics undervalue your contribution

NCS Certification Pathway



Part 4: Common Pitfalls (And How to Avoid Them)

	Pitfall	Solution
1. The Baseline Fantasy	Setting your baseline in an anomaly year	Use 3-year averages or normal operations baseline
2. The Scope 3 Black Hole	Spending years perfecting Scope 3 data	Start with estimates, improve annually. NCS protocols allow uncertainty ranges.
3. The Offset Balance	Using offsets as a first resort rather than last	Follow the hierarchy; offset the genuinely hard-to-abate remainder emissions with high-quality, verified credits. Offsets are a valuable tool for addressing unavoidable emissions and supporting global climate projects but shouldn't become a shortcut.
4. The Perfection Paralysis	Waiting for perfect data before starting reductions	NCS Carbon Measured certification gets you started with a complete footprint. You can start building a coherent and defensible strategy from there.
5. The Gaming Temptation	Restructuring operations by outsourcing or changing accountancy categories to show improvements without real change, a strategy seemingly used by some energy giants.	Rigorous verification, such as provided by NCS will likely catch this. Don't waste resources gaming the accountancy rules, as once unearthed you will have to re-baseline all footprints and your strategy will unravel.

Part 5: Implementation Roadmap

Year One: Foundation

Q1-Q2: Achieve Carbon Measured certification

- Complete organisational boundary setting
- Establish data collection systems
- Calculate baseline footprint

Q3-Q4: Pathway selection and planning

- Assess which pathway aligns with strategy
- Develop reduction/efficiency plans
- Begin planning avoided emissions quantification (if applicable)

Year Two: Certification

Q1-Q2: Implementation and monitoring

- Execute reduction strategies
- Track efficiency improvements
- Gather verification evidence

Q3-Q4: Verification and certification

- NCS third-party verification process
- Address any gaps identified
- Achieve certification

Ongoing: Annual Recertification

- Demonstrate continued improvement
- Update measurements and strategies
- Maintain market credibility

Part 6: The Business Case

What Certification Can Deliver:

Competitive Advantage

- 70% of companies prioritise sustainability in procurement, 51% have formal policies in place, and 78% report surging demand for sustainable goods[1][2][3]
- Verified credentials increasingly mandatory
- First-mover advantage in Carbon Efficiency

Investor Relations

- ESG funds control £35 trillion globally[4]
- Carbon Efficiency metrics align with value creation
- Avoided Emissions demonstrate strategic importance

Risk Management

- Ahead of likely regulatory requirements
- Supply chain resilience through measurement
- Protected against greenwashing accusations

[1] https://veridion.com/blog-posts/sustainable-procurement-statistics/

[2] https://procurementtactics.com/sustainable-procurement-statistics/

[3] https://green-forum.ec.europa.eu/news/article-about-assessing-green-public-procurement-report-oecd-2023-09-21_en

[4] https://www.bloomberg.com/company/press/global-esg-assets-predicted-to-hit-40-trillion-by-2030-despite-challenging-environment-forecasts-bloomberg-intelligence/

Part 7: FAQs

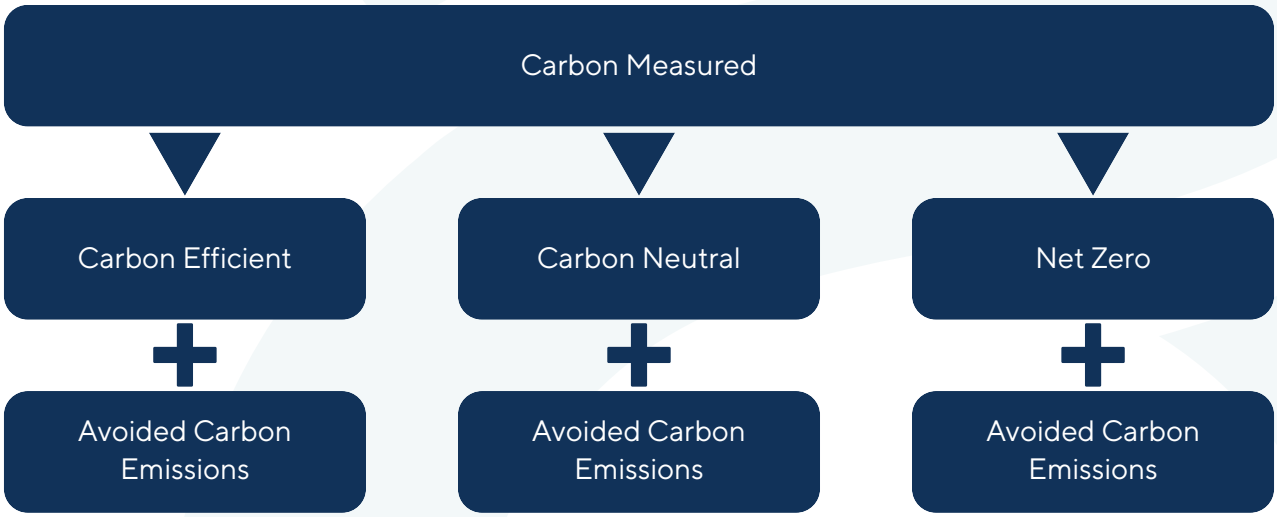
Q: How is Eight Versa connected to NCS?

A: We're strategic partners with Eight Versa referring clients to NCS for verification where desired. Eight Versa has helped develop these protocols by providing technical consultancy and advisory support and sits on the NCS Board.

NCS provides independent verification and certification, via its own team of external international verifiers. This is independently audited to ISO 9001 and ISO 14064 standards to ensure credibility.

Q: Can we achieve multiple certifications?

A: You must choose one primary pathway (Carbon Efficient, Carbon Neutral, or Net Zero), then an additional optional Avoided Emissions certification.



Q: What if we're not ready to commit to a specific pathway?

A: Start with Carbon Measured. It's the foundation all pathways build upon, and is inherently valuable in itself as it measures scope 1, 2 and 3 emissions, giving you visibility on your impacts and readying you to decide which pathway is best for you.

Q: How much does this cost?

A: Verification varies by organisation size and complexity. Investment is often 0.1-0.2% of revenue for full certification journey (i.e. £5m turnover = £5-10k).

Q: Is Carbon Efficiency a soft touch?

A: Quite the opposite. It requires verified, year-on-year improvements with third-party auditing and requires annual efficiency reductions that align line with UN Stocktake climate targets i.e. a 90% reduction by 2050 or earlier. It is highly ambitious but pro-growth; this is the beauty of being Carbon Efficient.

Q: What are 'avoided emissions' and what is 'Scope 4'?

A: *Avoided emissions* are reductions that occur outside a company's value chain due to the use of its products or services. The informal term "Scope 4" is sometimes used to describe the same idea, but it is not part of the Greenhouse Gas Protocol. To avoid confusion, this Guide has used the term *avoided emissions*.

CONCLUSION

Engineering Climate Solutions

The climate doesn't care about our corporate promises, ESG reports, or 2050 targets. It responds to actual atmospheric carbon concentrations, which means we need frameworks that encourage real-world impact over paper commitments.

The NCS protocols - particularly Carbon Efficiency and Avoided Emissions - represent a fundamental shift in how we measure climate contribution. They're not easier than traditional approaches; they're more honest.

For organisations genuinely committed to climate action whilst maintaining commercial vitality, these frameworks offer something precious: a way to demonstrate that growth and green can align when intelligence is applied.

The question isn't whether your emissions are rising or falling. It's whether you're part of the solution or part of the problem. These protocols finally let you prove which.

Next Steps

Ready to explore certification?

Contact Eight Versa for an initial consultation. We'll assess your current position and recommend the most appropriate pathway.

Need more information?

- Download the full NCS Protocols from: naturalcarbonsolutions.com
- Follow our LinkedIn for regular insights and updates: linkedin.com/company/eight-versa/
- Join our quarterly webinars on practical implementation and decarbonisation strategy, shared via our regular newsletter: https://eightversa.com/sign-up-monthly-sustainability-insights/

Want to discuss with peers?

We host roundtables for sustainability leaders exploring certification. No jargon or pitches, just open discussion about what does and doesn't work.

Get in Touch

If you'd like to know more about how your organisation can decarbonise in a real and credible way, get in touch at 020 7043 0418 or email us at info@eightversa.com and our friendly experts can support you no matter what stage you are at.

About Eight Versa

Eight Versa is a multi-disciplinary sustainability consultancy delivering practical solutions to complex climate challenges.

About NCS

Natural Carbon Solutions (NCS) provides independent third-party verification and certification, ensuring complete credibility and focus in climate claims.