Science Based Targets: Setting climate targets on a scientific basis

Science Based Targets (SBTs) are corporate climate targets that are aligned with the Paris Agreement and derive the required reduction in greenhouse gas emissions using scientific methods. They are becoming increasingly relevant for technical procurement because OEMs and major customers are anchoring SBT requirements as a criterion in supplier selection. In the Amplifa glossary, you will learn how these targets are structured, which methods apply and how procurement organisations can effectively involve their suppliers.

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Key facts at a glance

01 Science Based Targets are climate targets reviewed by the Science Based Targets initiative (SBTi) that are compatible with the Paris Agreement.

02 A distinction is made between targets for 1.5 °C and 'well below 2 °C', typically covering periods of five to ten years.

03 Emissions targets cover Scope 1 emissions, Scope 2 and usually the material Scope 3 emissions of the supply chain.

04 Net-zero targets require long-term emissions reductions of at least 90 per cent and a clear abatement strategy.

05 For buyers, supplier management often becomes the biggest lever, as the main share of emissions arises in the upstream supply tiers.

06 In practical terms, data collection, prioritisation after supplier consolidation and a realistic contract term for transformation measures matter most.

Definition: Science Based Targets

Science Based Targets are quantified corporate emissions reduction targets set on the basis of climate science methodologies. They define how quickly and by how much a company must reduce its greenhouse gas budget in order to fulfil the global climate contribution of the Paris Agreement. Validation is usually carried out by the Science Based Targets initiative (SBTi), a collaboration of

climate and environmental organisations.

Distinction from voluntary sustainability targets

Unlike self-defined sustainability commitments, SBTs are subject to an external methodology and review. A company cannot freely decide how much reduction is 'enough'; instead, it must derive the target size from recognised models. For buyers, this means: a supplier with a validated SBT provides reliable statements, while self-disclosures should be critically questioned – similar to verifying FSC/PEFC certificate evidence in timber purchasing.

Legal classification

SBTs are initially voluntary. However, they gain indirect legal relevance through reporting obligations and customer demands, for example under EU corporate reporting rules. Companies should always have contractual clauses on climate targets reviewed legally on a case-by-case basis, particularly with regard to liability and contractual penalty issues.

Methods and approach: How are Science Based Targets created?

Target setting follows a multi-stage process from data collection through methodology selection to validation. The effort depends heavily on the complexity of the supply chain.

Emissions accounting along the Scopes

The foundation is the greenhouse gas inventory according to the Greenhouse Gas Protocol: Scope 1 emissions (direct emissions from own installations), Scope 2 (purchased energy) and Scope 3 (upstream and downstream emissions). For industrial companies, Scope 3 often dominates in practice, particularly purchased goods and services. A data analysis in procurement focused on spend and material group shares helps identify the relevant emitters.

Methods of target setting

Common approaches include absolute contraction (uniform absolute reduction), sectoral intensity approaches and throughput-based methods for benchmark competition. The SBTi provides sector guidance, for example for steel, cement, electronics or automotive supply. The choice of method significantly influences how strongly procurement must expect falling product carbon intensities.

Validation and time frames

The targets are submitted to the SBTi for review and publicly listed once confirmed. Typical periods are five to ten years for short- and medium-term targets, supplemented by net-zero targets up to 2050. Companies should set realistic milestones with suppliers in their own contract terms, aligned with these time frames.

Key KPIs and metrics in procurement

Science Based Targets are managed through measurable KPIs. For buyers, the combination of absolute and intensity-based indicators is crucial.

Key metrics

Core metrics are the reduction rate versus the base year (in per cent), carbon intensity per unit produced or revenue, and the share of Scope 3 covered by suppliers. In supplier development, the percentage of suppliers with their own validated SBT is increasingly tracked – an indicator that lends itself well to integration into supplier evaluations.

Coupling with operational metrics

Emissions metrics only have an impact in combination with operational targets such as on-time delivery (OTD), quality or landed cost. Those thinking in terms of overlaps recognise synergies: supplier consolidation not only reduces administrative effort but also improves the transparency of the emissions data basis and thus the ability to steer Scope 3.

Data quality as a bottleneck

Without reliable primary data, the inventory remains a rough estimate. In practice, spend values are extrapolated using secondary factors, which entails significant uncertainty. Buyers should gradually switch to supplier data and use goods receipt as the connecting element in order to allocate volumes realistically.

Risks and controls in the supply chain

Those pursuing SBT targets take on new risks – from accusations of greenwashing to data gaps and price increases caused by emissions costs. Clear control mechanisms are essential.

Reputational and liability risks

Anyone who publicly communicates validated targets but fails to deliver in practice risks reputational damage and increasingly also regulatory consequences. For procurement this means: stated supplier commitments must be verifiable, for example through the scope of validated emissions sources and the relationship between reduction commitments and actual supplier coverage.

Price and supply risks

Transformation costs money. Green steel, fossil-free cement or recycled plastics with high recycled content shares today typically cost more than conventional alternatives. Buyers should combine raw material indexation with emissions premia and, for the start of production (SOP) of new components, include alternative sources with higher decarbonisation capability early in the supply market competitive analysis.

Supplier management and contractual clauses

Proven in practice are climate clauses in framework agreements that provide for reporting obligations, milestones and, in defined cases, a retention or bonus arrangements. Such clauses must be legally reviewed on a case-by-case basis. In addition, supplier meetings, joint improvement projects and a consistent escalation concept help – similar to a bow-tie analysis for climate-related risks in critical supply chains.

Current developments: SBTs in day-to-day procurement

The practice surrounding Science Based Targets is in flux. Tightened methodologies, more frequent reporting requirements and rising customer expectations are shaping the day-to-day work of technical buyers.

Tightened SBTi methodology

The SBTi has revised its standards several times, for example through stricter requirements for fossil-related reduction pathways and clearer requirements for Scope 3. Companies that have already validated targets should actively follow the development of the standards and treat validation not as a one-off exercise but as a continuous process.

Supplier engagement as a core building block

Since the Scope 3 share often accounts for the majority of emissions at manufacturing companies, supplier engagement is moving to the centre. Practical levers include enquiry forms with emissions data fields, training for strategic suppliers and joint roadmaps. Sales and operations planning can also benefit here if climate targets are incorporated into volume and production planning.

Between sustainability and security of supply

Currently, procurement more often has to strike a balance between decarbonisation targets and immediate supply risks, for example supplier location risk in geopolitically tense regions. Realistic companies build up prevention (baseline data, frameworks) and protection in parallel – for example through safety time buffers, consignment stock or alternative sources of supply – and ensure that climate targets do not compete with operational resilience.

Typical metrics

Metric	Typical value
Reduction rate versus base year	typically 4.2% per year for 1.5 °C targets *Linear pathway; sectors with sector-specific guidance may deviate*
Supplier coverage (Scope 3 spend on SBT suppliers)	in practice often 40–70% of relevant Scope 3 spend *Share of procurement volume with suppliers that have their own SBT*

Carbon intensity per product/revenue unit	Depends on industry and product, base year as reference *Enables comparisons despite growth; supplement to absolute reduction*
On-time delivery (OTD)	> 95% *Operational metric that must not be undermined by decarbonisation measures*

Practical example

A mid-sized mechanical engineering company with a validated Science Based Target sees that around 80 per cent of its emissions come from the upstream supply tier. Procurement prioritises its ten highest-spend suppliers and defines binding reduction pathways with them for the coming five years. A steel supplier switches to fossil-reduced products, while a plastics injection moulding supplier gradually increases its recycled content share. Procurement integrates the emissions data into supplier evaluation and anchors reporting obligations in the framework agreements.

- Prioritising suppliers by spend and emissions share rather than alphabetical order.
- Anchoring emissions reporting and milestones in framework agreements with realistic contract terms.
- Step-by-step conversion to materials with a higher recycled content share to reduce carbon intensity.
- Integrating emissions KPIs into supplier evaluation and supplier consolidation to improve the data situation.

Conclusion

For industrial procurement organisations, Science Based Targets are not a peripheral issue but an increasingly strategically relevant element of the supply chain. Anyone pursuing validated targets must record the emissions inventory cleanly along the Scopes and actively involve suppliers. The biggest lever typically lies in Scope 3 – that is, where procurement and supplier management converge. Those who link data quality, binding contracts and operational metrics such as on-time delivery (OTD) here create reliable decarbonisation without jeopardising security of supply. Starting with a focus list of the highest-spend suppliers, first measurable progress can typically be achieved within two to three years.

Frequently asked questions

? What does Science Based Target mean in simple terms?

A Science Based Target is a climate target that is not freely set but derived using scientific methods to determine by how much a company must reduce its CO emissions. The benchmark is the Paris Agreement and its goal of keeping global warming well below 2 °C. In practice, validation is carried out by the Science Based Targets initiative (SBTi).

? What are Scope 1, Scope 2 and Scope 3 emissions?

Scope 1 covers direct emissions from own sources such as furnaces or company vehicles. Scope 2 covers emissions from purchased energy such as electricity or heat. Scope 3 covers all upstream and downstream emissions in the supply chain – for manufacturing companies usually the largest share and therefore the main starting point for procurement.

? How long does SBTi validation take?

Processing times vary and in practice are often in the range of several months. This depends on the completeness of the documentation, the complexity of the supply chain and the capacity utilisation of the validating body. Companies should allow sufficient buffer time and prepare data collection and methodology selection thoroughly in advance.

? Must procurement be involved in Scope 3 emissions?

Yes, in practice procurement is the central lever for Scope 3 reductions, as purchased goods and services often account for the largest share of emissions. Concrete levers include supplier selection based on emissions criteria, joint reduction projects and contractual reporting obligations. Supplier consolidation also improves the controllability of emissions data.

? What is the difference between near-term and net-zero SBTs?

Near-term targets typically cover a period of five to ten years and define specific reduction rates. Net-zero targets describe the long-term end state up to around 2050, involving deep emissions reduction of usually at least 90 per cent plus compensation of residual emissions. Companies usually apply both types of target in combination.

? Are Science Based Targets legally binding?

SBTs are initially voluntary and not mandated by law. However, they are becoming indirectly more relevant, for example through reporting obligations, customer requirements or capital market considerations. Concrete contractual links such as penalty clauses or performance adjustments should always be reviewed legally on a case-by-case basis.

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