SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

SBTi Corporate Net-Zero Standard Expert Working Group (EWG) Meeting Minutes

EWG CDR Fourth Session

19 June 2025 - 14:00-16:00 CEST

Virtual

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As per clause 6 in the EWG Terms of Reference, members serve on the EWG in their individual capacity as technical experts.

“Science Based Targets initiative” and “SBTi” refer to the Science Based Targets initiative, a private company registered in England number 14960097 and registered as a UK Charity number 1205768.

Meeting participants

Expert Working Group Members

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1. Hannah Hunt, Heineken
2. Toby Bryce, Yale Centre for Natural Carbon Capture
3. Ryan Maloney, Apple
4. Kelly McNamara, Food System Innovations
5. Phung Thuy, PepsiCo
6. Injy Johnstone, Oxford Net Zero
7. Fiona Perera, Gold Standard
8. Thea Lyngseth, Environmental Coalition on Standards
9. Sifa Kinoti, Octavia Carbon
10. Mai Bui, Supercritical
11. Eva Massa, Cemex SAB de CV
12. Sarita Marques,
13. Silke Mooldijk, NewClimate Institute
14. Robert Hoglund (Observer), Marginal Carbon AB
15. Doreen Stabinsky (Observer)
16. Eve Tamme, Climate Principles
17. Shantanu Agarwal, Mati Carbon PBC
18. John Dulac, Saint-Gobain
19. Noel Gurwick, University of Maryland
20. Lene Peterson, WWF Switzerland

SBTi

1. Piera Patrizio, Head of Research
2. Humphrey Adun, SME Research
3. Alice Farelly, BVCM subject matter expert
4. Clare Murray, SME, Research
5. Emma Watson, Head of Corporate Standards
6. Scarlett Benson, BVCM EWG Lead
7. Olga Dorotha Swiatek, Technical team coordinator

Meeting agenda

Welcome and introductions	5 mins
Recap of previous session and open questions	10 mins
Pre-read recap: Economic feasibility and risk of implementing removal target	30 mins
Mentimeter recap: What are the key barriers companies might face when setting removal targets?	10 mins

Availability of high-quality removals in the near term	35 mins
State of play: Design options, pros and cons, and emerging variants	30 mins

1. Welcome & Introductions

The meeting opened with a welcome from SBTi's Head of Research, appreciating participants for their involvement.

2. Recap of the previous session and open questions

The recap centered on general consensus reached during the third session and open questions that required further clarification. There was broad consensus on the following issues:

- The design option for addressing residual emissions, for which the EWG generally agreed on a linear scaling approach for removal targets.
- the potential challenges associated with long-term durability requirements, which the EWG highlighted, that requiring long-term durability through a like-for-like approach could represent a barrier to scale removals, given the cost associated with permanent solutions
- the results from a survey during the third EWG session, which revealed that there was general consensus that economic feasibility is a key implementation challenge in delivering removal targets.

One of the open questions during the third session was quantifying the cost implications of achieving interim removal targets across target design options. Another open question concerns how to integrate monitoring and contingency measures to manage reversal risks of low-durable removal solutions.

3. Pre-read recap: Economic feasibility and risk of implementing removal target

In recapping the pre-read, which was shared with the EWG before the session, the discussion centred on the feasibility and risks of implementing removal targets if companies in different sectors address their residual emissions following the design options. The pre-read had considered varying durability thresholds and averaged the cost of removal credits based on publicly available data. The assessment also included a high-level discussion on non-economic barriers, such as company willingness to pay and the status of voluntary removal markets. Some of the highlights of the discussion in the session include

- Impact of durability threshold: The cost assessment revealed that a like-for-like approach is approximately 35% more expensive than a gradual transition approach, primarily due to the near-term requirement for costly, highly durable removals. The cost of the like-for-like approach is also influenced by a company's greenhouse gas emission profile. A gradual transition with a lower minimum durability threshold could lead to reduced costs.
- Influence of residual emissions: Companies with higher residual emissions, particularly those in hard-to-abate sectors, face a larger burden to purchase durable removals in the near term, resulting in higher costs. For example, the assessment showed that a cement company might need to purchase 18 to 38 times more removals than a food and beverage company, potentially costing up to 6% of their annual profit.
- Comparison of scaling approaches: The assessment and discussions revealed that adopting a linear scaling approach for removal targets is more expensive than a cumulative approach, as it implies a greater volume of removals is required to address residual emissions. For instance, the quantitative study revealed that a gradual transition with a cumulative scaling is four times less costly than a linear scaling approach.
- Company willingness to pay: It was discussed that there was a lack of a clear benchmark for company willingness to pay for removals; however, a 2023 SBTi survey could serve as a useful proxy for this. The survey indicated that 56% of respondent companies with SBTi-validated targets are voluntarily purchasing carbon credits, with 50% being removals, motivated by the potential for neutralizing residual emissions. However, only 1% of companies purchasing high-durable removals operate in hard-to-abate sectors, and the average corporate annual spending on carbon credits is relatively low.
- Sectoral challenges: Some participants emphasised the delicate situation of the hard-to-abate sector, highlighting the enormous investments needed in research and development for scope one emission reduction, which is a higher priority. The participants also highlighted that strict removal targets, especially those with like-for-like durability, could be very complicated for these sectors, which already have low margins.
- Broadening the scope of removals: Some participants emphasised the importance of not equating carbon removal solely with direct air capture and BECCS, advocating for the inclusion of a range of durable removal approaches, such as mineralisation and marine-based methods, in SBTI materials. Participants also mentioned that focusing too much on potential supply constraints of certain removal technologies might be inaccurate, and that demand could drive deployability.
- Sector Selection and scope focus: Some participants questioned the selection of case study sectors and highlighted that focusing solely on scope one emissions might disproportionately impact heavy industries already under strict regulation in regions like the EU, proposing that companies not yet under such regulation and those with the financial capacity to invest in and scale durable CDR in the near term should be prioritized in future assessments.
- Trade-offs with value chain mitigation: Some participants noted that even with a lower cost burden for removals in the food and beverage sector, stringent decarbonization requirements could still create trade-offs with necessary investments in value chain (Scope 3) mitigation. It was highlighted that the challenging economic situation for

businesses could further complicate the ability to invest in removals alongside other decarbonization efforts.

- Balancing ambition and practicality: Some participants acknowledged the urgency of scaling removals but emphasized the challenge of the mismatch between who pays for it and who is already paying or willing to pay. There were concerns about creating barriers to SBTi adoption by imposing overly stringent and mandatory removal requirements, suggesting the exploration of increased flexibility in durability, obligations, and scope.
- Industry perspective on cost vs. requirements: Participants shared that while cost is considered in decarbonization planning, the primary need is clarity on what is accepted for durability, product type, and storage type, as these factors significantly influence investment decisions. It was suggested that the rigour expected for implementation needs should align better with the practical challenges faced by companies. Other participants expressed surprise at the assertion that cost is not the primary concern and pressed for clarification, noting that businesses often cite cost as a prohibitive barrier. It was then clarified that cost is integrated into the evaluation of different decarbonization options (abatement, mitigation, capture) based on their viability, citing that what is most needed from SBTi guidance is the conditions and expectations for utilizing the removal design options. Participants from a practitioner view, representing a less emissions-intensive sector, shared that such companies evaluate emissions reduction and removal initiatives based on a marginal abatement cost curve, with a clear ceiling beyond which investments would not be feasible, potentially leading to missing targets.
- Context of a voluntary framework: Participants highlighted that SBTi operates within a voluntary framework, underscoring the need to balance removal requirements to maintain ambition while ensuring broad participation. It was suggested that interim removal targets could serve as a form of recognition for early leaders without introducing rigid obligations.

4. Mentimeter recap: What are the key barriers companies might face when setting removal targets?

The EWG reviewed feedback from a mentimeter poll conducted in session 3, which revealed a general consensus that the economic and operational viability of meeting removal targets is the most significant barrier for companies in achieving the removal targets. Additional concerns were mentioned in the poll about inconsistent guidance across standards and the potential prioritization of emission reductions and nature-based solutions over engineered removals.

The EWG discussed the estimated demand of the removal credits if SBTi-validated companies address their residual emissions following the removal target design options. Under a gradual transition approach with linear scaling, approximately 63 million tons of CO_2 removal credits would be required, with 25% of these credits needing to be high-durability removals. This scale exceeds current global capacity, underscoring the challenge posed by long lead times for deploying high-durability technologies.

5. Availability of high-quality removals in the near term

Dr. Mai Bui, an EWG participant, delivered a presentation on the availability of durable removal credits in the near term. The exposé began with an overview of the carbon credit market, where a distinction was made between carbon avoidance and carbon removal credits. These were further classified based on storage duration: short-, mid-, and long-term. It was mentioned that different removal technologies vary significantly in terms of feasibility, scalability, cost, MRV complexity, public perception, and durability.

The discussion then evolved to the inherent complexity of CDR projects. It was emphasized that CDR projects involve extensive supply chains and value chains, requiring robust life cycle assessments to ensure accurate carbon accounting. It was noted that methodologies for quantification differ by technology and must be adapted to meet the requirements of the voluntary carbon market.

Attention was drawn to the diverse ecosystem of actors in the CDR space, including suppliers, project developers, digital MRV providers, investors, and intermediaries. Financing was identified as a critical bottleneck, with many projects relying on large off-take agreements to mitigate investment risk. This has created a “chicken-and-egg” dynamic, where projects struggle to scale without early buyers, while buyers wait for mature, deliverable projects. Trust-building measures, such as registries and quality standards, was viewed as essential to addressing this challenge.

The discussion explored the current gap between contracted and delivered removal volumes. While approximately 28 million tons of permanent removals have been sold, only a small fraction, around 2.7%, has been delivered, largely due to long lead times for infrastructure-heavy options such as geological storage. Most delivered permanent removals to date have come from biochar projects. By contrast, nature-based solutions, although more widely adopted, face delays in validation cycles, making consistent annual delivery challenging. Major corporate buyers, such as Microsoft and Frontier, were cited as pivotal actors in shaping early market dynamics.

The presentation explored the pricing spectrum of different CDR pathways. It was highlighted that DAC offers high permanence but comes at a high cost ($500–$1,000 per ton), while BECCS provides similar durability at lower prices ($150–$400). Biochar was positioned in the middle in terms of both cost and permanence, ranging from under $100 to $700 per ton. Nature-based solutions were recognized as the least costly ($20–$50 for decades of permanence), but their long-term durability remains more uncertain.

The discussion also addressed how durability is defined and operationalized, drawing a distinction between "contracted durability," which relies on MRV and risk mitigation measures, and "ideal durability," as defined in scientific assessments such as those from the IPCC. It was acknowledged that setting thresholds (e.g., 100 years) can influence which pathways are deemed eligible or prioritized, potentially to the exclusion of nature-based options. The presentation highlighted that the portfolio approach, which combines different technologies with varying permanence and co-benefits, can help balance risk, cost, and climate impact.

Concerns were raised about the quality of some removal projects, especially in the rapidly expanding biochar market. Issues such as weak MRV, inadequate methane monitoring, uncertain permanence, and risks around additionality and credit delivery were noted. Participants highlighted that selecting high-quality projects remains difficult, given the technical, operational, and financing risks involved. Off-take agreements, when structured carefully, can help ensure higher project quality.

The group reflected on broader barriers to scaling CDR, citing permitting delays, financing gaps, geopolitical disruptions affecting feedstock costs, supply chain issues, and challenges in infrastructure deployment. To achieve gigaton-scale CDR deployment, country-specific constraints, including land availability, energy mix, biomass sustainability, and public acceptance, were identified as critical factors. Portfolio approaches was again noted as a useful framework to hedge delivery risk while advancing removals.

Further discussion focused on the credibility and consistency of carbon removal accounting. Concerns were expressed around greenwashing and the uneven application of quality standards across registries. There was broad agreement on the need for a level playing field in corporate accounting for CDR. Although several rating agencies provide quality assessments, participants observed that their methodologies often diverge.

Questions were raised about whether the standards used to assess small-scale purchases would apply to large, sector-wide projects (e.g., in steel or cement). It was clarified that quality should be considered project-specific rather than tied to the volume of credits. Some participants expressed concern that the tendency of buyers to follow major players, such as Microsoft, may crowd out other promising projects. Still, there was consensus that the market is evolving and that methodologies will likely improve with time.

The potential role of the SBTi in leveraging existing frameworks for CDR quality was raised. Participants encouraged drawing from established methodologies to ensure clarity, reduce duplication, and accelerate harmonization. While newer pathways may take longer to reach consensus, most registries are aligning with ICVCM standards, which are seen as foundational.

Finally, the cost of MRV was discussed, noting that MRV costs vary widely depending on project type, measurement strategy, and geographic context. Engineered removals tend to have more standardized MRV protocols, while open-environment systems, such as afforestation or soil carbon, present more challenges. Estimates of leakage and durability risks are still being refined, and participants acknowledged that accurate MRV cost projections remain an open area of development.

6. State of play: Design options, pros and cons, and emerging variants

The group reviewed previously proposed frameworks for addressing residual emissions, including

- Mandatory removal targets

- Recommended (voluntary) removal targets
- Mandatory targets with flexibility between removals and additional abatement.

Each option was assessed for trade-offs between alignment with scientific integrity, feasibility, market readiness, and communicability. While mandatory targets give a clear signal for removal scale-up, there are concerns about cost and feasibility. Recommended targets are easier to implement but may not signal clear scale-up. Flexible mandatory targets reduce cost pressure but may dilute impact and clarity.
Two alternative options were proposed:

- Early recognition with phased mandatory targets—granting recognition to early movers while deferring full requirements.
- Portfolio durability thresholds—defining average durability across a CDR portfolio, balancing cost and availability.

These alternative options would require careful attention to credit eligibility, overlap with the BVCM framework, and durability definitions.

Concerns were raised about the inconsistency between annual emissions reporting and the long-term permanence expectations for removals. It was suggested that removal targets should link more directly to a company's carbon budget. Participants highlighted risks of companies favoring low-cost, low-quality removals to meet reporting obligations, and emphasized the need for duration-linked criteria that encourage credible long-term climate impact.

It was discussed that the revised absolute contraction approach (ACA) target design includes a corrective mechanism: companies that fall short of reduction milestones are required to scale up mitigation efforts in the following period. However, some participants cautioned that this is not equivalent to managing emissions within a predefined carbon budget and could allow gaming through market mechanisms.

Participants debated the perception that higher cost equates to higher quality. It was agreed that cost-efficient removals can still be of high quality if guided by clear, scientifically grounded thresholds. Nature-based solutions with variable durability were discussed in this context. A balance between cost, scalability, and integrity was emphasized. It was further mentioned that some high-durability solutions lack scalability, while nature-based options offer scale with shorter durations. Participants stressed the need to address both aspects. Portfolio approaches were again referenced as a potential way to optimize trade-offs, though concerns about added complexity were raised.

The challenge of setting quality criteria was discussed, especially where co-benefits (e.g., biodiversity, local development) may involve trade-off against permanence. Participants emphasized the need for flexibility and recognition of regional differences. It was suggested that renewal requirements could be built into short-duration projects.

There was debate about whether SBTi should define quality criteria directly or defer to evolving guidance from entities like the GHG Protocol or ICVCM. The consensus leaned toward setting high-level principles and avoiding premature certification roles.

Participants underscored the need for specific, well-defined indicators and durability thresholds in future summaries of target design options. This would allow companies to give informed feedback and prepare for implementation. Deferring to established quality frameworks while ensuring foundational criteria were in place was seen as the most pragmatic path forward.

8. Next Steps

- The next meeting will be a joint session with the BVCM EWG group on 15 July, focusing on the recognition-based approach. A follow-up session is scheduled for 6 August.
- Additional target design options, along with associated criteria, will be circulated as pre-read material for the August meeting, accompanied by a short survey where EWG members will be invited to share their views on these options.
- The in-person workshop is tentatively scheduled for 9–11 September in London, with the exact dates to be confirmed.