

Ambition document CO₂ neutral Nikhef

May 6, 2025

Summary

By setting this ambition, Nikhef will not only achieve net emissions in line with scientific and Dutch/EU targets, but also work towards a positive impact on its environment. By implementing this ambition, the institute's scientific mission is linked to sustainable development in a logical way, from reducing the ecological footprint of experiments to contributing knowledge and innovation for (inter)national sustainability. This ambition plan presents a vision and concrete objectives for 2025-2035. Concrete actions are defined for each focus area and presented in the subsequent action plan so that progress can be monitored and managed. Through periodic evaluation and reflection, the strategy will adapt and improve over time, embedding sustainability in the DNA of the institute.

Vision

Nikhef. Where scientific research contributes to a better living environment.

In the future, the impact that the institute makes on the environment is positive; the CO₂ emissions of the Nikhef in Amsterdam are minimised and the remaining CO₂ emissions are compensated responsibly. (Green) energy consumption is continuously optimised; efforts are made to be more conscious and efficient. The local environment of the Nikhef in Amsterdam works with its local partners at Science Park to grow in biodiversity. With its university partners and in scientific collaborations, Nikhef is working together to reduce CO₂ emissions in scientific research, and to replace and phase out other non-reusable raw materials. This ensures that Nikhef can remain at the forefront of research in astroparticle and particle physics.

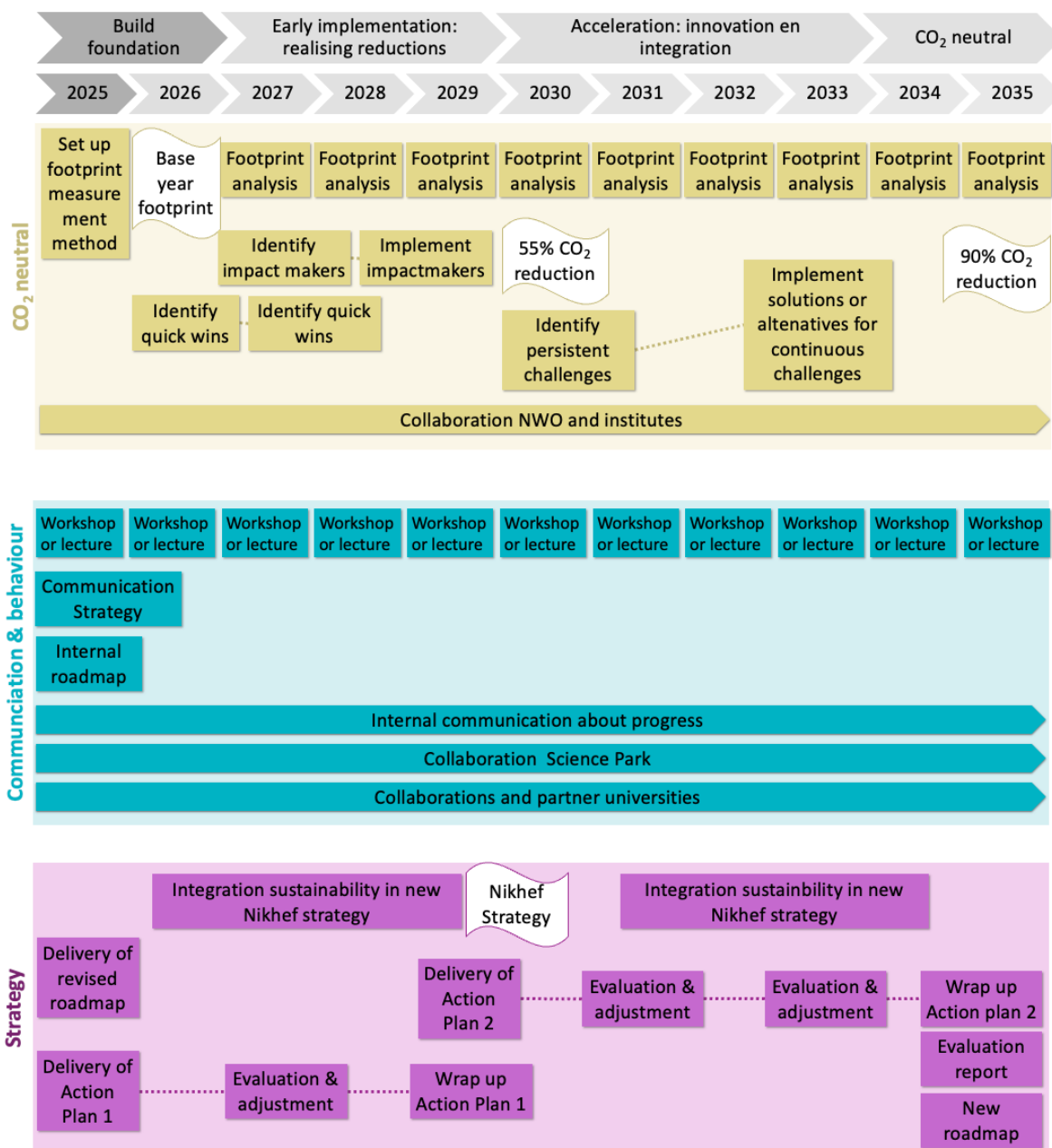
Our future

It has long been clear that we as humanity are using the earth and its resources in a way that is not sustainable. Reducing biodiversity, decreasing social inequality and global warming are some glaring examples, the effects of which are becoming more visible every year.

To transform this future outline into the described vision, Nikhef will have to make adjustments in its (long-term) strategy, operations and culture. Use will be made of (inter)nationally recognised and science-based frameworks such as the Sustainable Development Goals (SDGs), the Greenhouse Gas Protocol (GHG) and the Science Based Target Initiative (SBTi). This is because, as an institute, we want to focus on making substantiated impact in this transition.

Roadmap 10 years

To achieve the vision, the Nikhef Institute in Amsterdam will continue to reduce CO₂ emissions as described (in part) in the roadmap drawn up in 2020. In addition, efforts will be made to reduce (green) energy consumption, integrate the vision into the strategy, and communicate in a frequent, transparent way. To integrate these three lines, the following updated roadmap has been drawn up.



Despite the different phases identified in the roadmap, collaboration is an ongoing theme that cuts across all phases. Collaboration with other NWO institutes is secured in the area of sustainability to share knowledge and support each other functionally at NWO-i level. Collaboration with Science Park takes place on local ecological issues and themes such as improving waste flow and building management. In cooperation with universities and

collaborations, the focus will be on reducing CO₂ emissions, energy consumption and ecological and sociological impact in procurement for research.

Build foundation | 2025-2026

Goal: create a basis for CO₂ reduction, strategy and communication

In the first two years, a measurement method will be implemented, based on the GHG protocol and SBTi with which the CO₂ emissions of Nikhef in Amsterdam can be measured. The details of this are described in the plan of action part 1. 2026 will be the base year for measuring a complete CO₂ footprint of Nikhef in Amsterdam. This will provide a basis for securing the percentage reductions envisaged in the 2030 and 2035 milestones.

Efforts are also being made to make Nikhef's (green) energy consumption measurable. This sets the basis for subsequently consuming and possibly reducing energy more efficiently; we make no distinction between different 'colours' (green, grey, blue) of purchased energy.

Nikhef aims to promote a culture in which sustainability is a standard part of decision-making and daily behaviour. This is supported by lectures, workshops and training sessions to create awareness about reducing the ecological footprint of Nikheffers. Setting reward mechanisms for behaviours that contribute to reducing emissions or lowering the carbon footprint are also implemented. Creating leadership by example, with the involvement of executives, will further strengthen the sustainability strategy.

Positivity and scientific underpinning form the basis for encouraging colleagues to move along towards a more sustainable Nikhef. To this end, a strategy is being set up together with the communication department in which colleagues are structurally:

- Are involved in shaping and implementing actions;
- Are inspired to work together on solutions;
- Informed about ways to integrate sustainability into their (daily) work;

An example of how this is already being secured is during the Nikhef Jamboree: where Nikhef's climate ambassadors repeatedly draw attention to themes and ask for input from colleagues to, among other things, reduce Nikhef's CO₂ emissions in Amsterdam.

Early implementation: realising reductions | 2027-2029

Goal: 55% CO₂-reduction & more efficient energy use

Now that the energy consumption and CO₂ emissions of Nikhef in Amsterdam have been mapped, work can be done to reduce CO₂ emissions, and use energy more efficiently. We distinguish three categories that require different approaches:

- Quick wins: this includes easily changeable processes that either contribute to an immediate measurable reduction in energy consumption and CO₂ emissions, or can play an important role in the visibility of sustainable choices within the organisation. An example could be switching to Fairtrade coffee beans and tea, an organisation

that ensures better soil quality on coffee plantations and higher minimum compensation for farmers growing coffee beans.

- Impact makers: our biggest consumers. For this, a plan will be made for each item on how energy consumption can be made more efficient, and CO₂ reduced, with a corresponding timeline. An example could be the procurement of our goods.
- Continuing challenges: although the aim is to reduce CO₂ as much as possible, it will be unrealistic to achieve this completely. Therefore, a plan will be made for each item whose emissions cannot be reduced to 0. An example could be air travel, or the use of non-renewable raw materials in IT hardware for which no alternatives exists yet.

Halfway through this phase, there will be an evaluation of the plan of approach part 1, and adjustments will be made where necessary. At the end of this phase, another evaluation will take place and, in conjunction with the new Nikhef strategy for the period 2029-2034, 'plan of approach part 2' will be presented. This will mainly include long-term 'impact makers' and 'lasting challenges' to reduce or (temporarily) offset CO₂ emissions where necessary. Defining follow-up steps to make adjustments to reduce energy consumption are also included in this.

Acceleration: innovation and integration | 2030-2033

Goal: innovative solutions for CO₂ reduction & energy efficiency

The remaining impact makers and enduring challenges are further addressed in this phase by focusing on collaborations for innovative solutions to further reduce CO₂ emissions and optimise efficient energy use. Potential CO₂ offsetting ways are explored to address the enduring challenges for which no solution seems to exist yet.

This phase will include two evaluations in which the client and stakeholders can make adjustments. This phase will also work towards a renewed sustainability strategy for Nikhef for the next ten years.

Net zero | 2034-2035

Goal: 90% CO₂ reduction and 10 % CO₂ compensation

By 2035, the Nikhef institute in Amsterdam will have achieved 90% CO₂ emissions reduction, with the 10% remaining offset through high-quality offset projects. The institute will be a leading example of how basic scientific research and sustainability can go hand in hand, and sustainability will be applied more broadly, including at the social level, with a focus on water consumption, biodiversity and employee welfare.