



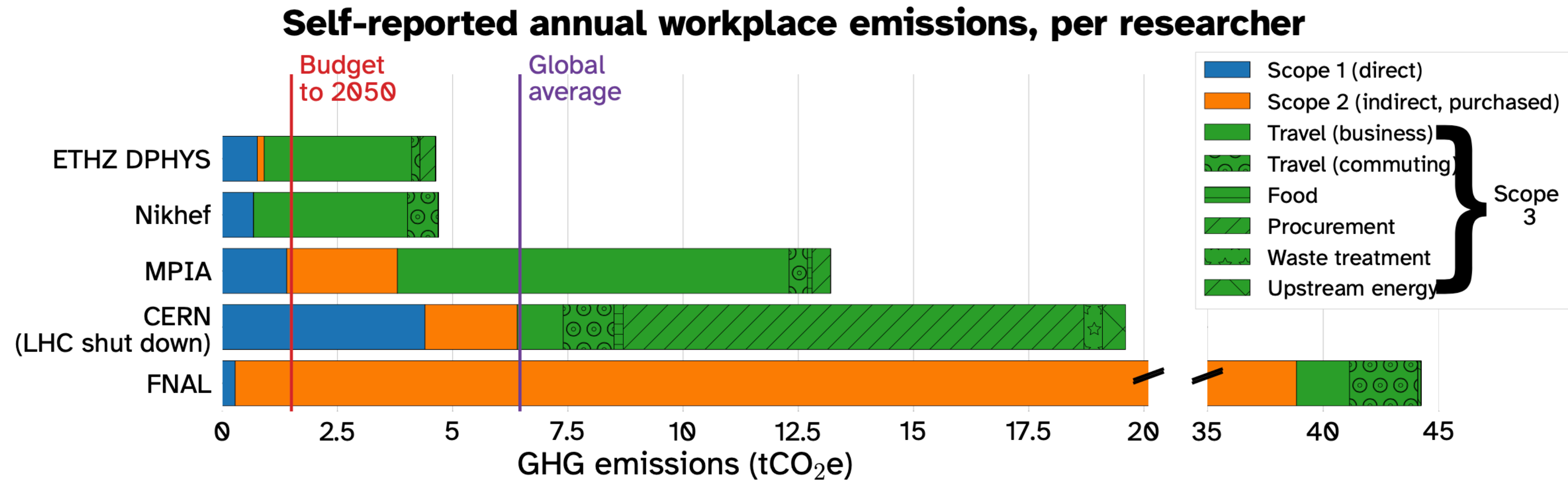
C³ WORKSHOP, 8 OCTOBER 2024

SUSTAINABILITY: THE NIKHEF PERSPECTIVE

Maria Haney (for the Nikhef
duurzaamheidsambassadeurs & the
Nikhef Ondernemingsraad)

Arjen van Rijn, Catharina Vaendel, Jan
Visser, Patrick Koppenburg, Wouter
Hulsbergen, Clara Nellist

WORK-RELATED EMISSIONS AT HECAP+ INSTITUTES







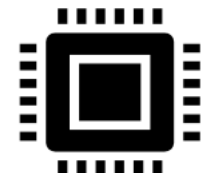
2019 data, save MPIA (2018), and ETHZ business travel (average 2016-2018).

Source: arXiv:2306.02837 (“Environmental sustainability in basic research”)

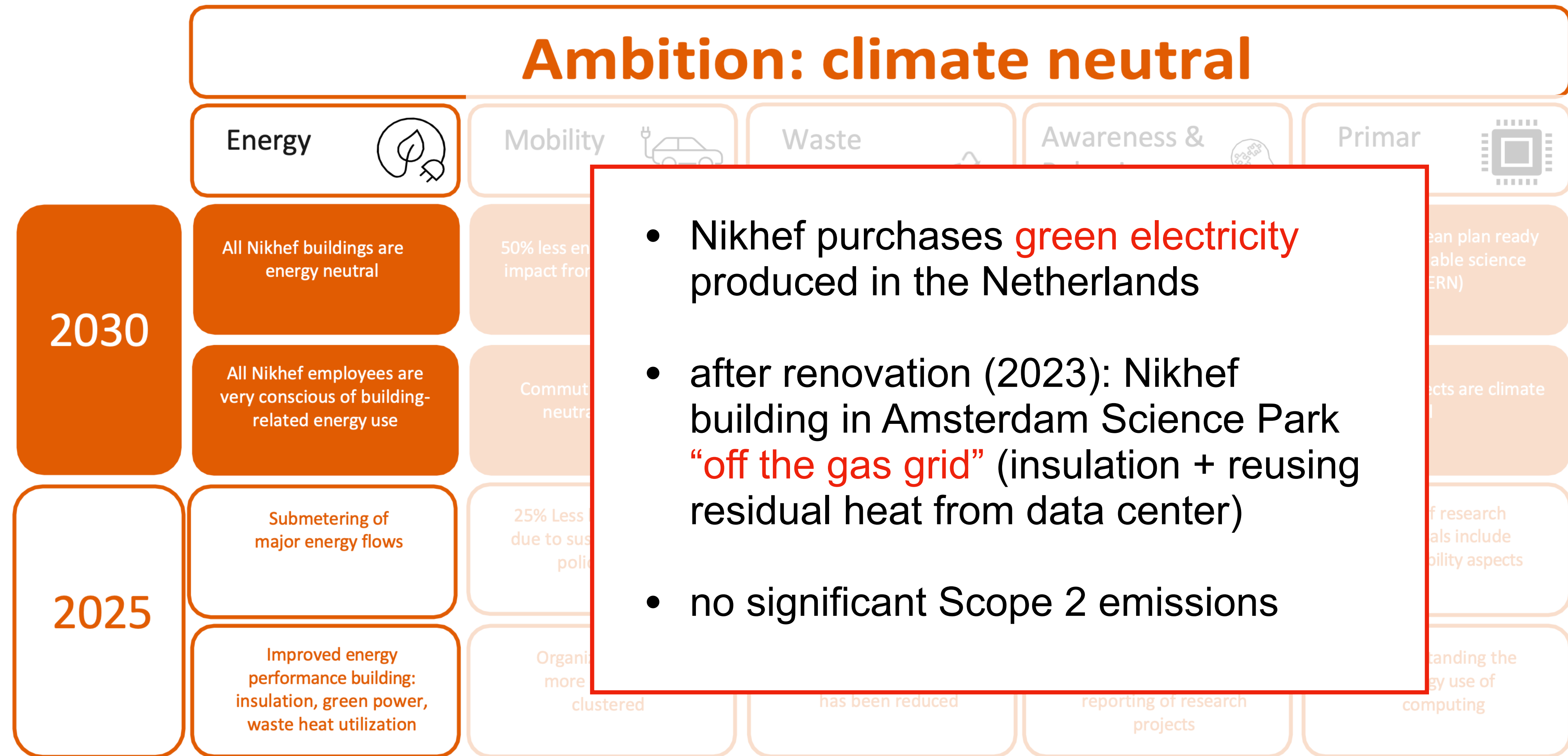
SUSTAINABILITY AT NIKHEF

- ambition: **climate neutral by 2030**
- “Sustainable Nikhef Roadmap” (2021)
- with Arcadis Netherlands (monitoring/processing Nikhef emission data)
- development along five pillars:
 - **Energy** (Nikhef building)
 - **Mobility** (business travel & commuting)
 - **Waste** (waste reduction, sustainable procurement)
 - **Behavior/Attitude**
 - **Primary Process** (computing, research projects, participation in (A)PP experiments)

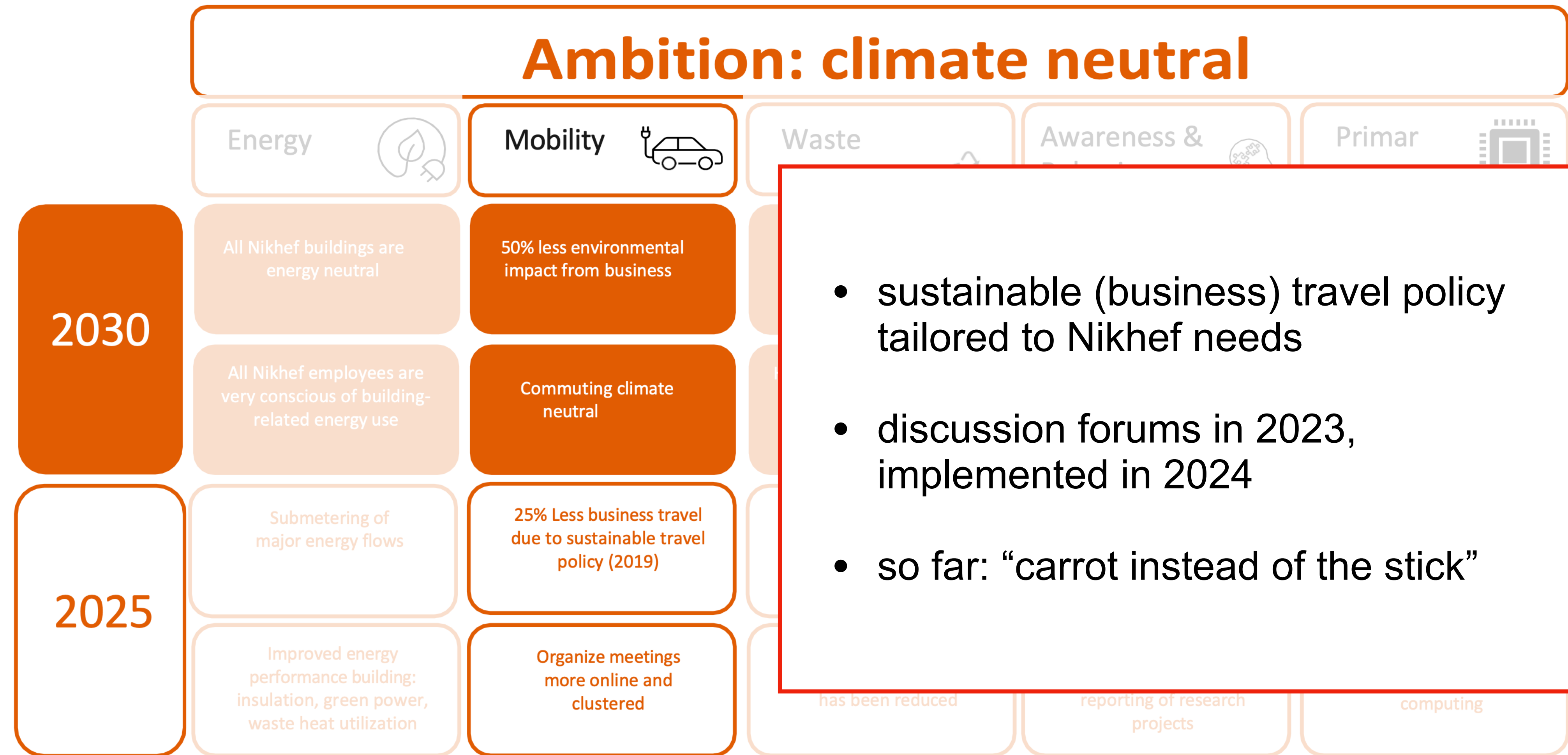
NIKHEF SUSTAINABILITY ROADMAP

Ambition: climate neutral					
	Energy 	Mobility 	Waste 	Awareness & Behavior 	Primary 
2030	All Nikhef buildings are energy neutral	50% less environmental impact from business	Produce no residual waste at Nikhef	Sustainability is standard part of thought processes	Have European plan ready for sustainable science (CERN)
	All Nikhef employees are very conscious of building-related energy use	Commuting climate neutral	Have European plan ready regarding detector waste and reuse parts	Ecological impact is considered by default in (investment) decisions	Science projects are climate neutral
2025	Submetering of major energy flows	25% Less business travel due to sustainable travel policy (2019)	Electronic waste is handled responsibly	Rewarding sustainable	25% of research proposals include sustainability aspects
	Improved energy performance building: insulation, green power, waste heat utilization	Organize meetings more online and clustered	Substantial portion of leaked liquids in nature, has been reduced	Sustainability standard chapter in application reporting of research projects	Understanding the energy use of computing

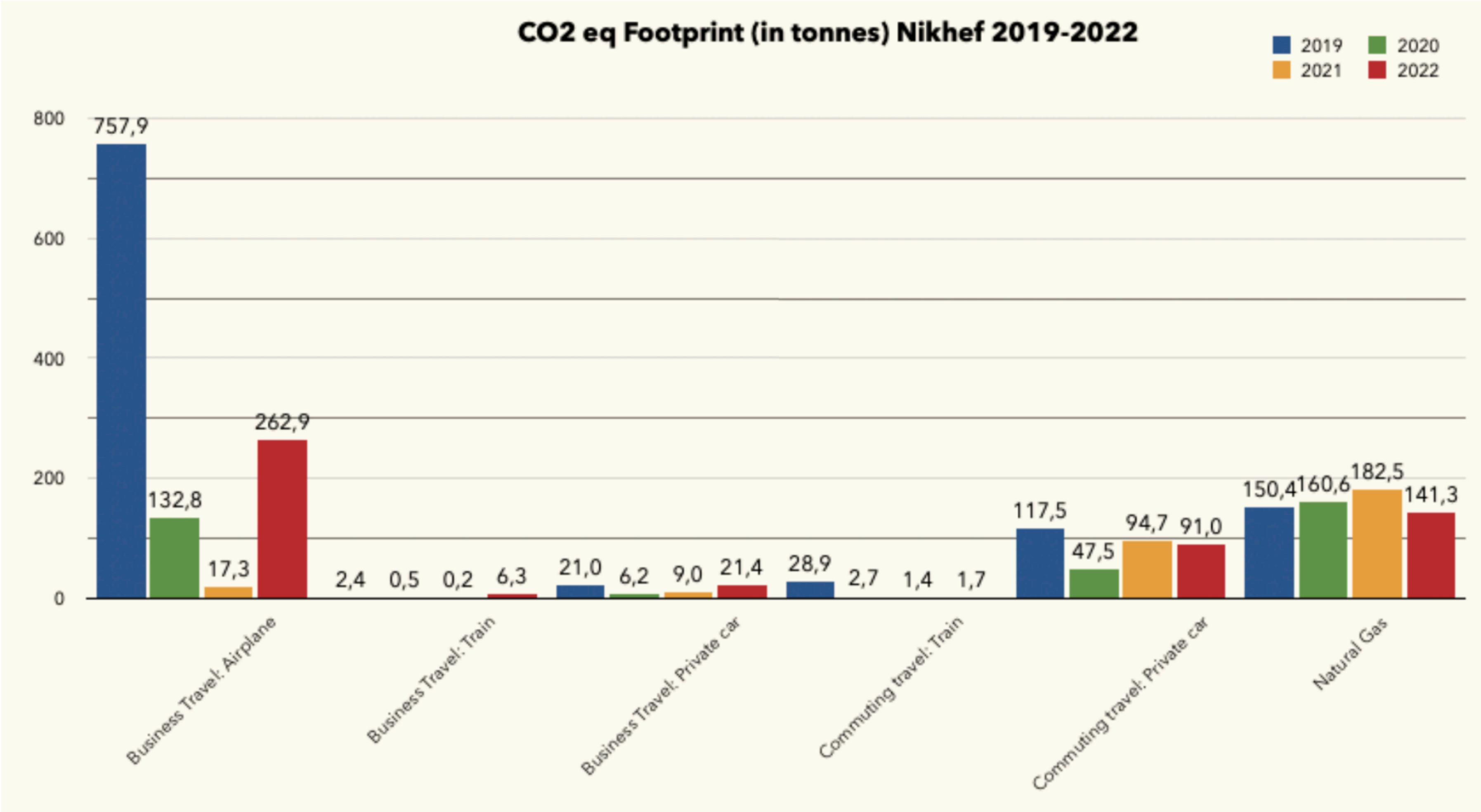
NIKHEF SUSTAINABILITY ROADMAP



NIKHEF SUSTAINABILITY ROADMAP



NIKHEF CO₂ EMISSIONS 2019-2022



TRAVELING IN EUROPE: A 2022 NIKHEF EXAMPLE

Flights: 403 total return flights

Common destinations:

167 to CERN

98 to Italy

12 to UK

1 Brussels - Maastricht

Trains: 126 total return trips

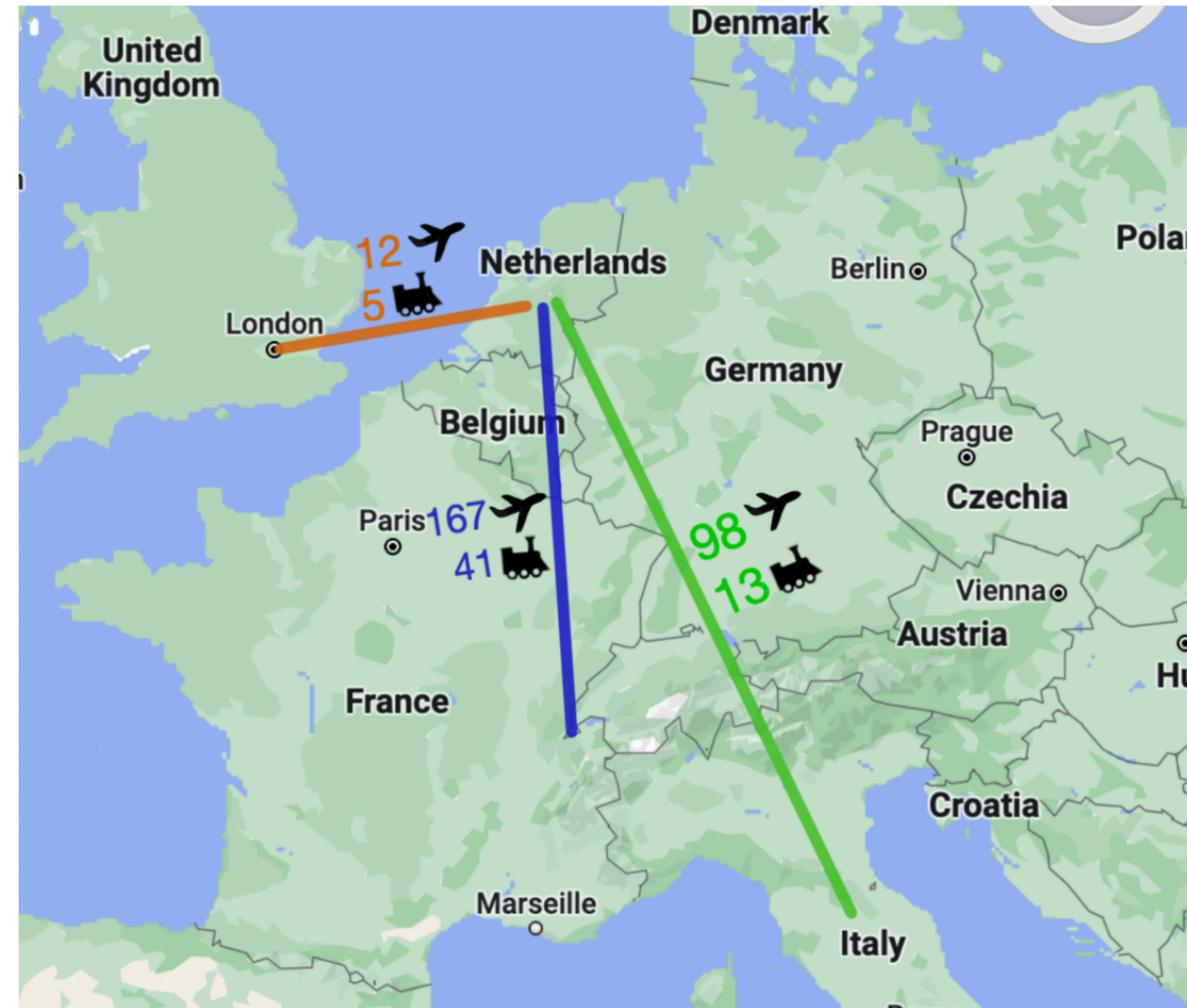
Common destinations:

41 to CERN

13 to Italy

5 to UK

Σ 100'550 kg CO₂ eq. (*)



What if we did ALL those trips by train?

208 to CERN

111 to Italy

17 to UK

1 Brussels - Maastricht

Σ 21'100 kg CO₂ eq.

Would have decreased CO₂ emissions by ~80%

(*) Assumptions: 0.2 kg CO₂ per km air travel, 0.036 CO₂ per km train travel

NIKHEF BUSINESS TRAVEL POLICY (2024)

Travel less

1. **Group leaders and program leaders are responsible**, individually and collectively, to be selective on the attendance of Nikhef personnel (permanent scientific staff, PhD graduates, postdocs, support staff, technical and engineering staff) at events (meetings, conferences, etc.) abroad, in particular when these events take place outside Europe.
2. In the selection of attendance to events abroad **junior scientific staff has preference** over senior scientific staff.
3. Group leaders and program leaders are encouraged to consider business travel objectives such that **multiple short trips can be avoided and combined into single, longer trips**, even if this implies extra overnight stays and/or working from a remote location for one or more days.
4. We encourage all to consider **remote attendance of workshops and conferences** when the option is available.

NIKHEF BUSINESS TRAVEL POLICY (2024)

Travel differently: public transport versus air travel

1. For European destinations, travel by public transport (train) is the preferred option, even if the travel time exceeds 8 hours or includes an overnight stay.
2. First class international train tickets will be reimbursed fully.
3. Extra travel time by train is recognized as working time, which can be offset against regular working hours.
4. In approving travel requests budget holders will pay explicit attention to the motivation for air travel, in cases where public transport is a reasonable alternative. Budget restrictions will not be used as an argument to not approve a more sustainable mode of travel.
5. Nikhef does not advocate to include CO2 compensation in the air travel ticket, because CO2 compensation will be handled centrally based on Nikhef's total footprint.
6. For domestic (Dutch) travel destinations, travel by public transport (train) is also the preferred option. If that is too unpractical or too inefficient, employees are encouraged to car pool.

NIKHEF BUSINESS TRAVEL POLICY (2024)

CO₂ emission budgets

1. **Nikhef will not (yet) instate CO₂-emission budgets per group.** Instead in the yearly 'platformgesprek' each group leader / program leader will be provided an overview of the contribution from their group in the previous calendar year to Nikhef's CO₂ emission footprint attributable to business travel. The conversion factors used will be the same as those used for the annual footprint analysis. **Deviations from the recommended policies are discussed and minuted.**

SUSTAINABILITY ACTION PLAN 2024

- discuss **sustainability** as part of the Dutch input to the European Particle Physics Strategy (EPPS) update
- communicate and optimise new travel policy
- encourage sustainable business travel through information (e.g., "**tips & tricks for taking the train to CERN**")
- more **electric charging docks** to be added
- advice on & construction of **solar panels**
- efforts towards **more sustainability in the canteen** (in collaboration with the other institutes on campus)
- enable **repair cafès** in the technical departments (an initiative by the Nikhef Works Council)