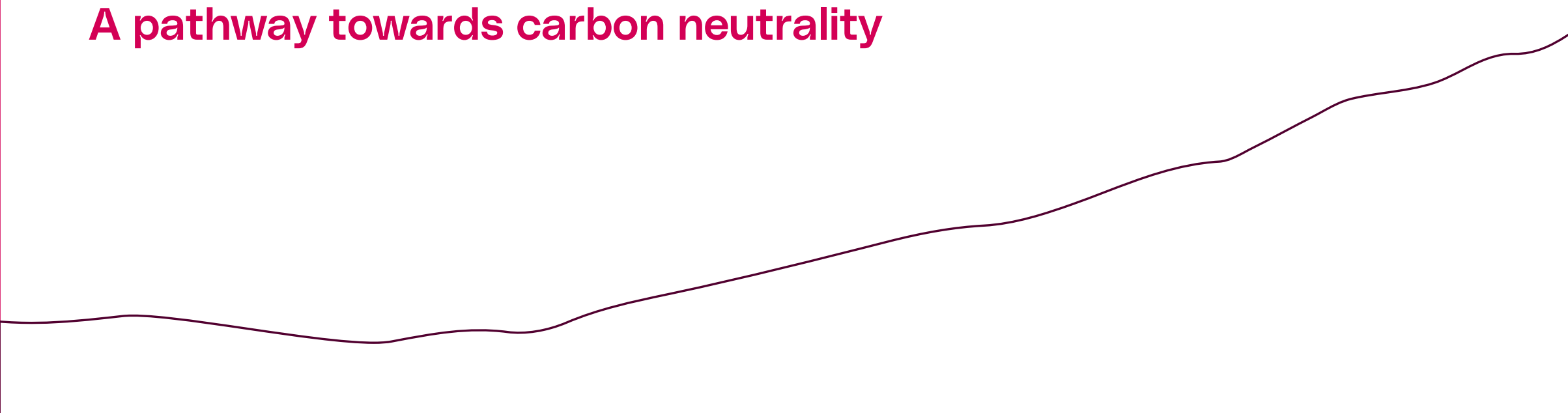


Open mind
Greater value



Evolving within climate boundaries

A pathway towards carbon neutrality



Index

01. Why? Future-proof the living environment	03	05. How? Reducing embodied carbon	11
02. What to address? Our carbon footprint	04	06. How? Renewable energy	13
03. Where to go? Pathway towards carbon neutrality	06	07. How? Neutralisation strategy	15
04. How? Reducing operational carbon	09		

CARBON NEUTRALITY

as the pathway to tackle climate change and keep within climate boundaries

In the face of the urgency to act upon environmental challenges, **we have committed to tackle climate change by going carbon neutral in 2040.**

We aim to future-proof our business and our assets against future climate impacts and build back the resilience of the Earthsystem.

To this end we are addressing the source of the problem. We have defined near- and long-term goals aligned with the Science Based Target initiative (SBTi) following the Net Zero Standard, to guide our continuous ambitious performance, while keeping within climate boundaries.

Why?

Future-proof the lived environment

Our climate action will be transversal to our direct and indirect emissions. We will reduce **operational carbon** emissions from our owned and co-owned buildings, the **embodied carbon** of new developments and expansions as well as **emissions from our value chain.**



BUILDINGS WILL BE VULNERABLE TO CLIMATE CHANGE

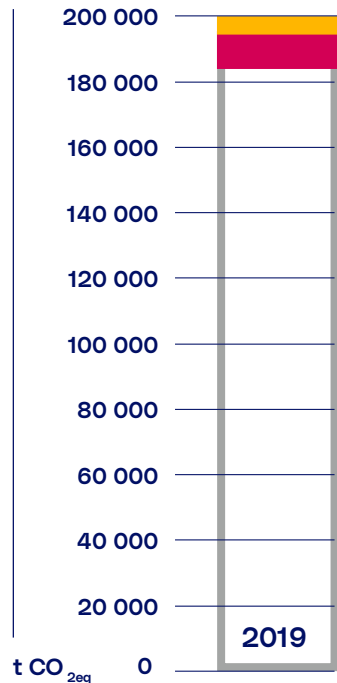
Climate change and its consequences, like increasing temperatures and extreme weather events, will impact both the structure and the indoors of buildings

About one third of global GHG emissions come from buildings

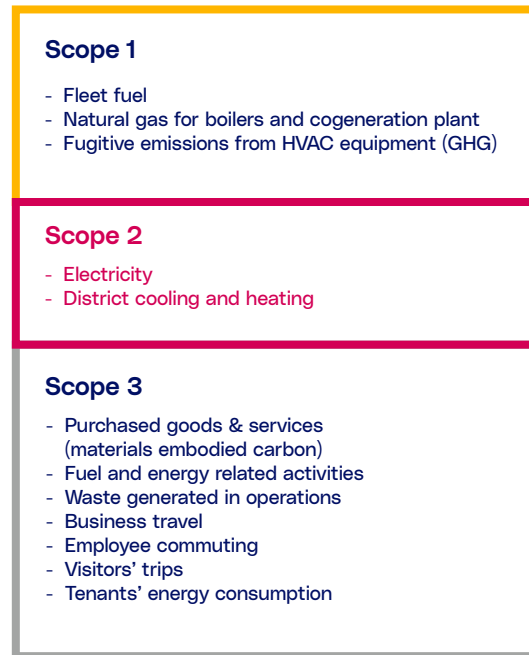
According to the IPCC, in 2019, the GHG emissions of the building sector reached 12 tCO₂eq, corresponding to about 21% of GHG emissions in that year. When considering only CO₂ emissions the contribution of the building sector increases to 31% of CO₂ emissions in 2019.

What to address? Our carbon footprint

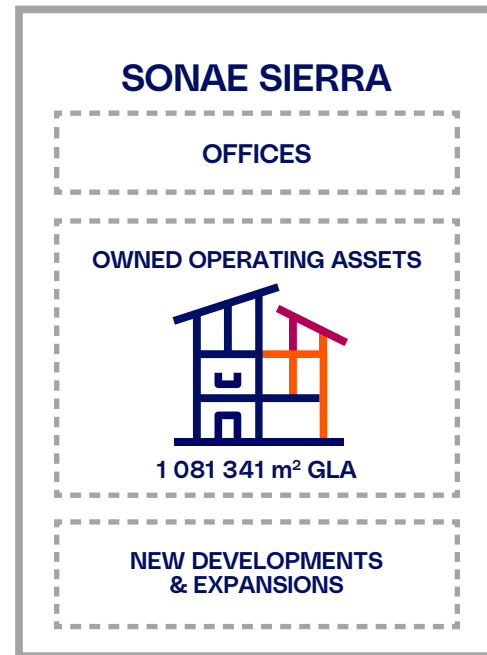
Carbon Footprint



Emission Source



Organisational Boundaries



Our carbon footprint

Our commitment takes 2019 as the base year and encompasses all Sonae Sierra GHG emissions. Our carbon inventory for this year followed the GHG Protocol, and includes our **corporate emissions**, our **owned operating assets** emissions, and emissions from our **new developments and expansions**.

At first, an operational control approach was considered for the calculation of our carbon inventory, and previously updated according to an equity share approach.

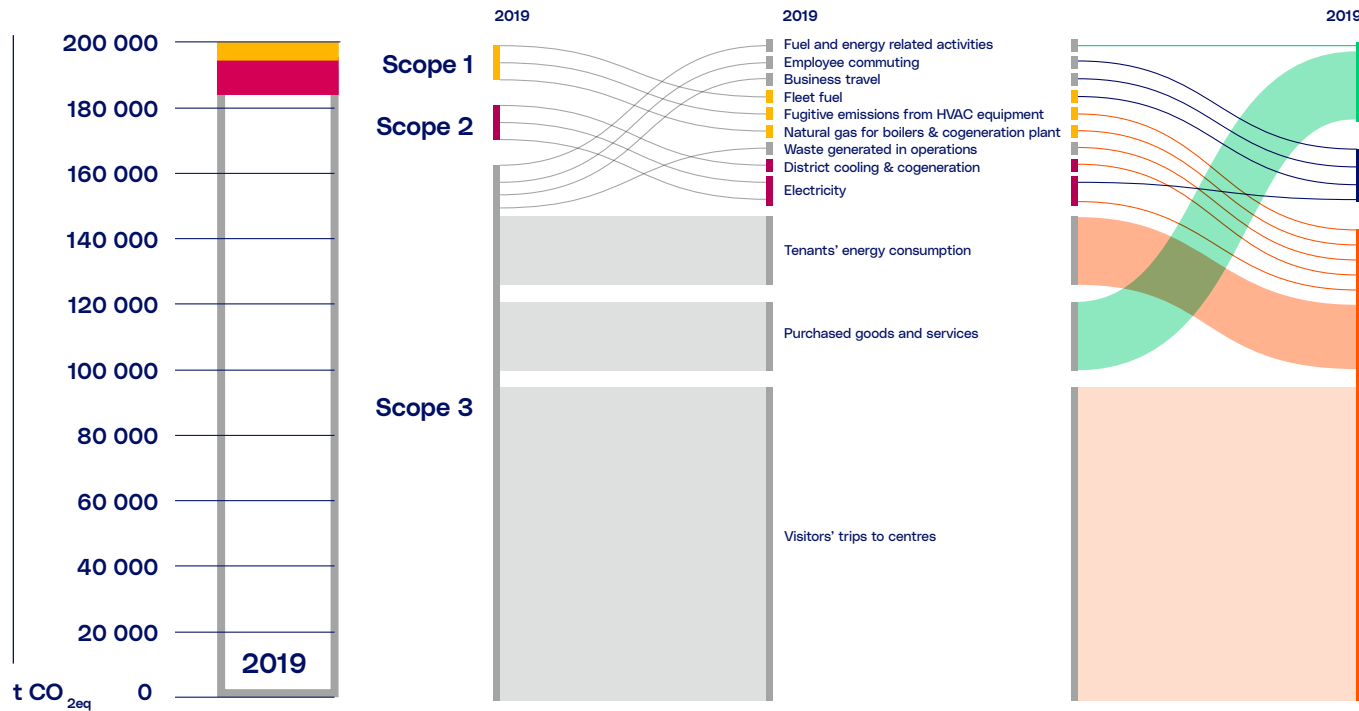
Subsequently, we developed our Science Based Targets (SBT) in line with an **equity share** approach, therefore accounting for GHG emissions from operations according to our share of equity in the operation of the operating buildings.

Moreover, due to the dynamics of our business we are tracking our carbon performance, for scopes 1 and 2, based on **emissions intensity targets, considering our emissions per m²**.

Indirect scope 3 emissions, resulting from the activities of our value chain, e.g. tenants and visitors, are excluded from this intensity target, and were established based on an absolute contraction approach.

What to address? our business emissions

Carbon Footprint



Organisational Boundaries

OWNED DEVELOPMENTS & EXPANSIONS

In 2019, the base year, there were no new developments or expansions. Nevertheless, the **embodied carbon** of the new developments and expansions on pipeline until 2030 represents a significant part of our carbon inventory. As a result, these emissions were included in the carbon footprint submitted for SBT base year, representing 15% of total base year emissions. The embodied carbon in 2019 represents the average emissions per year of the foreseeable project pipeline, based on the carbon intensity of the last projects finished.



CORPORATE EMISSIONS

Corporate emissions comprise the emissions arising from our offices, including direct emissions from our **fleet**, indirect emissions from the **electricity** generation as well as emissions resulting from **employees commuting and business travel**.



OWNED OPERATING ASSETS

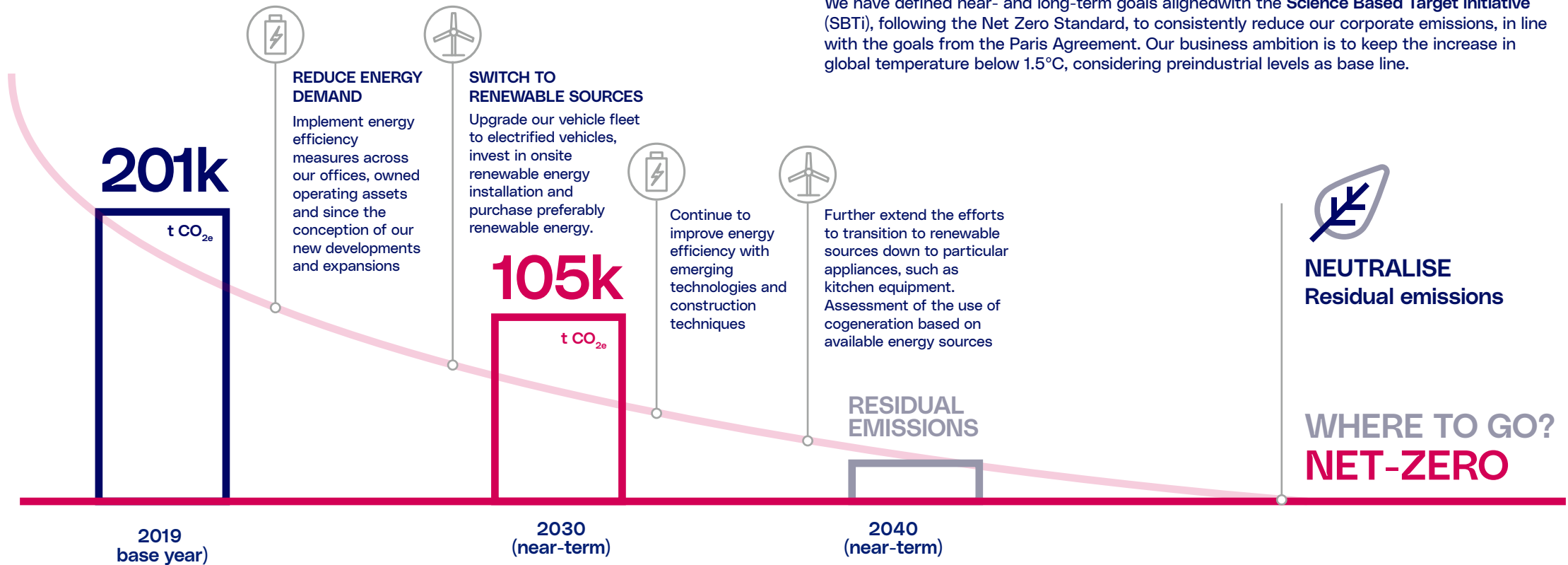
Our operating assets are the main source of our carbon footprint mostly due to **indirect value chain emissions** from our tenants' electricity consumption as well as our visitors' trips to our centres.



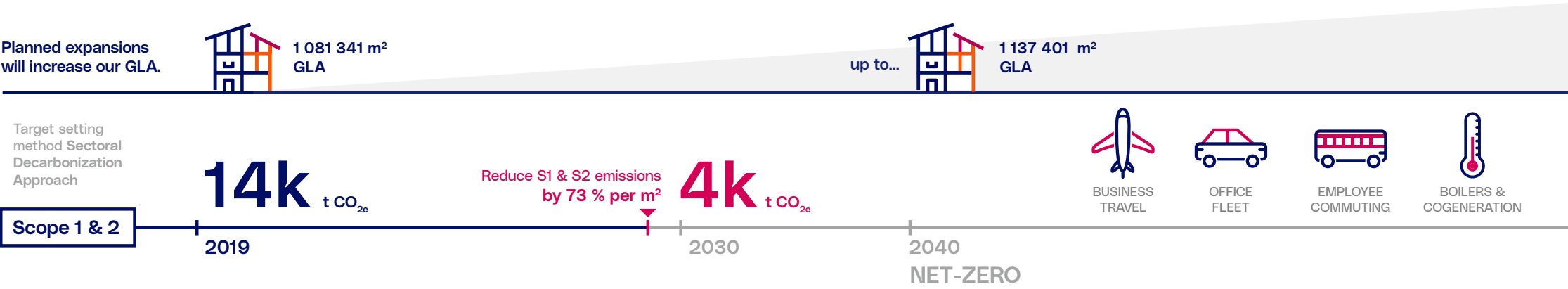
Pathway towards carbon neutrality

We are committed to become carbon neutral by 2040

We have defined near- and long-term goals aligned with the **Science Based Target initiative (SBTi)**, following the Net Zero Standard, to consistently reduce our corporate emissions, in line with the goals from the Paris Agreement. Our business ambition is to keep the increase in global temperature below 1.5°C, considering preindustrial levels as base line.



Scope 1 & 2



Our business is evolving, and our portfolio will be changing

To fulfil our goal to diversify our business without losing track of our carbon performance, we are committing to an intensity target, for our scope 1 and 2 emissions. Making sure, no matter how we decide to diversify our business, the goal to keep within planetary boundaries and firmly address climate change is not forsaken. As a result, Sonae Sierra commits to reduce scope 1 and scope 2 GHG emissions by 73% per square metre, of our owned operating assets GLA, by 2030.

Scope 3

We expect our portfolio to grow from...



No developments in 2019

up to...



498 179 m² GBA developed by 2030

Planned expansions will increase our GLA.



1 081 341 m² GLA in 2019

up to...



1 137 401 m² GLA in 2040

Target setting method Absolute Contraction Approach

187k t CO_{2e}

Reduce 46% of indirect use phase emissions

101k t CO_{2e}

RESIDUAL EMISSIONS

WHERE TO GO?

Scope 3

2019

2030

2040

NET-ZERO



NEW DEVELOPMENTS & EXPANSIONS

32k t CO_{2e}

17k t CO_{2e}



TENANTS' ENERGY CONSUMPTION

29k t CO_{2e}

16k t CO_{2e}



VISITORS' TRAVELS TO OUR CENTRES

124k t CO_{2e}

67k t CO_{2e}



WASTE TREATMENT

2k t CO_{2e}

<1k t CO_{2e}

New Developments are in pipeline and our value chain is dynamic

Sonae Sierra commits to reduce indirect use phase emissions 46% by 2030 from a 2019 base year. This requires emissions reductions across our value chain, from emissions on our developments in pipeline to the reduction of emissions from our visitors, our tenants and the waste arising from our buildings' operations.

Operational carbon

Our buildings

Our buildings will respond differently to the implement measures. Acknowledging the diversity of performance along our portfolio we have assessed our assets long term performance and established Net-Zero targets.



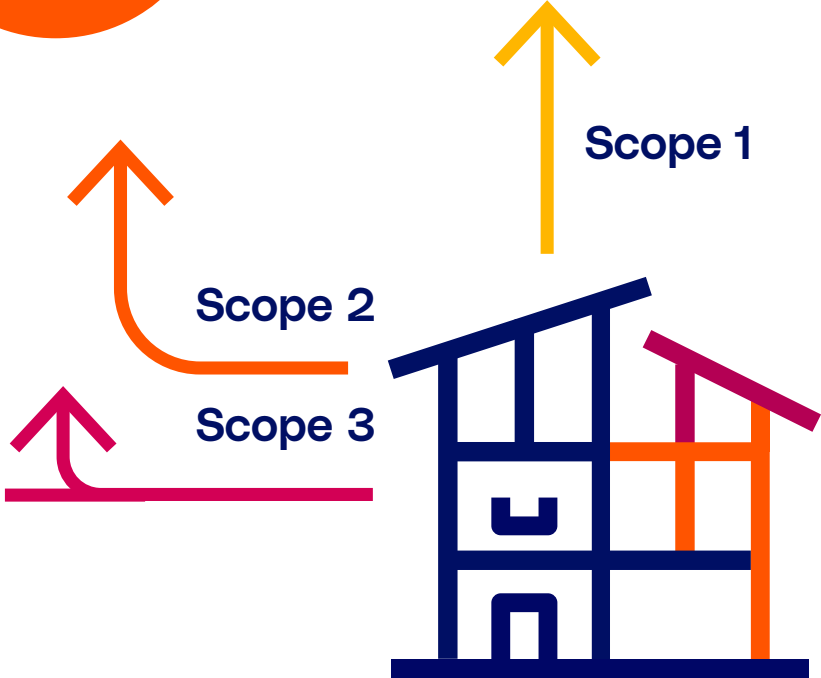
OPERATIONAL CARBON

Carbon dioxide and other greenhouse gas emissions associated with the use of energy during buildings' operation. Emissions arising from the use of other equipment like HVAC systems, which might have fugitive emissions, are also considered.

Tackling energy demand

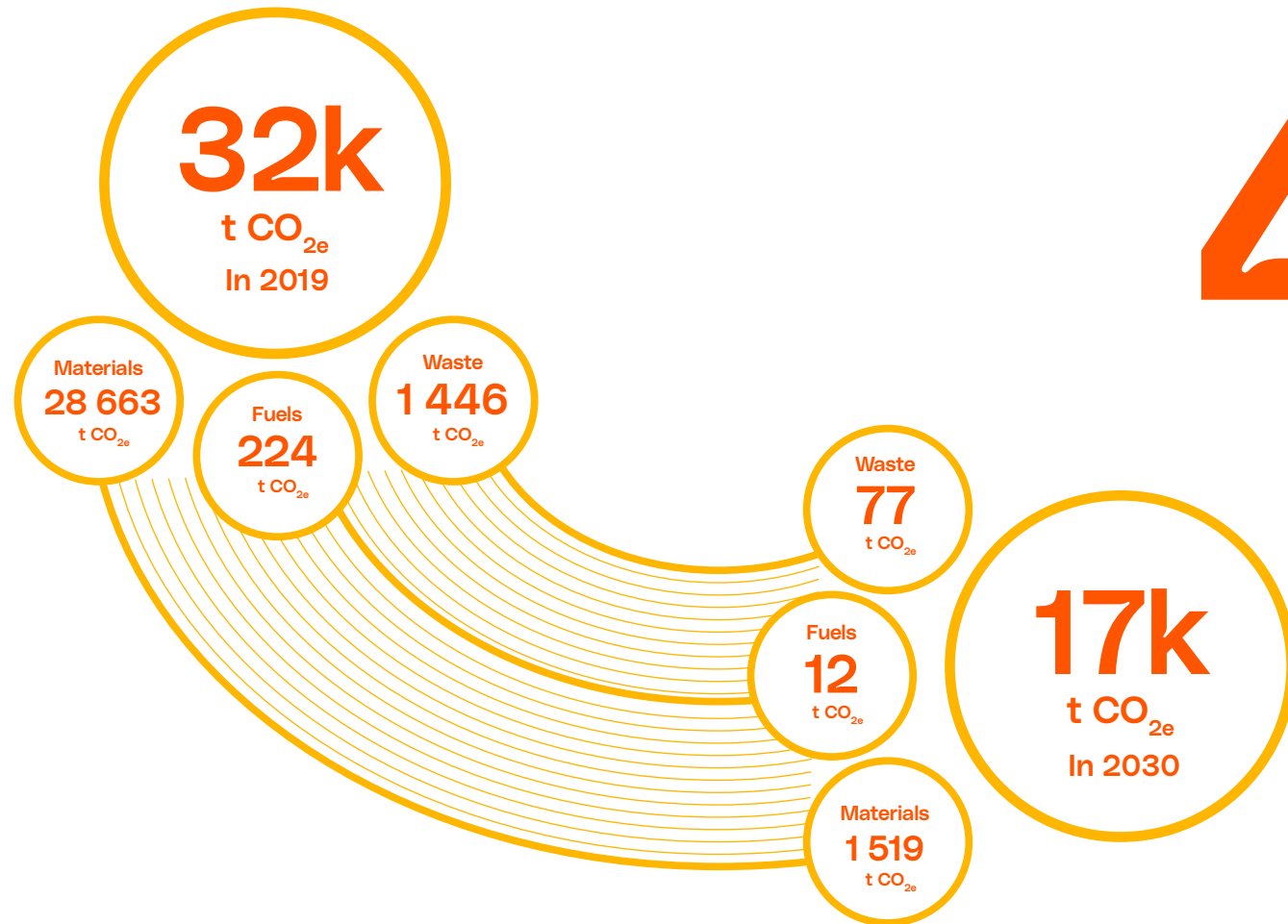
Value chain Tenants' engagement

We will keep promoting the implementation of best practices among our tenants, namely regarding energy efficiency, green electricity, and waste management. The introduction of provisions related to these matters in green leases, requiring the regular report on the associated KPIs, will help us keep track of our assets' performance and the implementation of precise improvement measures in collaboration with our tenants.



Owned operating assets Electricity retrofit

Energy specialized audits are being done to confirm estimated savings as well as the energy efficiency measures put those estimations in practice. Building on the energy efficiency measures implemented over time, through our Bright® programme, these audit exercise will be repeated in 6 to 9 years, to evaluate the potential savings which can be further achieved through new emerging technologies, and technologies which CAPEX is currently high, but expected to decrease considerably over time.



46%

REDUCTION

Embodied carbon

Optimisation of materials use in new developments and buildings expansions by optimizing buildings size, use and selecting more sustainable materials

The baseline yearly average embodied carbon emissions was 32k t CO_{2e} and we will reduce this value over time by at least 46%, down to 17k t CO_{2e}, in 2030.

Tackling carbon emissions

How? **New developments and building expansions**

EMBODIED CARBON

29k
t CO_{2e}
In 2019

Carbon emissions associated with materials and construction processes throughout the whole lifecycle of a building or infrastructure. Embodied carbon therefore includes material extraction, transport to manufacturer, manufacturing, transport to site, construction, use phase (e.g concrete carbonation but excluding operational carbon), maintenance, repair, replacement, refurbishment, deconstruction, transport to end of life facilities, processing and disposal.

-46%
t CO_{2e}
By 2030

Source: WGBC, Bringing embodied carbon upfront, September 2019

Life Cycle Assessment

Considering the building's and its materials whole life cycle

New developments will be assessed through LCA tools as recommended in green building certifications like BREEAM and LEED, enabling the identification of environmental impacts as well as improvement opportunities. The carbon emissions intensity of new projects will be reduced through this holistic assessment and targeting improvement opportunities.

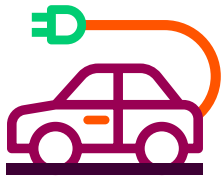
Optimization of building materials

Embodied carbon emissions will be reduced through the optimization of building materials. To make the best use of available materials, both through designing for optimized building size and durability, together with procuring preferably low embodied products, as locally produced as possible, will enable reductions in material's global warming potential. These optimizations will be considered for the materials representing the most significant emissions, including concrete, steel, aluminum, brickwork, glass, insulation materials, plastics for window framing or piping, as well as wood or wood derived products and materials.

Environmental management systems

The implementation of environmental management system, during the construction phase of new developments, will strengthen the assessment and monitorisation of environmental impacts, and support the implementation of best practices, including addressing other components of our development and expansion carbon footprint, namely the energy and waste management.

Renewable energy



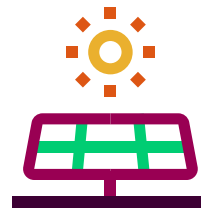
Mobility

Electrifying our fleet, increasing our buildings power capacity and installing electric vehicles charging points will help us tackle direct and indirect emissions



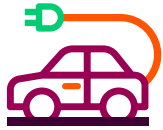
Purchasing renewable energy

Purchasing renewable energy helps financing renewable energy projects, simultaneously contributing for the consistent development of these projects and guarantee that the source of the acquired energy is renewable



Onsite renewables

Installing onsite photovoltaic energy will enable local energy generation, reducing the acquisition and consumption of grid electricity, and increasing the proportion electricity generated by renewable energy sources



Mobility

Value chain

Visitors' trips

The carbon footprint of our visitors' mobility is one of the main factors contributing to our carbon emissions.

Thus, in order to promote the transition of our visitors' mobility to decarbonised alternatives, we will install electric vehicles charging points. Where necessary, we will increase our buildings power capacity to enable this transition.

Corporate emissions

Electrifying the fleet

To further contribute to reduce the emissions associated with mobility, we will electrify the vehicle fleet belonging to our company, reducing scope 1 direct GHG emissions.

Business travel

We are committed to transition to lower emissions carbon transport modes by prioritising train travelling and car travelling over plain travelling.

Employee commuting

We will raise awareness among our employees to promote low carbon emissions transport options.



Purchasing renewable energy

Acquiring preferably renewable energy will help orienting financial flows towards renewable energy projects. Through instruments like Power Purchasing Agreements (PPA) we will simultaneously ensure that our energy is decarbonized, thus reducing our indirect emissions, and finance the transition to renewable energy through long-term contracts.

“Cogeneration integrates energy systems by optimally linking electricity, gas and heat networks and ensuring their most efficient use at local level. This avoids energy waste, fosters a more flexible energy system and provides energy where and when needed. By offsetting efficiency losses in transmission, distribution and generation, cogeneration becomes particularly important to cost-effectively integrate substantial amounts of renewable energy such as biogas or hydrogen within the economy.”

Source: COGEN Europe



Onsite renewables

Invest in onsite renewables

Making the most out of our assets, we will use available and appropriate superficial area for the installation of photovoltaic panels. Increasing onsite renewable energy production will reduce the purchase of grid electricity, hence reducing carbon emissions.

Change of the cogeneration systems

Cogeneration enables the simultaneous production of electricity and heat. To change natural gas as an energy source, to a more renewable energy source like biogas or hydrogen will be crucial to reduce GHG emissions.

Nevertheless, effective reductions will have to be attained. Therefore, the use of cogeneration will be carefully assessed along with effectively available energy sources to ensure that the emission reduction targets are met. In the case that available energy sources do not guarantee the necessary emission reductions, the deactivation of the cogeneration system and its replacement by other cooling and heating technologies will be considered.

Renewable energy



Transition to renewable sources

Neutralisation strategy

Possible ways

Carbon Dioxide Removals

CDR are approaches to permanently remove carbon from the atmosphere, including direct air capture (DAC) coupled with durable storage, soil carbon sequestration, biomass carbon removal and storage and afforestation/ reforestation.

Nature-based solutions

are actions to protect, conserve, restore, sustainably use and manage natural or modified ecosystems, while providing human well-being, ecosystem services, resilience and biodiversity benefits.

Contractual instruments

Carbon removals can be acquired using contractual instruments such as carbon removal credits. To be considered as a neutralisation measure these credits need to comply with quality, social and environmental criteria. Most of all these credits have to ensure carbon storage permanence for a timeframe commensurate with the duration of the effects of unabated emissions.

Neutralisation strategy

A work in progress

Under the Net-Zero SBTi Standard, emissions neutralisation is only possible after overall emissions have been brought to residual level, when compared to the base year. Therefore, our neutralisation strategy will not come to live before 2040.

Reaching 2040, Sonae Sierra will have scope 1 fugitive emissions to neutralise, as well as indirect emissions resulting from our visitors' trips to our assets.

Direct emissions will require direct removals (within organisational boundaries) for instance through carbon removal technologies, nature-based solutions or contractual instruments like carbon credits.

For indirect emissions it must be demonstrated that unabated indirect emissions are uniquely neutralised, that is to say, that a uniquely identified unit of carbon removal exclusively neutralises the impact of another uniquely identified source of emissions.

EXAMPLE
DIRECT AIR
CAPTURE



CARBON
DIOXIDE
REMOVALS

Neutralisation measures that companies take to remove carbon from the atmosphere and permanently store it, in order to counterbalance the impact of emissions that remain unabated.

Source: SBTi standards



NATURE
BASED
SOLUTIONS



CARBON
REMOVAL
CREDITS

Open mind
Greater value



Evolving within climate boundaries

A pathway towards carbon neutrality