Carbon footprint calculation 2021 Summary

Joo Group

Greenhouse Gas Protocol (GHG)

A global standard for carbon footprint calculation

- Why GHG
  - The company gets a clear idea of their carbon emissions based on standardised principles
  - The company gains information, which can be used to create an effective strategy for reducing carbon emissions.
- Calculations in accordance with the standards of the GHG Protocol increase consistency and transparency in carbon accounting and reporting among companies and programs.
- The calculation can be either market-based (using the company's exact data, such as energy deal specific emission factors) or location-based (using location-specific averages, such as grid-average emission factor data)
- The calculation is based on the concept of 'scopes'
  - Scope1 comprises direct greenhouse gas emissions
  - Scope2 focuses on indirect greenhouse gas emissions
  - Scope3 estimates indirect greenhouse gas emissions from the company's value chain

Total emissions

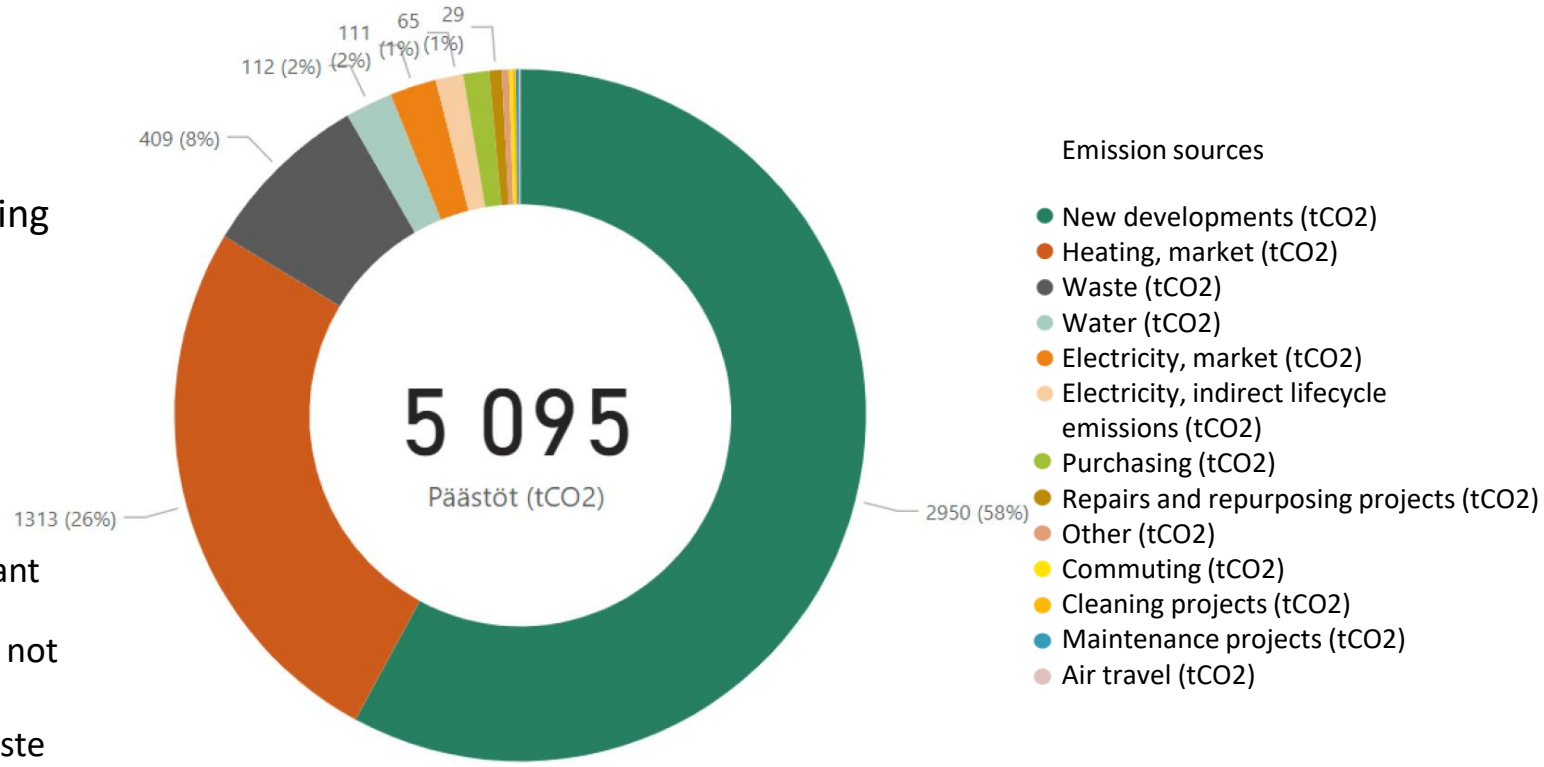
A market-based calculation

The aim of the 2021 carbon footprint measurement was to quantify the emissions of properties owned by Joo Group as well as emission estimates of part-owned properties in order to understand the starting level for planning a low carbon strategy.

The graph on the right illustrates the market-based emissions of the property portfolio.

- The graph shows new developments as the leading source of emissions for Joo Group in 2021.
- Besides these, heating was the most significant source of use phase emissions, as most properties are served by district heating and not all district heating utilises renewable energy.
- The next biggest emissions resulted from waste and water. These were followed by electricity emissions, as some properties did not have an emission-free energy deal.

Emissions, market-based calculation method (tCO2)



The market-based carbon intensity of the entire property portfolio amounts to 33.87 kgCO2/m2.

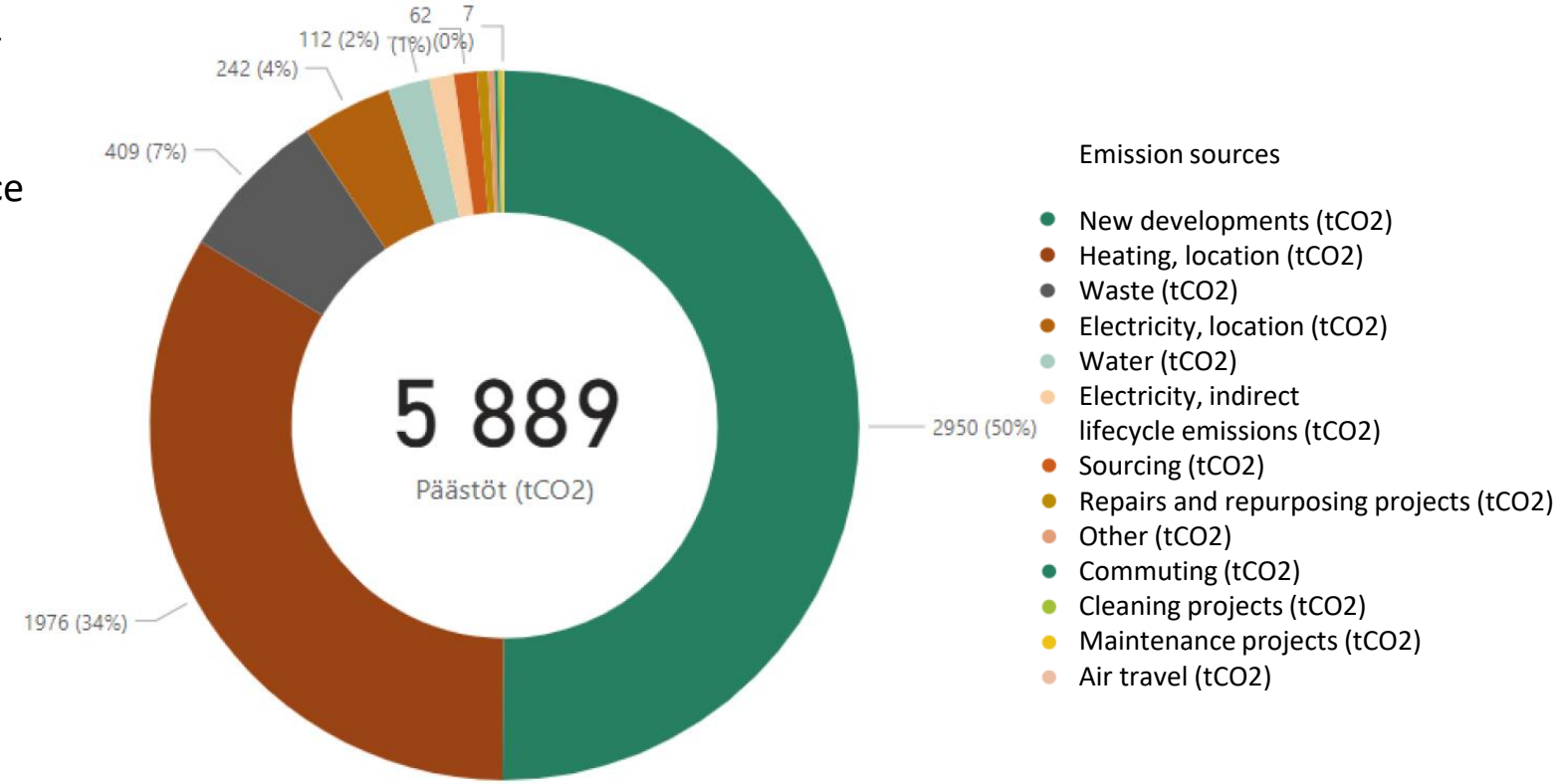
Total emissions

A location-based calculation

The graph on the right illustrates the location-based emissions of the property portfolio.

- The graph shows that new developments were the leading source of emissions for Joo Group in 2021, also according to a location-based calculation.
- Besides these, heating was the most significant contributor to use phase emissions, as most properties are served by district heating.
- The next biggest emission sources were waste, electricity and water.

Emissions, location-based calculation (tCO2)



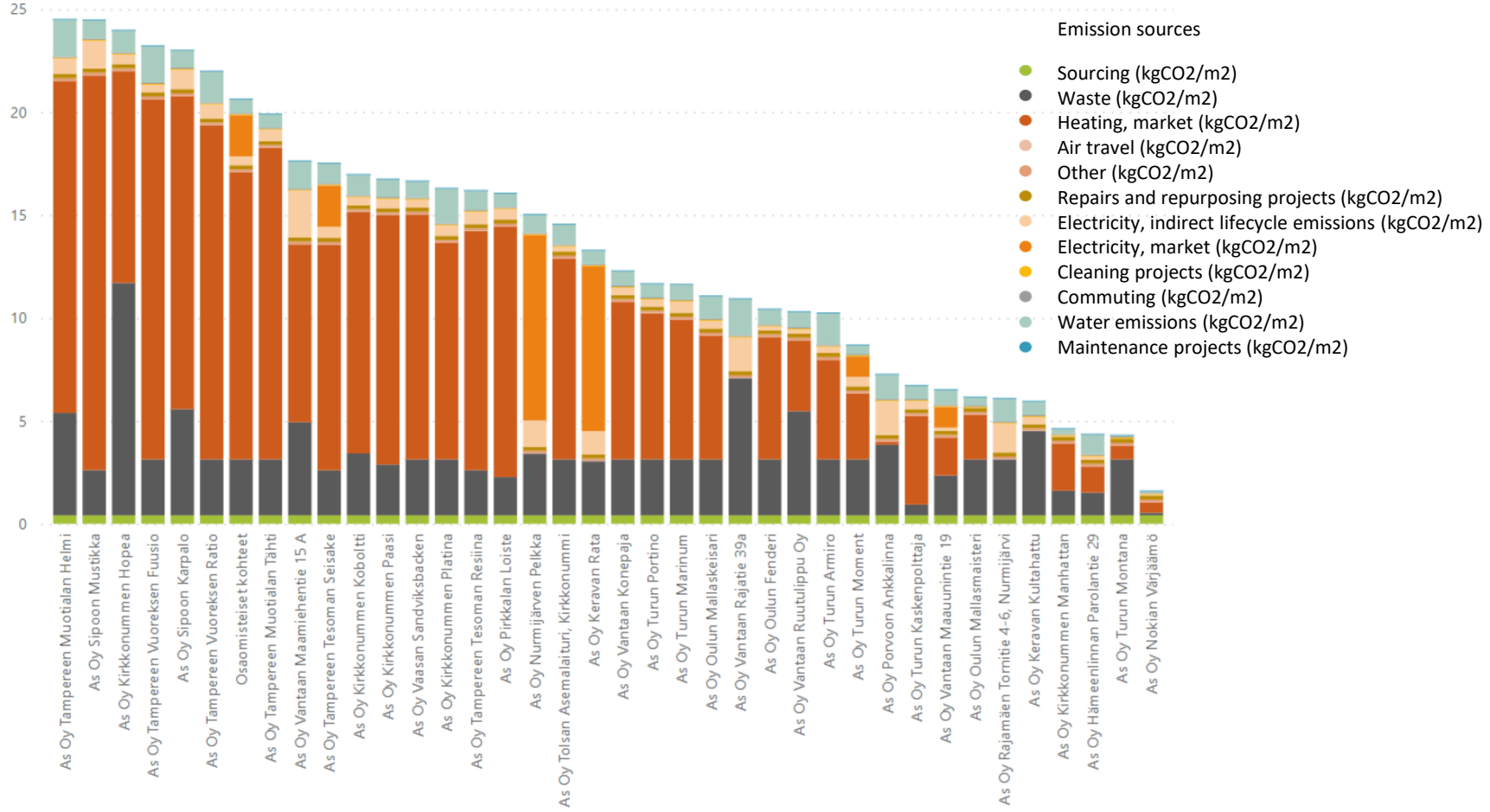
The location-based carbon intensity of the entire property portfolio amounts to 39.14 kgCO2/m2.

Property-specific breakdown of emission

Market-based calculation

- The graph on the right presents the carbon intensity breakdown per property and emission source.
- The graph includes named properties owned by the Joo Group and comprises estimated emissions for part-owned properties.
- District heating emissions are the biggest contributor of emissions per square metre in several properties. Corporate level emissions, such as sourcing, repairs and maintenance, commuting and travel expenses have been allocated to properties based on their size (sqm). Waste emissions have been declared according to the information provided. In case the amount of waste collected in a particular property is unknown, emissions have been reported as an estimated average. This explains why the same amount of emissions is listed for several properties.

Carbon intensity (kgCO2/m2)



Calculation principles and other things to note

Calculation principles and assumptions

This report is the carbon footprint calculation of Joo Group properties based on 2021 emissions. The calculation has been conducted in accordance with the GHG Protocol.

The calculation covers 37 properties along with estimated averages for part-owned properties. The part-owned properties are either entire buildings or individual apartments partly owned by the Joo Group. Their size has been reported as the sum of their total area in square metres in 2021, and emissions have been estimated based on the total emissions of the other properties included in the calculation. In addition to this, 8 of the properties included in the calculation were completed over the course of 2021, meaning that their reported emissions do not cover the entire year.

Scope 1, 2 and 3 exclusions

According to the GHG Protocol, Scope 1 emissions shall include direct emissions from properties within the scope of the calculation, such as energy generation, coolants, and vehicles and heavy machinery utilised by the company. This information was not available for 2021.

Scope 2 includes purchased energy, such as electricity and heating. The results have been analysed using location and market based methods.

If precise carbon consumption data was unavailable for a property, its carbon footprint calculation was based on the average carbon intensity of other properties.

GHGP S2 location-based method

- The calculation is based on grid-average emission factor data
- Market instruments, such as renewable energy products, are not accounted for

Market-based calculation:

- GHGP S2 market-based method
- The calculation is based on the emission factors of purchased products
- Market instruments, such as renewable electricity and district heating contracts, are accounted for

Scope 3 comprises the emissions from the company's value chain. The calculation for 2021 included the following emission sources:

- Commuting, based on a questionnaire
- Air travel and per-kilometre expenses
- Water: Depending on data availability, water consumption calculations were based on data from a 12-month period, which may differ from that of the calendar year 2021. As with scope 2, a list of properties for which calculations are based on average carbon consumption is provided.
- Waste: The amount of waste collected is an estimate. Where precise waste collection data was unavailable, waste emissions were calculated based on the average weight of collected waste. This was compared to the information in the waste management contracts of those properties for which data was available.
- Sourcing, such as IT and office supplies purchases
- New developments and repair and repurposing projects
- Property maintenance and cleaning services for Joo Group and its apartment complexes
- Other: this section covers paid per-kilometre and taxi expenses