



Süsinikuneutraalsuse tagamine
Soome Senaatti näitel

Carbon neutrality in Senate properties

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Senate properties 2020 (founded 1811)

Senate Real Estate is a business entity under the Ministry of Finance, whose task is to provide real estate and business services to the state.



Buildings

8 900



Areal

5 900 000



CO₂

80 ttnCO₂



State workers in Finland

n. 75 000



investments

n. 350 M€



Own workers

1200 (2021)



Diverse state property portfolio (2020)



Defence forces premises	47 %
Offices	21 %
Other	9 %
Prisons	6 %
Cultural heritage buildings	6 %
Police buildings	5 %
Courthouses	2 %
Border guard and Customs	3 %
Museums	1 %

1

Government's costs of premises **€ 754 m/p.a.**

2

Facility costs as share of government expenses **6,8 %**

3

Protected heritage buildings **600**

4

Total facilities **5,9 Mm²**

5

Leased from the private market **~ 1 Mm²**

State premises and real estate in Finland

- **The goal of the state is to manage and administer the state's real estate assets in an efficient, productive way and ensuring the overall interest of the state.**

State-owned real estate assets are:

1. land and water assets are mainly managed by **Finnish Forest Agency** (balance 4 billion €)
 2. building properties are largely under the control of **Senate properties** (balance 4 billion €)
 3. road, rail and other traffic areas are under the control of the **Finnish Transport Infrastructure Agency** (balance 20 billion €)
- **The state concentrates of real estate assets to these three central units**

The climate change

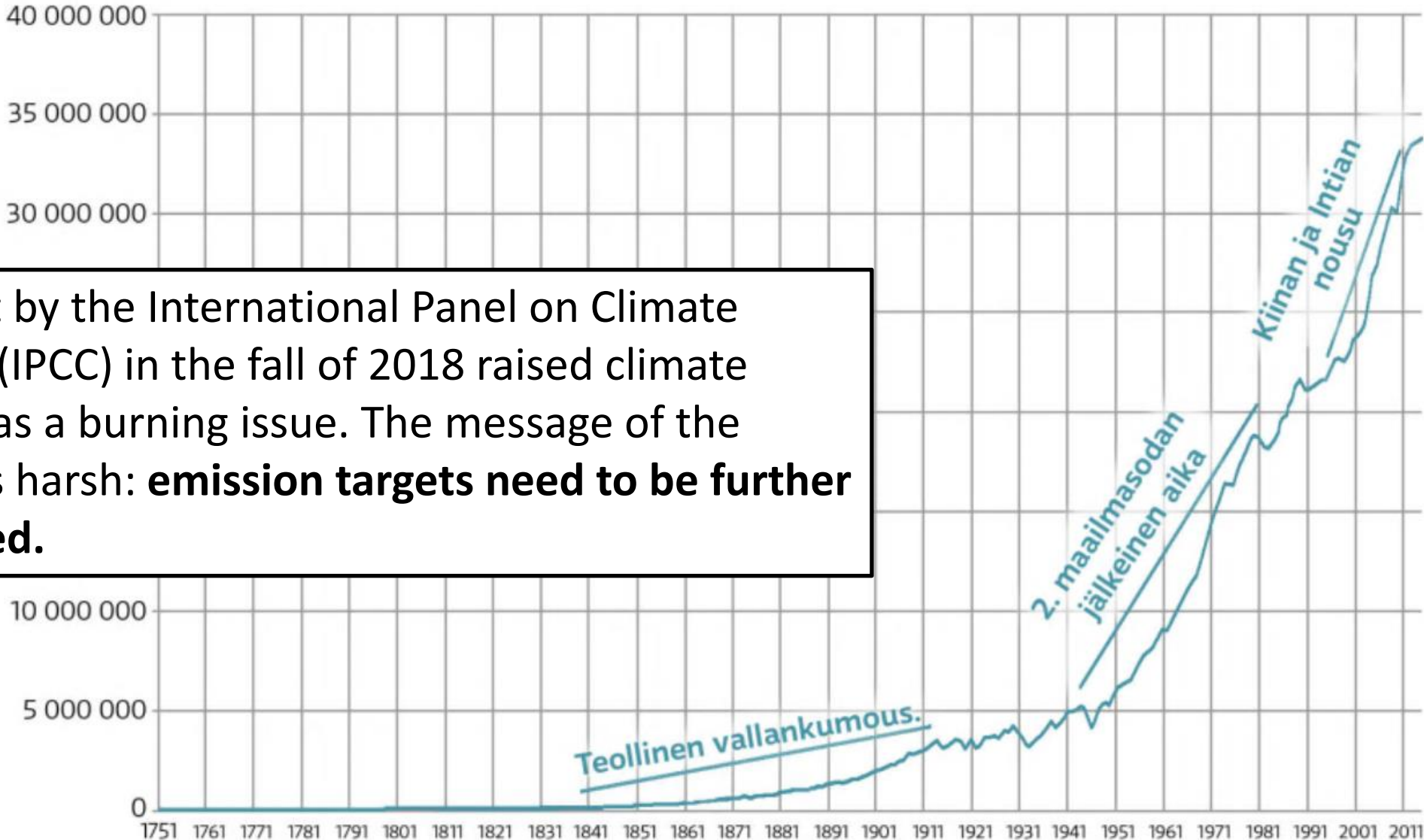
Carbon neutrality is not a whole new thing

- The **United Nations Framework Convention on Climate Change** (UNFCCC) is an international agreement to combat climate change, which was made in Rio de Janeiro at the 1992 UN Summit on the Environment and Development Earth Summit.
- It was the basis for the 1997 **Kyoto Climate Agreement**, which agreed to limit greenhouse gas emissions.
- Former US Vice President (1993-2001) Albert “Al” Gore, together with the Intergovernmental Panel on Climate Change (IPCC), received the **2007 Nobel Peace Prize** for his work "to create and disseminate awareness of man-made climate change and to take action to combat it."



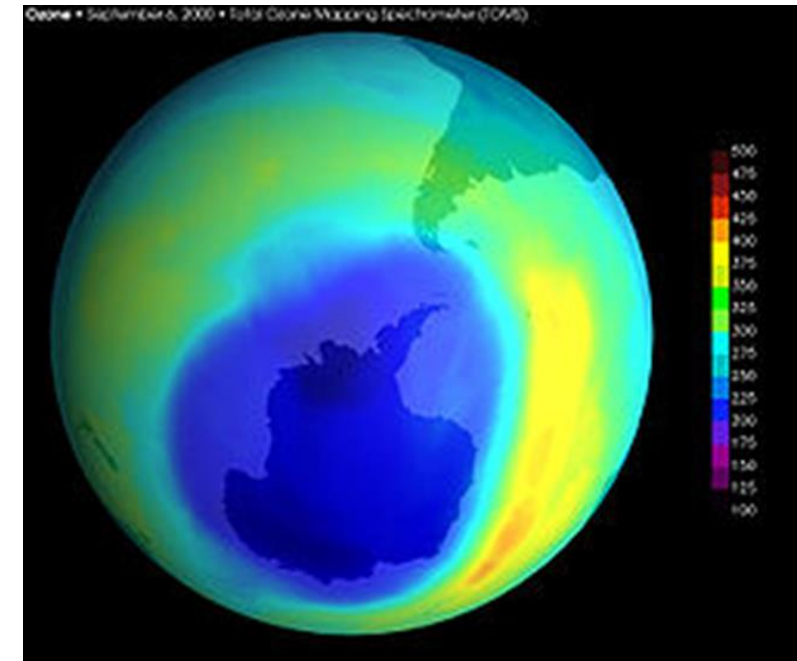
Global carbon emissions (1000 tons)

A report by the International Panel on Climate Change (IPCC) in the fall of 2018 raised climate change as a burning issue. The message of the report is harsh: **emission targets need to be further tightened.**



With the ozone problem, we are succeeding

- **Ozone depletion, thinning of the ozone layer**, has been shown to be caused by chemical compounds released into the atmosphere.
- To prevent thinning of the ozone layer, the **Montreal Protocol** was concluded in 1987, restricting the use of CFCs and other ozone-depleting substances.
- With the help of emission limits, the concentrations of these substances in the atmosphere have been reduced.
- NASA estimates that the state of the ozone layer should slowly turn for the better by the 2020s at the latest.
- The ozone layer may recover at the 2060s



Hallitus laati tiekartan hiilineutraaliin Suomeen - edelläkävijyys ilmastotoimissa luo mahdollisuuksia koko Suomeen

Valtioneuvoston viestintäosasto 3.2.2020 17.38

TIEDOTE 49/2020



Hallitus julkisti maanantaina 3. helmikuuta ilmastokokouksessaan tiekartan, joka määrittelee ilmastotoimien valmistelun aikataulun ja tavoitteet sekä linjaa uusista hiilineutraaliutta tukevista toimista. Oikeudenmukainen siirtymä hiilineutraaliin yhteiskuntaan -kokouksessa koolla olivat hallitus ja hallituspuolueiden eduskuntaryhmät.

- Valtion rakennuskannan kehittämisessä, käytössä ja ylläpidossa painotetaan vähähiilisyyttä ja energiatehokkuutta. Lisäksi painotetaan puurakentamisen edistämistä.

Finland will be carbon neutral by 2035 as the first fossil-free welfare society

State shows an example. The state's building stock emphasizes low carbon and energy efficiency

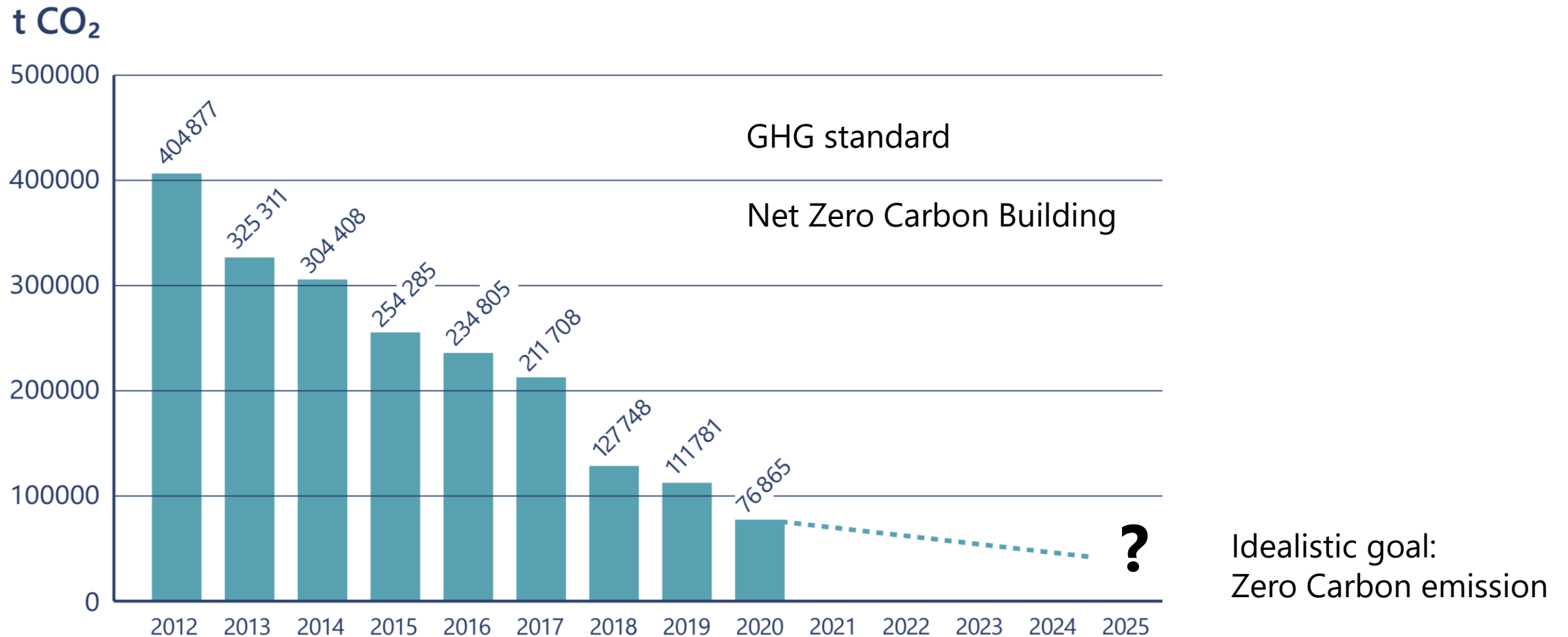
We have carbon neutrality goals

Is it possible to reach them? – maybe?

Senate Properties carbon emission

EU Energy efficiency directive (EED) 2012 points out energy efficiency and carbon emission

Finland's national energy and climate strategy 2013



Question number 1 in the road map: where are now?



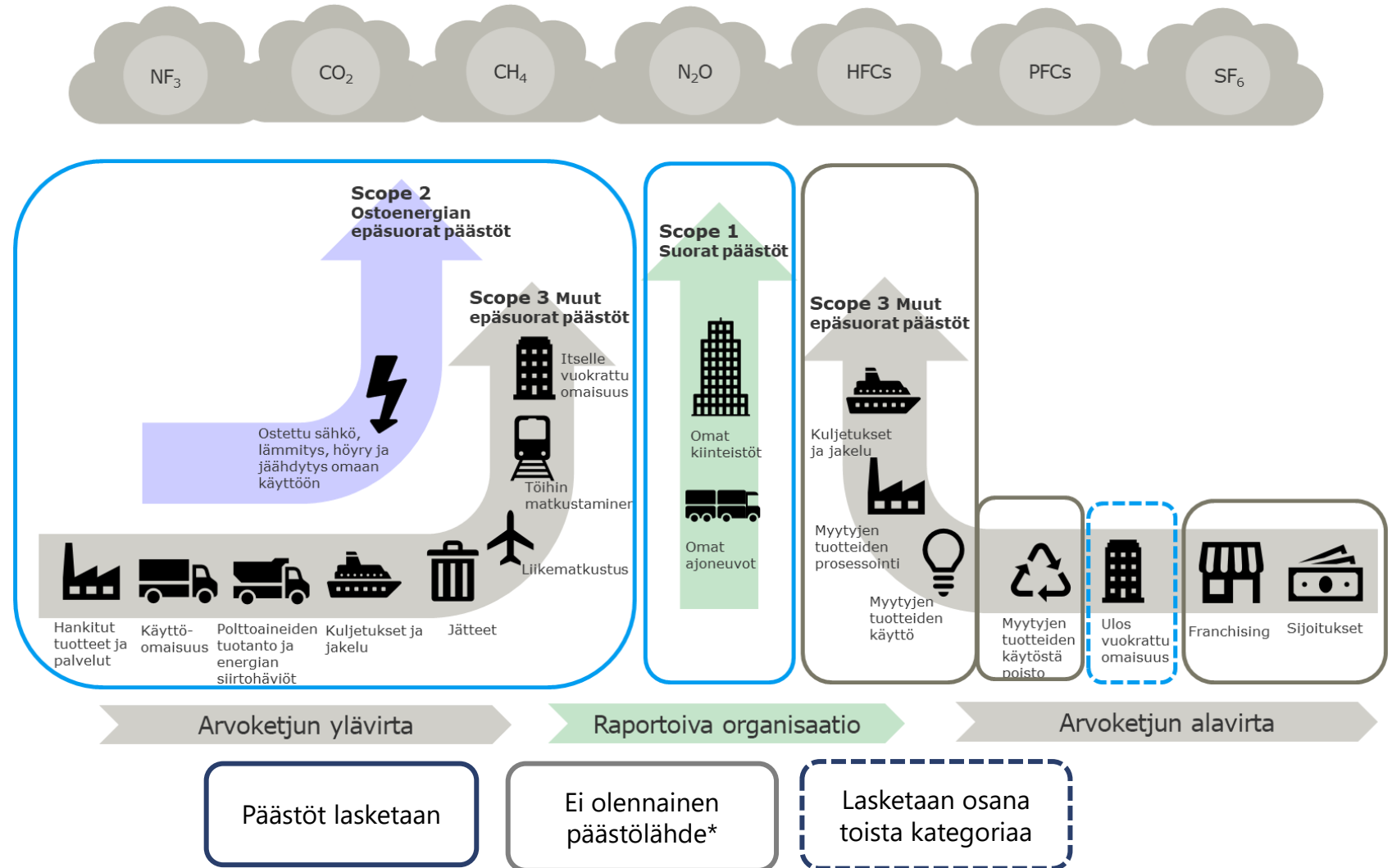
GHG-PROTOKOLLAN MUKAINEN PÄÄSTÖLASKENTA SENAATTI-KONSERNI

(CO₂ EMISSION CALCULATION PRINCIPLES IN SENATE PROPERTIES)

22.6.2021

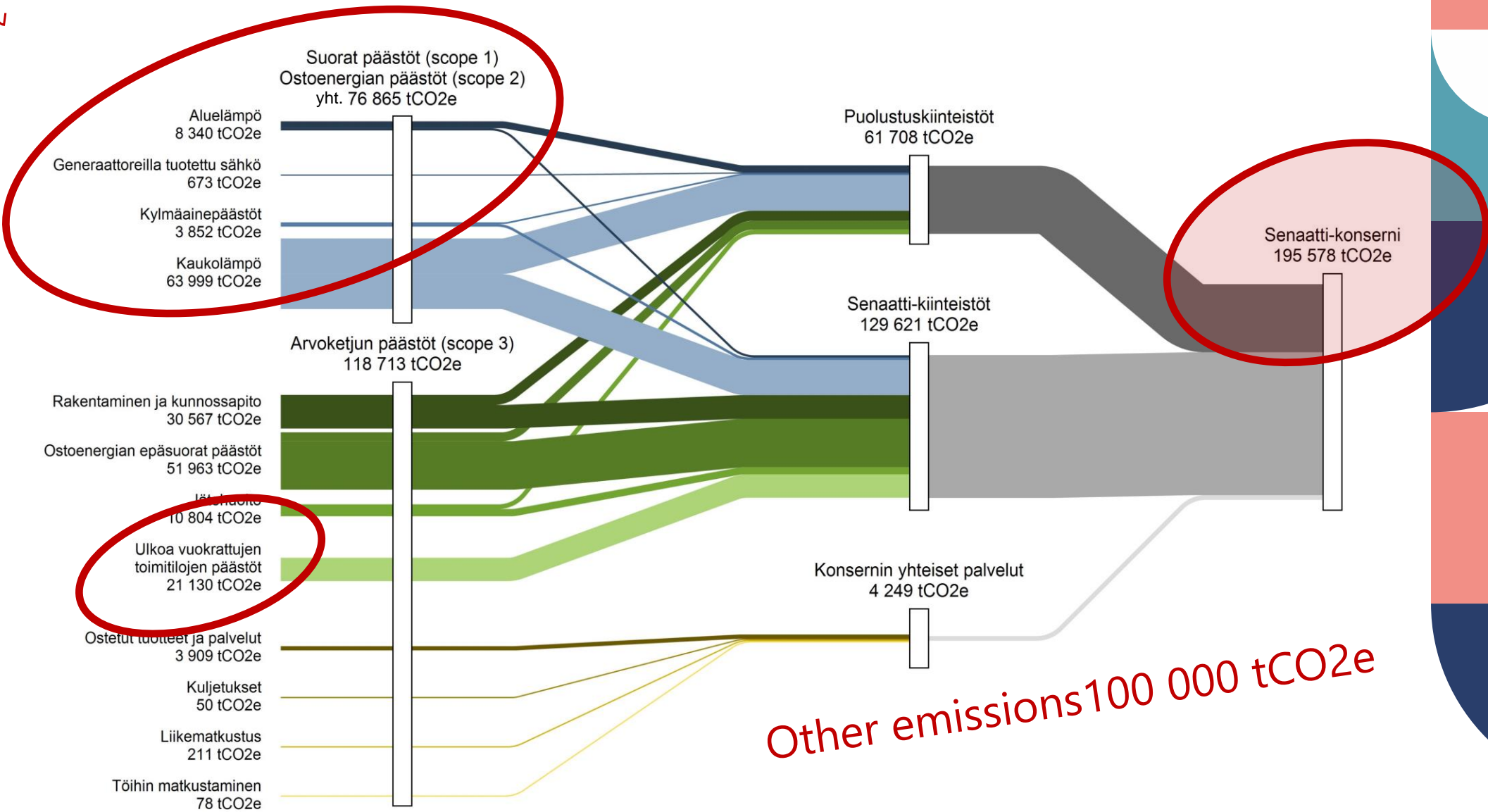
Calculated emission sources

- The figure shows the emission sources generated by the organisation's operations in accordance with the **GHG protocol**,
- and which of them have been taken into account in the Senate Properties' emissions calculation.



The emission sources within state buildings

Emission of energy used 100 000 tCO₂e



Total emissions and a new emission calculation model

Dividing the emission calculation into two main groups:

- 1. Emissions during the use of the building.** According to a preliminary roadmap review, emissions during operation can be made carbon neutral in the next few years. This will require investments, mainly in building services, as well as compensation for the remaining emissions
- 2. Emissions from construction and maintenance construction.** This requires major structural changes to existing operating models and the inclusion of compensation in production chains and the customer's operating menu. Here we need compensation to reach the goal (carbon free 2035).



We have carbon neutrality goals

How to reach them? – a strategy has been made

Senate properties' road map for carbon neutrality

The goal of the Senate properties is to provide carbon-neutral business premises for the use of the state. The goal is pursued primarily through our own actions without compensation

Senate Properties achieves its goals in two stages:

1. carbon neutral real estate use - carbon neutral rentals in the 2020s
2. carbon neutral real estate life cycle - carbon neutral construction and renovation in 2035

The road map is two road maps

Carbon neutral use of properties:

1. improving space efficiency and reducing energy consumption
2. transition to zero-emission energy
3. improving energy efficiency through maintenance activities
4. possible compensation for residual emissions

Carbon neutral construction and repair:

1. construction reduction (flexibility and interoperability, sustainability)
2. emission-free building materials and circular economy principles
3. emission-free construction sites
4. possible compensation for residual emissions

Emissions targets for the strategy 2022-2025

Maintenance - we halve maintenance emissions without compensation

The means by which emissions are halved:

- zero-emission purchased energy, zero-emission own energy production and low-emission in service procurement, € 2m per year for solar power plants, converting about 100 oil heating plants to emission-free energy, switching to emission-free district heating always when possible.

Construction - we significantly reduce emissions without compensation

- Calculation of the carbon footprint per construction project in projects over 1 M €
- In new construction projects, the carbon footprint is 25% lower than normal
- in repair projects, a 15% smaller carbon footprint compared to normal levels



The road map to carbon neutrality

1. Carry out a thorough and comprehensive study and analysis of current climate pressures, energy consumption and emissions
2. Make plans to minimize emissions in a cost-effective way
3. Decisions will be taken on carbon surplus measures, which will be programmed for the coming years and the actions decided will be implemented
4. Establish a compensation plan (compensation is a last resort if and when nothing else can be done or is not economically viable)

Where are we now

Make plans

Implement the decisions

**Compensation
if needed**



Examples of carbon neutrality projects

GENERAL MANAGEMENT PROJECTS

- Total emissions calculation, construction emissions and maintenance emissions
- Increasing the Senate carbon stock in forest areas

EMISSION FREE ENERGY PROJECTS

- Increasing solar power
- Abandonment of oil heating
- Emission-free district heating
- Reducing the need for district heating with air heat, geothermal, etc. pumps and similar technologies
- Switching to emission-free district cooling
- Emission-free reserve power

OTHER PROJECTS

- Switching to emission-free refrigerants / giving up climate-harmful refrigerants
- Emission-free property management (cooperation project with service providers)
- Emission-free construction sites (GD)
- Increasing the sorting and recycling rate of real estate waste
- Circular economy solutions in construction projects and construction sites
- Sustainable dismantling and demolition (GD)
- Low carbon technical solutions in construction / selection of low emission materials / utilization of emission data
- Transition to energy efficient lighting, LED



REPORTING THE CARBON NEUTRAL PROGRAM

Increasing solar electricity

Responsibility: Southern Finland region / Pasi Hyyppä



According to plan

Target:

Build property-specific solar power plants to generate electricity for the property's own use

Description:

Solar power plants will be built in existing buildings (mainly disappear) as maintenance measures. In addition, construction projects will build solar electricity for the future building

Project status report:

- The Senate has made a decision on the construction of photovoltaic power plants in Q3 / 2019
- In 2020, 16 solar power plants were completed
- For 2021, 20 power plants have been designed, of which 16 are under construction.
- For 2022, the purchase of 20 power plants has been started.

REPORTING THE CARBON NEUTRAL PROGRAM

Minimizing refrigerant emissions

Responsibility: Maintenance prosess / Pasi Pipatti



Projekti aloitettu

Target:

Minimize emissions from refrigerant use and create reporting

Description:

For 2021: launch a project and make a project plan

For 2022:

- Collection of refrigerant quantities and type in service records
- Develop a plan to reduce refrigerant emissions during the strategy period
- Measures for existing equipment
- Requirements for new equipment
- Describing reporting

Project status report:

- Starting meeting 11.10.2021

The space efficiency and carbon emissions

It is not only a question of having low emission buildings
Even more important is efficient use of buildings

- Finland has since 2014 a space strategy that describes space utilization efficiency targets
- The key goal for the premises is to support operations and the work cost-effectively and with environmental considerations in mind
- The aim of the space strategy is
 1. to reduce the use of space to almost half of the current level for office space
 2. to significantly increase the efficiency of the use of space also in use-related premises.



Rules of the game, State strategies and rental system

NEW 2021
Real estate strategy



NEW 2021
Space strategy



Carbon neutrality has a central role in both strategies

Renewed 2020
Rental system

