

HUS Helsinki University Hospital

ENERGY EFFICIENCY AND CLIMATE CHANGE MITIGATION

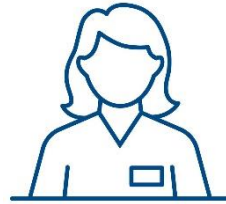
26.6.2024 / Jani Valkama / Environmental manager,
Energy Efficiency Agreement contact person in HUS

HUS Helsinki University Hospital, Real Estate and Facilities, Environment Agency

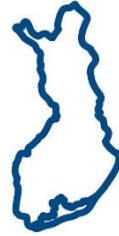
OUR KEY FIGURES



700,000
patients
treated
annually



27,500
employees



2.2 M
residents in the
collaborative
area



Operates in
21
hospitals



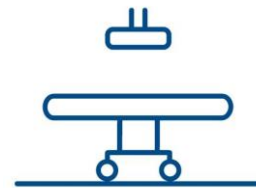
200
locations



15,300
babies born
annually



2.4 M
appointments a
year



83,000
surgeries a
year



475
organ
transplants a
year



Net promoter
score (NPS) of
79

OUR CLIMATE ROADMAP

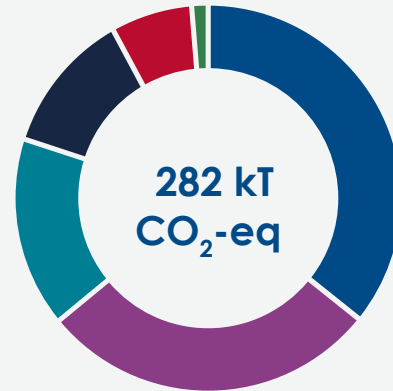


We are the largest healthcare provider in Finland.

5% of total greenhouse gas emissions in Finland are caused by healthcare.

Our climate roadmap is the first comprehensive long-term plan for reducing emissions in our field in Finland.

Our carbon footprint in 2020



- 36% Tangible assets
- 28% Outsourced services
- 16% Use of facilities
- 12% Construction
- 7% Commuting, travel and transportation
- 1% Atmospheric emissions

Procurement and construction make up the majority (86%) of our carbon footprint.

Our climate goal 2030

- 1 Carbon-neutral HUS
- 2 Low-carbon procurement
- 3 Low-carbon hospital construction

Actions are needed in all categories

 Renewable and carbon-neutral energy	 Buildings and facilities	 Construction	 Procurement and supply chain
 Commuting, travel and transportation	 Food and nutrition	 Medicines	 Circular economy and waste management

Most effective actions to reduce our emissions

- Quitting fossil fuels
- Buying more carbon-neutral electricity
- Increasing climate criteria in procurements

We will recalculate our carbon footprint in 2024 and assess the sufficiency of our actions in 2025.

See our over 100 actions: [Climate roadmap](#)

OUR CLIMATE GOALS 2030

1

Carbon-neutral HUS

We will be carbon-neutral for those emissions we can directly control and influence.

2

Low-carbon procurement

We will make a difference by purchasing only from suppliers who are committed to low-carbon goals.

3

Low-carbon hospital construction

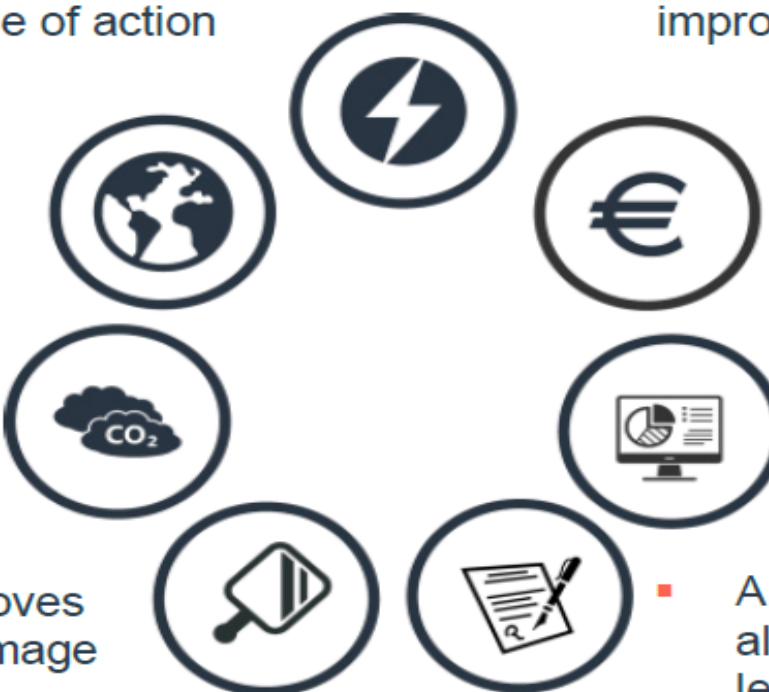
We will construct low-carbon buildings.



Energy Efficiency Agreement 2017-2025

BENEFITS FOR THE JOINING PARTICIPANT

A key instrument for Finland to achieve the targets set by the Energy Efficiency Directive (EED).

- 
- Improving energy efficiency will turn into a useful mode of action
 - Pruning unnecessary energy costs will improve profitability and operating profit
 - Energy subsidies granted by the Government can be utilized for energy efficiency improvements
 - The agreement scheme will become a natural part of management systems
 - A more flexible and sensible alternative for new national legislation or other coercive means
 - Builds and improves positive public image
 - The climate load of operations will be reduced
 - Expedient energy use is responsible energy use

Further information on energy efficiency agreements available in Motiva Ltd websites:

<https://energiatehokkuussopimukset2017-2025.fi/en/agreements/>



ENERGY EFFICIENCY AGREEMENTS

a key instrument for Finland to achieve the targets set by the Energy Efficiency Directive (EED)

ENERGY SAVING MEASURES GENERATE AVOIDED ENERGY USE

Total energy saving measures during the agreement period 2017 – 2025, after year 2023:

- **26 300 MWh/a**, with yearly savings 2024 and beyond : **2 600 000 €**

Breakdown of the saving measures 2017-2023:

- Construction of 5 new energy efficient hospitals : 40 %
- Renovation of heating, ventilation, air conditioning (over 20 buildings): 29 %
- 3 hospital renovations: 14 %
- Other: geothermal heating, lighting, lifts, solar energy, machines etc. 17 %

Total yearly energy use: 310 000 – 330 000 MWh, has not increased as much as the total space of the hospital buildings over the years

- **Energy saving measures reduce annual energy costs 7 – 8 %, and avoid approximately 3500 tn CO₂-eqv annually**

Further information on energy efficiency agreements available in Motiva Ltd websites:
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Year 2023 energy saving measures achieved were 5000 MWh, including for example:

Heat recovery with heat pump systems 2200 MWh/a

- *Yearly savings 220 000 €*
- *Investment 1,6 M€*
- *Paypack time 7,3 years*

Hospital renovations 1240 MWh/a

- *Yearly savings 124 000 €*
- *Investment 68 M€*
- *The share of investment for the energy efficiency is much lower*
- *Paypack time app. 15-40 years?*

ENERGY EFFICIENCY AFTER HOSPITAL RENOVATION OR HOSPITAL ENERGY RENOVATION

Hospital renovations, two cases

Reduction of total energy consumption 16,4 % and 18,5 %

Comprehensive Cancer Center	Before renovation (2018-2020)	After renovation (2023)
Heat energy (standardization) kWh/m ³	60,7	52,0
Electric energy kWh/m ³	58,1	50,2
Total annual energy use, MWh	8650	7440
Savings in year 2023		120 000 €

Park Hospital	Before renovation (2015-2018)	After renovation (2022-2023)
Heat energy (standardization) kWh/m ³	64,4	54,4
Electric energy kWh/m ³	51,8	40,3
Total annual energy use, MWh	11140	9080
Savings in year 2023		206 000 €

Hospital energy renovation:

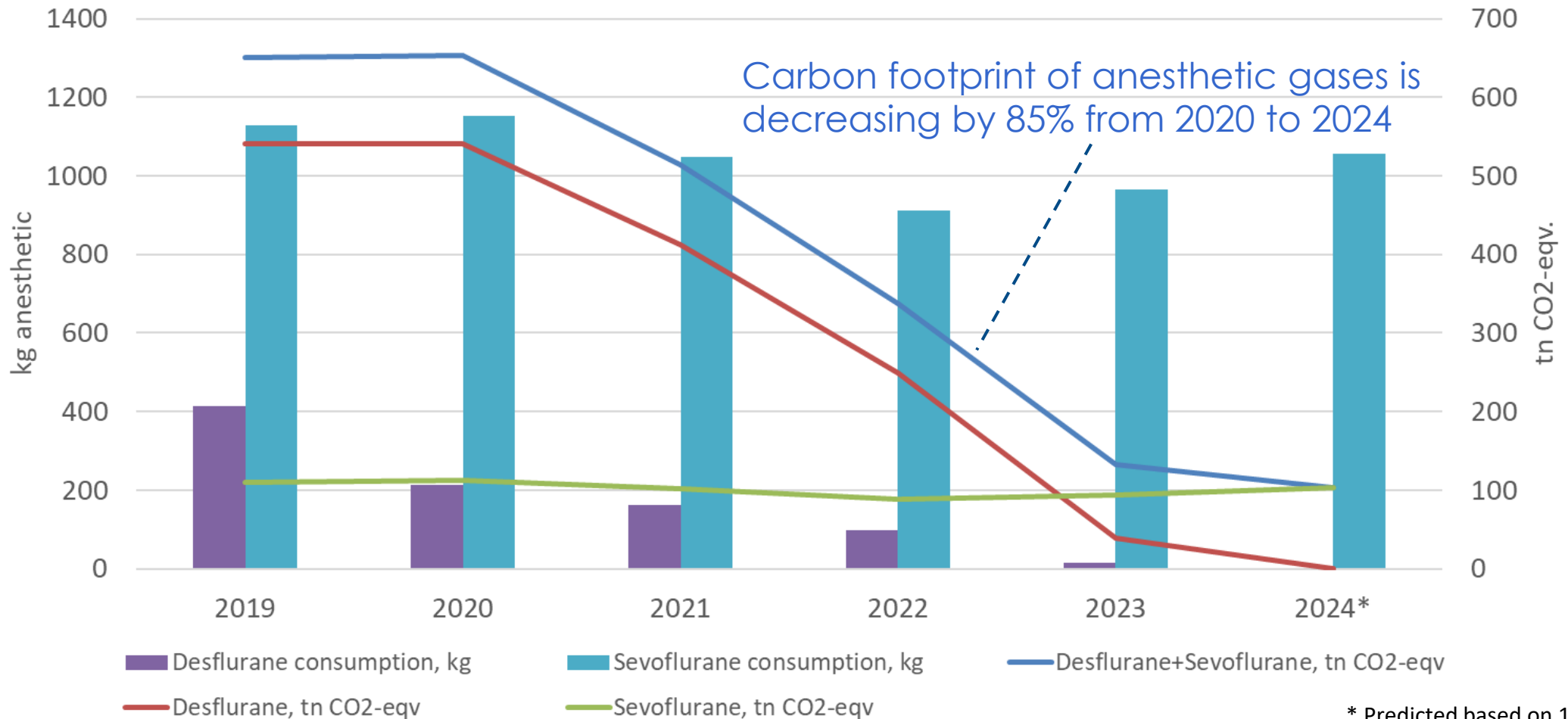
Investment in heat recovery with heat pump system in Triangle Hospital (built 2010)

- 770 000 € investment (2023)
- Heat energy consumption before renovation ~6000 MWh/a
- After renovation ~4820 MWh/a
- 20 % decrease in heat energy use
- 120 000 € savings in year
- Payback time 6,4 years

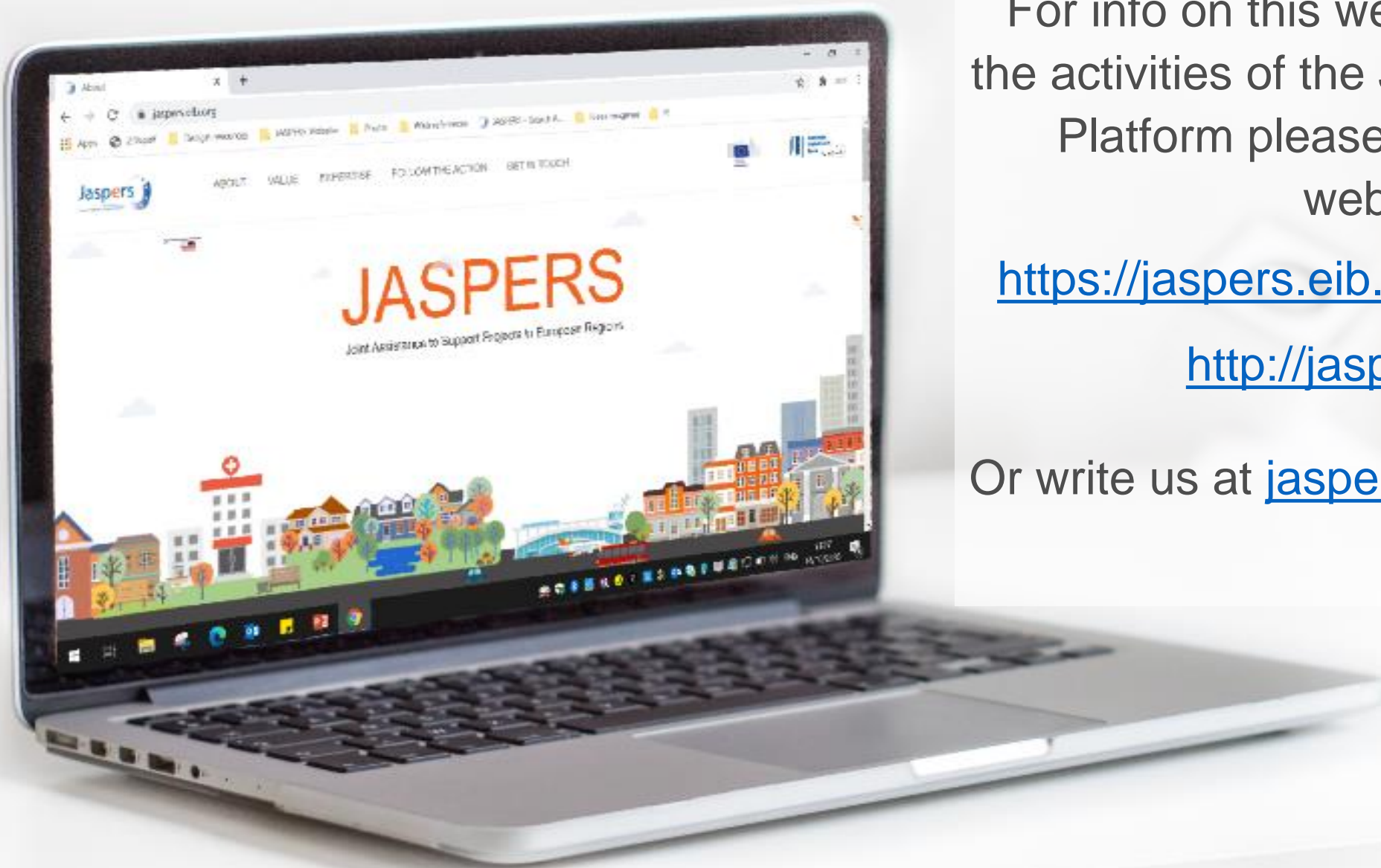
REDUCTION OF ANESTHETIC GAS EMISSIONS IN HUS

Increasing use of sevoflurane and intravenous anaesthesia replaced desflurane during the year 2023

Consumption and carbon footprint of HUS inhalation anesthetics Desflurane and Sevoflurane 2019-2024



* Predicted based on 1-5 2024 data



For info on this webinar and details on the activities of the JASPERS Networking Platform please visit the following websites::

<https://jaspers.eib.org/knowledge/index>

<http://jaspers.eib.org/>

Or write us at jaspersnetwork@eib.org