UNIVERSITY OF TWENTE. | TECHMED CENTRE
THE TECHMED EVENT

Towards a Greener Future:
The Role of Sustainability in MedTech

Natalia Korchakova-Heeb, Siemens Healthineers

More Care Per Kilowatt

Siemens Healthineers

Eng. Natalia Korchakova-Heeb

Global Lead for Sustainable Healthcare
Infrastructure, Enterprise Services
6th November, 2024

1. Global trends
2. Siemens Healthineers corporate sustainability
3. Customer approach

1 Global trends

2 Siemens Healthineers corporate sustainability

3 What is our approach?

Max. of global warming temperature set by the Paris Agreement

1,5

When is Net Zero deadline of Paris Agreement?

2050

Healthcare is a significant contributor of carbon emissions

Increasing pressure for the healthcare market as one of the biggest polluters (4.4%)

SIEMENS Healthineers

Increased regulatory requirements

COP21 · CMP11 PARIS 2015 UN CLIMATE CHANGE CONFERENCE

Net zero by 2050

EU TAXONOMY

NHS

energy ENERGY STAR

Increased pressure from customers

UN GLOBAL COMPACT United Nations Global Compact

RACE TO ZERO

White House/HHS Health Sector Climate Pledge

Better Climate™ CHALLENGE U.S. DEPARTMENT OF ENERGY

Healthcare's environmental footprint
Radiology and medical equipment contribute significantly to carbon emissions

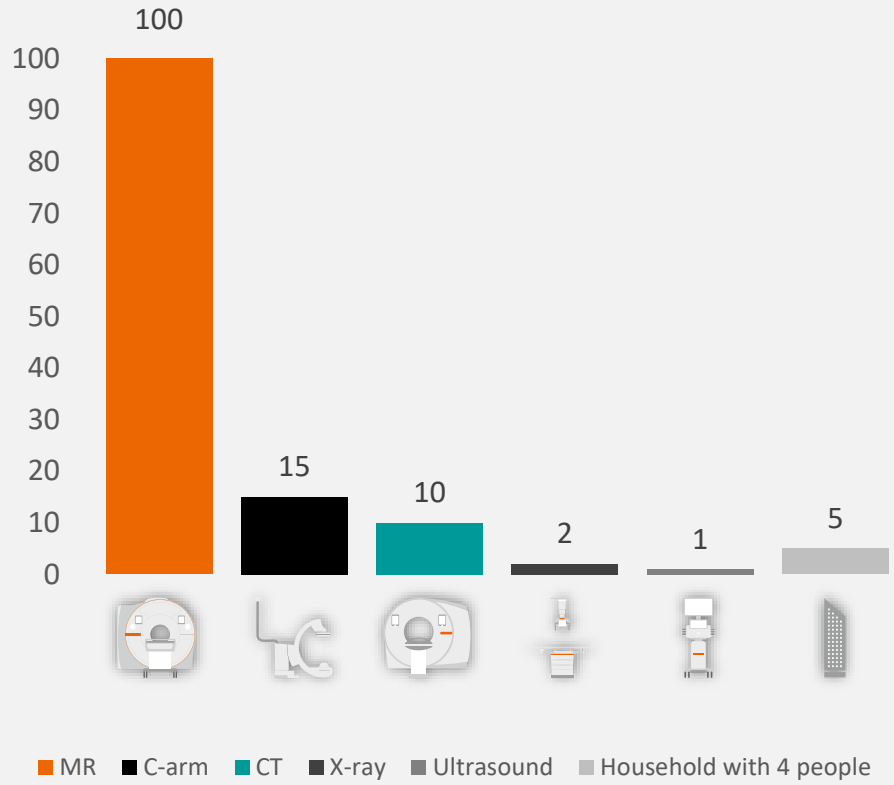
Healthcare produces

4.4% of global carbon emissions[1]

Radiology is responsible for 7.5% of hospitals energy consumption[2]

Approximate energy consumption per year[3]

(MWh)



1 ARUP & HCWH Report (2019) Healthcare's climate footprint
2 Aunión-Villa, J., Gómez-Chaparro, M. & García-Sanz-Calcedo, J. Study of the energy intensity by built areas in a medium-sized Spanish hospital. Energy Efficiency 14, 26 (2021)
3 Data Siemens Healthineers own measurements and assumptions; Actual consumption can vary depending on use pattern, system type and configuration

1 Global trends

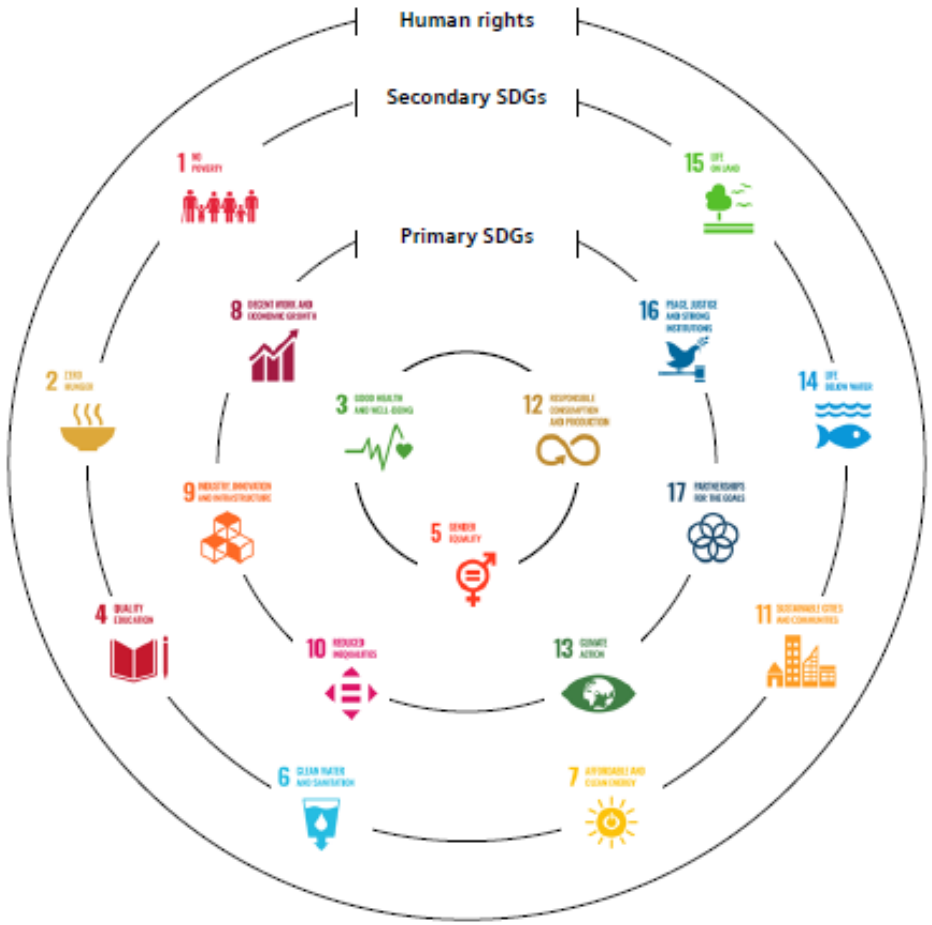
2 Siemens Healthineers corporate sustainability

3 Customer approach

We pioneer breakthroughs in healthcare.

For everyone.
Everywhere. Sustainably.

Siemens Healthineers Sustainable Development Goals Matrix



Improve quality of life through access to healthcare and innovation

3 GOOD HEALTH AND WELL-BEING

Contribute to a regenerative and healthy environment

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Advance diversity, equity and inclusion and drive employee engagement

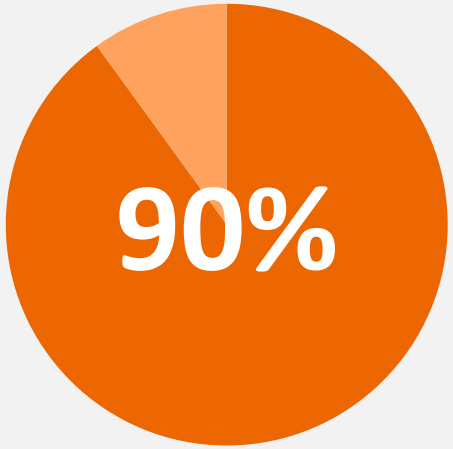
5 GENDER EQUALITY

https://corporate.webassets.siemens-healthineers.com/114b4cc42540096d/6fbe3389627c/Sustainabililty-Report-2022.pdf

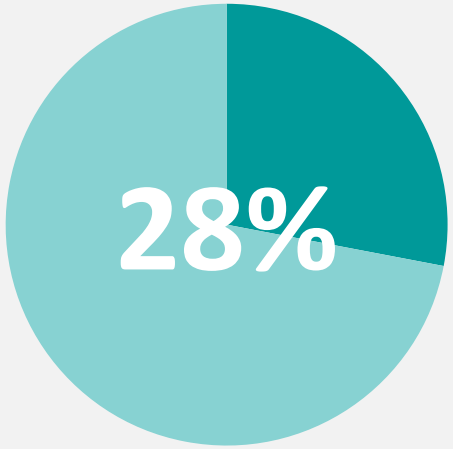
We at Siemens Healthineers are shaping the sustainability journey of the healthcare industry together

SIEMENS Healthineers

Net Zero:



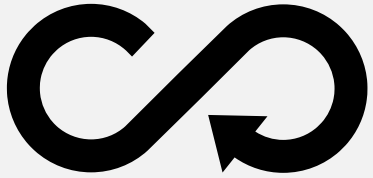
Reduction in Scope 1 & 2 emissions by 2030[1]



Reduction in Scope 3 emissions by 2030[1]

Reduction in Scope 3 by 2050[1]

Circularity:



Annually until 2030, we will create a decarbonized, more circular value chain for our customers.[2]

We're committed to reserving our planet's resources.
And we're committed to helping YOU achieve your sustainability targets.

1. vs baseline 2019. 2. Eligible circular revenue according to EU Taxonomy criteria.

We continuously improve on energy efficiency of our systems

SIEMENS Healthineers

Reduction of energy consumption

MAGNETOM Flow[1]

40%

reduction[1]

SOMATOM go.Top[2]

33%

reduction[2]

Biograph Trinion[3]

55%

reduction[3]

ARTIS icono[4]

35%

reduction[4]

The products/features (mentioned herein) are not commercially available in all countries. Their future availability cannot be guaranteed | **1** Compared to previous generation of 1.5T systems | **2** Compared to SOMATOM Perspective 128 with respect to 24h energy consumption according to COCIR methodology | **3** Data on file. Biograph Trinion™ PET/CT is not commercially available in all countries. Future availability cannot be guaranteed. Compared to previous generation air-cooled PET/CT – Biograph Horizon | **4** Compared to Artis zee and Artis Q systems according COCIR standard; 12-hr night user off + inactive days user off - 260 active (working) days; 105 Inactive (non-working) days

Energy saving measures across the MR portfolio translated into financial benefits

30% Energy Saving[1]

For one system[2]:

~€4,000 – €8,000

12% energy saving[1]

For one system[2]:

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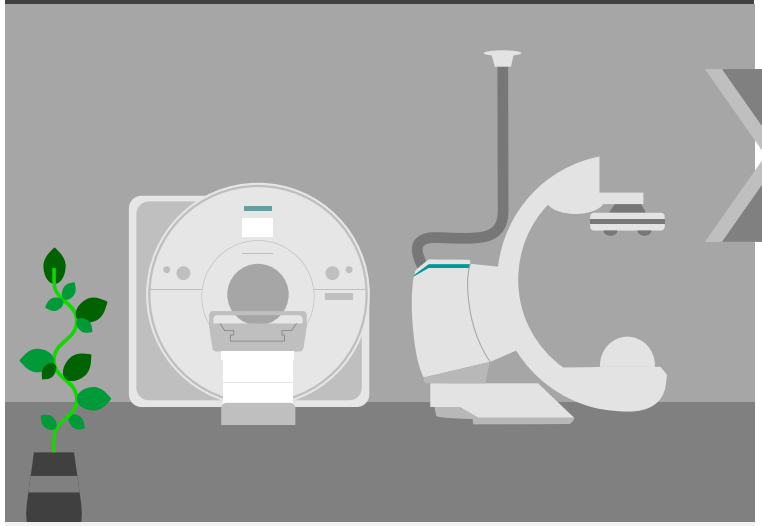
1 Data on file | **2** Energy costs from the "Quarterly Report on European electricity markets", Volume 15, third quarter 2023, from the European Commission. Estimates generated for a price range of 0.2 – 0.4 €/kWh.

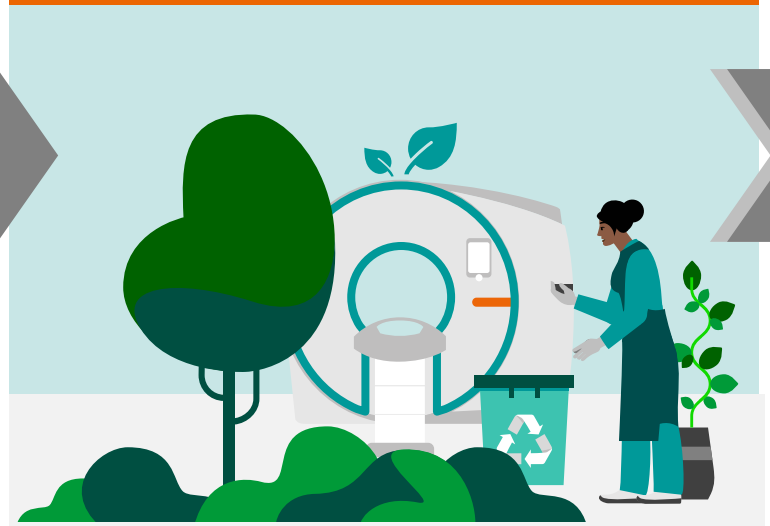
Helping our customers to be more sustainable – from medical device to hospital

SIEMENS Healthineers

Sustainable Medical Equipment



Sustainable Department



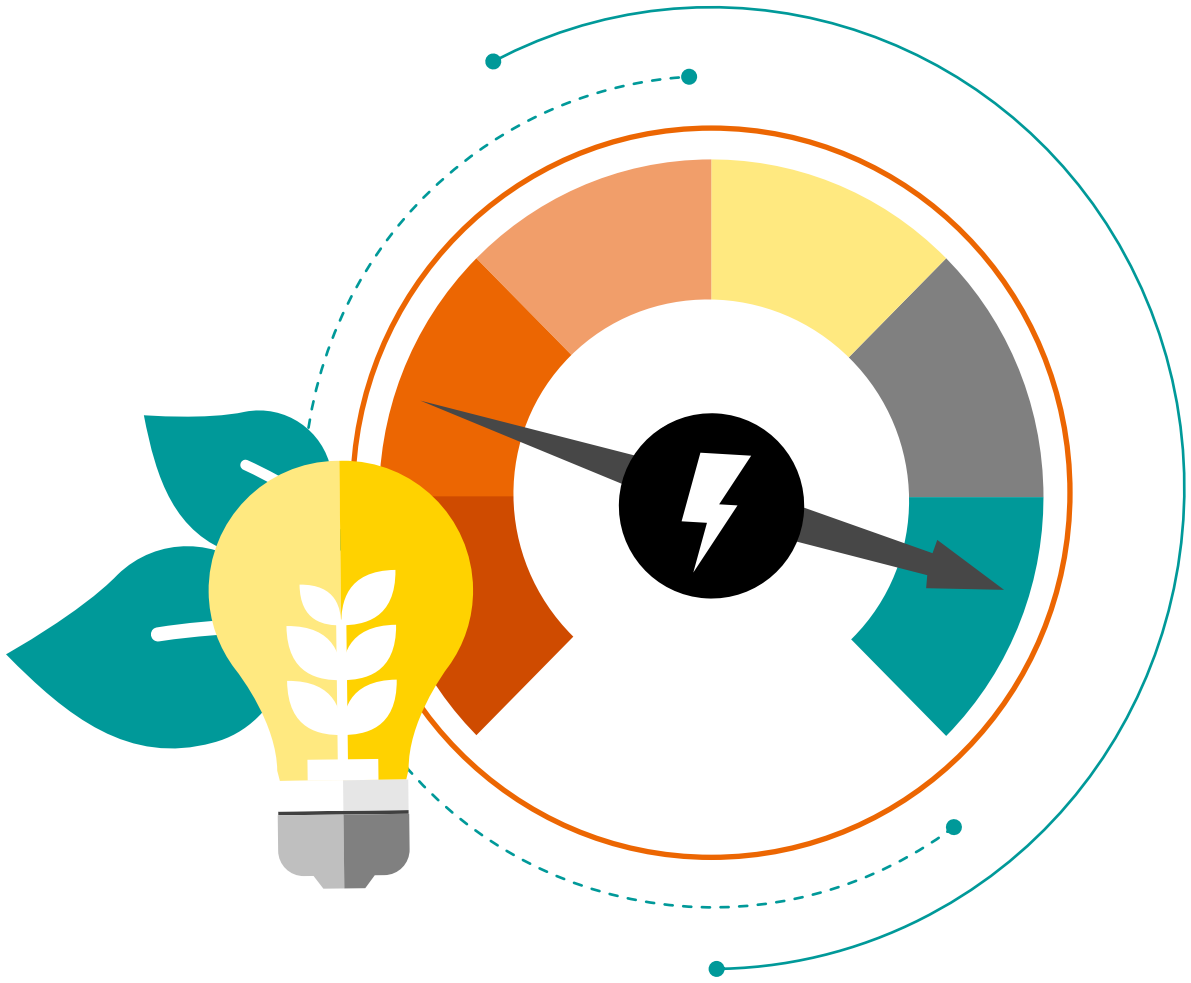
Sustainable Hospital

1 Global trends

2 Siemens Healthineers corporate sustainability

3 Customer approach

ActGreen Energy Efficiency Services
More care per kilowatt



ActGreen Energy Efficiency Services

helps healthcare providers demonstrably **improve energy efficiency and reduce environmental impact** by

- identifying energy-intensive processes,
- defining measurements, and
- optimizing operations,

Resulting in ↓ **decreased energy consumption** and/or

↑ **increased patient throughput on the existing medical technology suite**,

thus, driving **energy efficiency**.

ActGreen Energy Efficiency Services

Combining three inter-related pillars to improve energy efficiency

SIEMENS Healthineers

1

Technology Optimization

Planning equipment lifecycle and implementing advanced technology to enhance efficiency while minimizing environmental impact.

2

Energy Monitoring

Power meters and energy data visualization tools to drive change transparently.

3

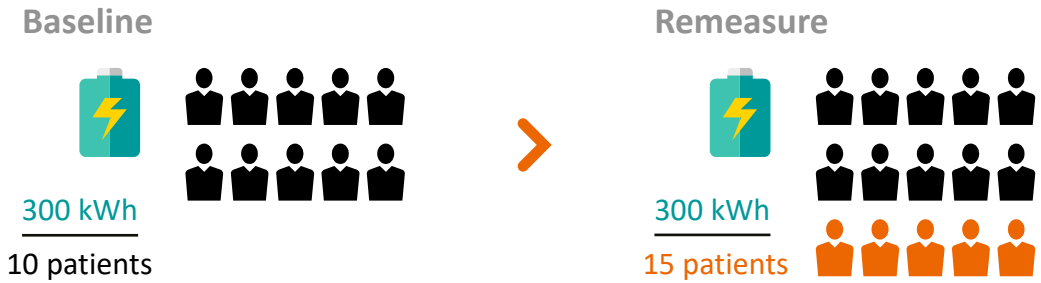
Performance Improvement

Defining measures to enhance operational performance and increased patient throughput.

Reduce energy used per patient by scanning more patients during operational hours

A typical **MRI system** consumes energy at a rate of **~300 kWh/Day**

The **more** patients seen or scan types performed, the **less** energy consumed per patient



Consumption reduced

more care per kilowatt

Note: One MRI System consumes 100-125 MWh/Year or ~300 kWh/Day; Baseline and Remeasure values are for illustrative purposes

Energy Efficiency Success Stories

SIEMENS Healthineers

Netherlands

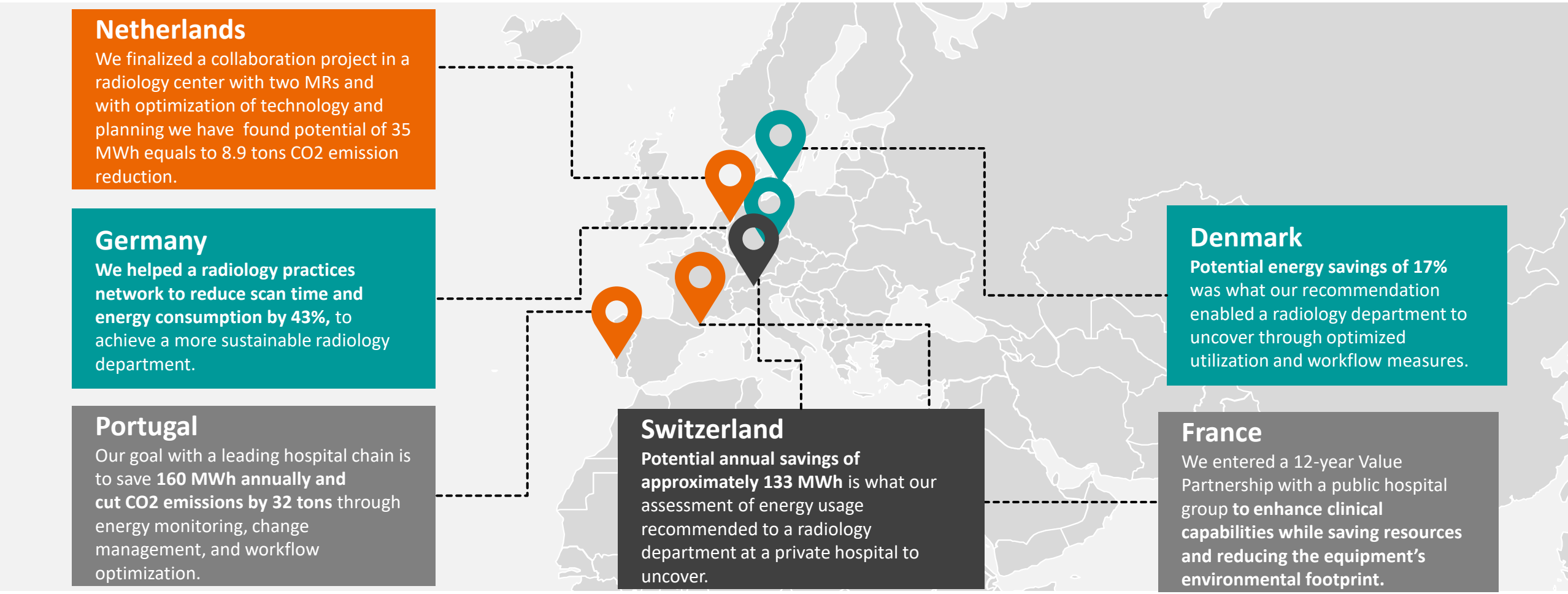
We finalized a collaboration project in a radiology center with two MRs and with optimization of technology and planning we have found potential of 35 MWh equals to 8.9 tons CO2 emission reduction.

Germany

We helped a radiology practices network to reduce scan time and energy consumption by 43%, to achieve a more sustainable radiology department.

Portugal

Our goal with a leading hospital chain is to save **160 MWh annually and cut CO2 emissions by 32 tons** through energy monitoring, change management, and workflow optimization.



Switzerland

Potential annual savings of approximately 133 MWh is what our assessment of energy usage recommended to a radiology department at a private hospital to uncover.

Denmark

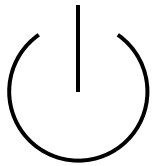
Potential energy savings of 17% was what our recommendation enabled a radiology department to uncover through optimized utilization and workflow measures.

France

We entered a 12-year Value Partnership with a public hospital group **to enhance clinical capabilities while saving resources and reducing the equipment's environmental footprint.**

The results and statements by the Siemens Healthineers customer described herein were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption), there can be no guarantee that other customers will achieve the same results.

Potential measures



Off mode

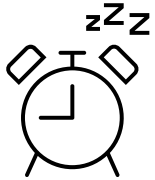
-19.3 MWh (10.5%)

-4.5 ton CO_2 (11.3%)

Protocols

-11.4 MWh (6.2%)

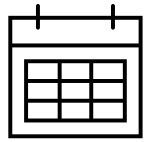
-2.3 ton CO_2 (5.9%)



Idle mode

-4.9 MWh (2.7%)

-1.1 ton CO_2 (2.8%)



Planning

-1.5 to 1.9 MWh (0.8-1.0%)

-1.0 to 3.2 ton CO_2 (2.5-8.0%)

Q&A

Thank you for your support and enthusiasm!

Eng.Natalia Korchakova-Heeb
Global Lead for Sustainable Healthcare Infrastructure

- Certified expert for Green Hospitals (IFC EDGE)
- Certified PPP Climate Resilience Officer

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SIEMENS Healthineers

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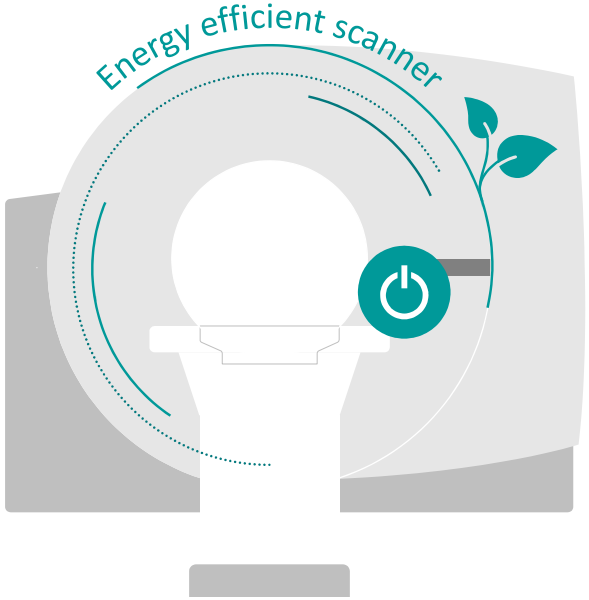
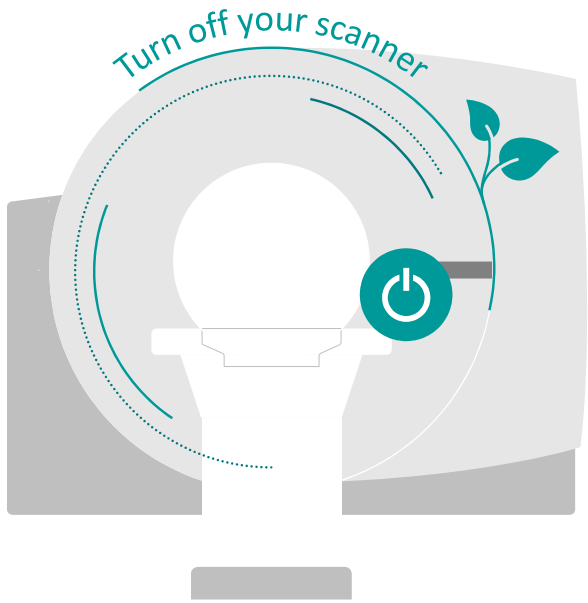
1 Data on file | **2** Energy costs from the "Quarterly Report on European electricity markets", Volume 15, third quarter 2023, from the European Commission. Estimates generated for a price range of 0.2 – 0.4 €/kWh.

Energy saving measures in our CT portfolio translate into financial benefits



Reduce energy consumption

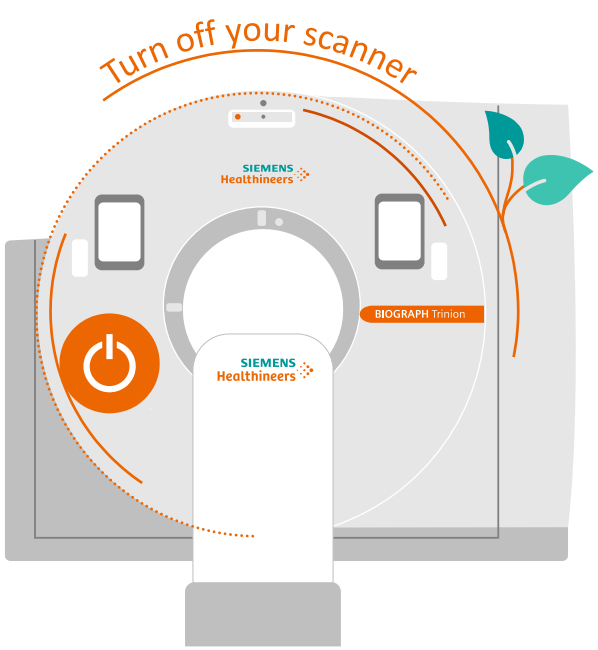


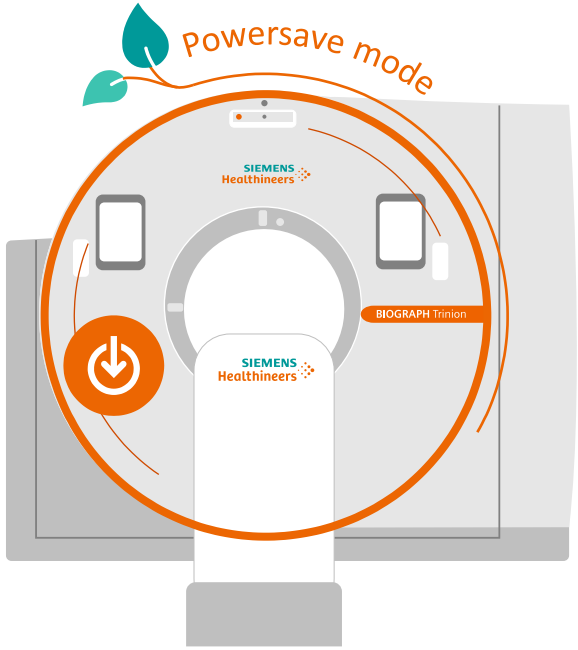
Up to 40% energy saving[1]

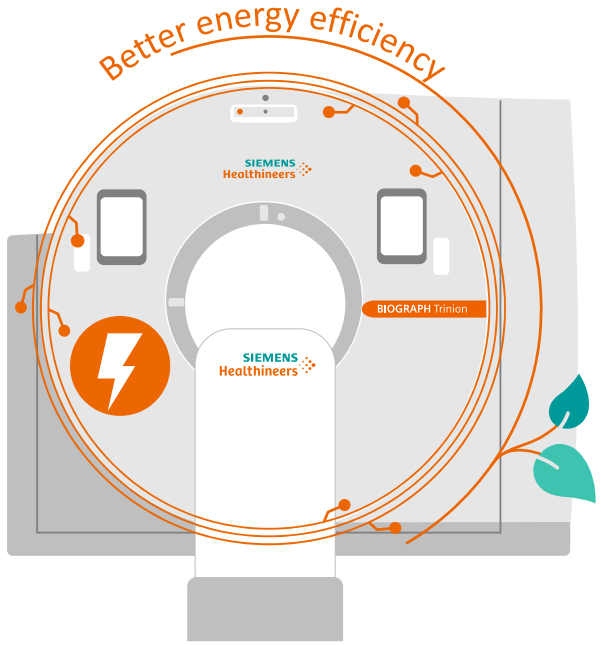
Up to 12% energy saving[1]

1 Data on file; based on SOMATOM Definition Edge

Biograph Trinion PET/CT smart power features translate into financial benefits







Up to 50% energy savings[1]

12.7 MWh estimated yearly energy savings[2]

~ € 2,500 – 5,100

Up to 46% energy savings[1]

13.8 MWh estimated yearly energy consumption[2]

~ € 2,300 – 4,600

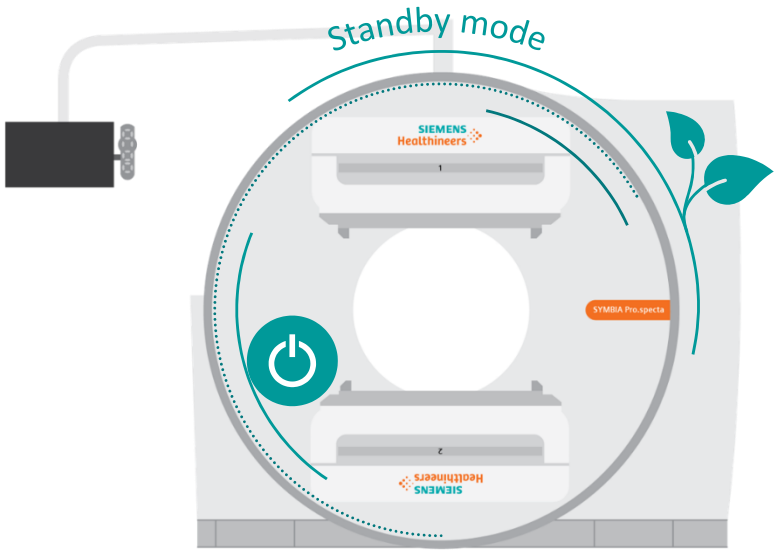
Up to 55% energy savings compared to other air-cooled systems[3]

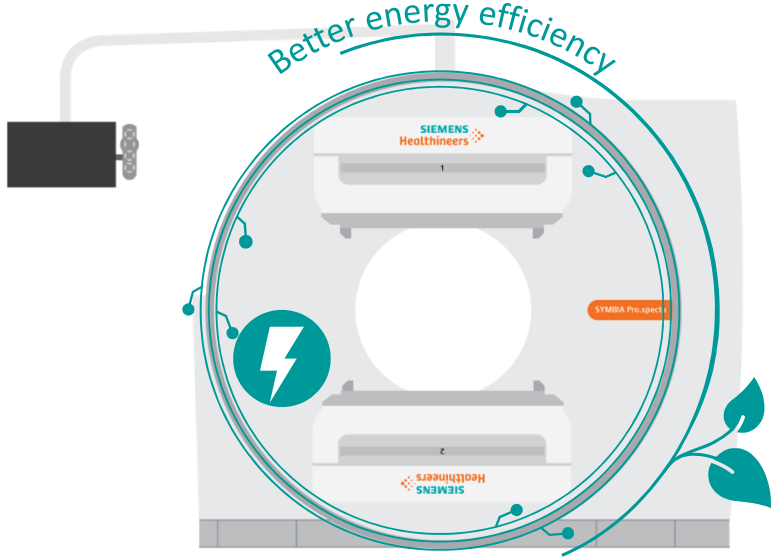
27.2 MWh estimated yearly energy savings[2]

~ € 4,500 – 9,000

1 Data on file. Energy-saving compared to leaving the scanner on | 2 Yearly energy consumption based on the COCIR model of system utilization. Energy costs from the "Quarterly Report on European electricity markets", Volume 15, third quarter 2023, from the European Commission. Estimates generated for a price range of 0.2 – 0.4 €/kWh. | 3 Data on file Biograph Trinion™ PET/CT is not commercially available in all countries. Future availability cannot be guaranteed.

Symbia Pro.specta SPECT/CT smart power features translate into financial benefits





Up to 39% energy savings[1]

3.7 MWh estimated yearly energy savings[2]

~ € 750 – 1,500

Up to 55% energy savings[3] compared to previous systems

11.3 MWh estimated yearly energy savings[2]

~ € 2,300 – 4,500

1 Data on file, compared to Symbia Pro.specta systems without activating standby mode during non-operating hours | 2 Yearly energy consumption based on the COCIR model of system utilization. Energy costs from the "Quarterly Report on European electricity markets", Volume 15, third quarter 2023, from the European Commission. Estimates generated for a price range of 0.2 – 0.4 €/kWh | 3 Data on file. Energy savings comparing Symbia Pro.specta to Symbia Intevo systems.