# Sustainable computed tomography solutions for a resilient tomorrow

Revolution™ Ascend

# Creating a more sustainable future requires we care for the planet and its inhabitants.

It is essential that we continue to drive progress toward early, precise, and accessible diagnosis and treatment of more patients. For the planet, it is critical that we do so with a reduced impact on precious and rare resources that are imperative to life. We believe that the advancement of precision health, greater digitization of healthcare, and increased access to quality care are fundamental to accomplishing this goal.

We support carbon policies that reduce greenhouse gas emissions and promote sustainable development. We are committed to achieving net zero by 2050 and are part of the UN-backed "Race to Zero," with a goal of reducing emissions based on the Paris Agreement. We've also set a public goal to achieve a 50% reduction in our own operational emissions by 2030. As a result of these efforts, we want to enable a more sustainable health system by addressing not only the environmental impacts of our products but also the challenges healthcare professionals and their patients face with resilient, digital options.

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# We deliver sustainable, intelligently efficient solutions for a resilient tomorrow.

Building a healthier world to help improve access to care and enable better patient outcomes.

## Green
Using fewer resources for a healthier planet.

## Digital
Transforming healthcare through innovation.

## Resilience
Building flexibility and dependability across healthcare systems.

# Revolution™ Ascend helps create a resilient tomorrow.

Our CT system, Revolution™ Ascend, and its services help ensure that radiology professionals and the patients they serve have the technology necessary to create a sustainable and resilient tomorrow.

### Reducing environmental impact

- Reduce energy consumption up to 15% when using Energy Savings Mode.[1]

- Reduce energy consumption by 68% when using Energy Savings Mode (ESM) and by 62% when not using ESM compared to the previous generation CT.[2]

- 84% of materials used in the system are recyclable.[3]

### Improving outcomes

- Enhance your clinical outcomes by experiencing a new standard in image quality with TrueFidelity™.

- Ensure better comfort for users and patients with a 75 cm wider bore design.

- Gain efficiency with a new standard in CT with Effortless Workflow.

[1] Compared to the same system not using Energy Savings Mode.
[2] Compared to the predicate product. Data on file.
[3] Data on file.

# Contributing to a healthier planet

**More than half of the healthcare sector's climate footprint, approximately 53%, is attributable to energy use.**[4] As a result, we have strengthened our commitment to environmentally conscious design and sustainable practices across our product manufacturing, sourcing, distribution, installation, and service operations. This includes improving energy efficiency, optimizing the use of limited or rare materials, providing digitally enabled and remote predictive and maintenance service throughout the product lifespan, and offering refurbishment and recycling options at the end of product life.

**GE Healthcare environmental management system is ISO 14001 certified**

Our production and service operations align to ISO 14001 standards.

## Materials

GE Healthcare reviews the environmental aspects of the material supply used within our products to increase recyclability and decrease the use of hazardous substances, when possible.

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| **Recyclable** | 84% of materials used in the system are recyclable.[5] |
| | When we build a replacement X-ray tube for the Revolution Ascend, 60.1% of the mass of the X-ray tube is reused, helping to reduce energy use and the consumption of natural resources.[5] |
| **Reduce the use of hazardous substances** | EU RoHS directive 2011/65/EU |
| | REACH (EC) 1907-2006 |
| | The Revolution Ascend gantry design does not use lead material as counterweight but instead uses steel, helping to improve production worker safety and reduce environmental impact. |

## Packaging and distribution

GE Healthcare imaging equipment has a robust and multi-sourced supply chain for systems and spare parts across all product portfolios.

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| **Improved packaging[6]** | The packaging materials consist of wooden pallets with cardboard overpack and plastic vibration absorbers.<br><br>Wood: 73%<br>Cardboard: 24%<br>Plastic: 3%<br>Total package weight: 445kg |
| **Product transportation[7]** | Air transport: 47%<br>Ocean transport: 10%<br>Truck transport: 43% |

**53% product transportation utilizes low environmental impact modes[7]**

## Product utilization

Our imaging products are designed to help enable energy efficiency through dedicated features and advanced applications to reduce the environmental impact.

### Reduce energy consumption

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| **Guidance for product utilization** | Instructions are provided for use of the equipment to minimize the environmental impact during use and operation. |
| **Reduce energy consumption during use** | Save 15% of energy consumption when using Energy Savings Mode.[8]<br><br>Reduce energy consumption by 68% when using Energy Savings Mode compared to the previous generation CT.[9] |
| **Power consumption[10]** | Scenario – Off: 31 kWh<br>Scenario – Idle: 41 kWh<br>Scenario – Low Power: 37 kWh |

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[6] The values provided are based on the typical packaging at GEHC's CT manufacturing sites for the Revolution Ascend system.
[7] The values provided are based on product transportation and distribution during 2021.

[8] Compared to the same system, not using Energy Savings Mode.
[9] Compared to previous generation CT system.
[10] Per COCIR Self-regulatory initiative for medical imaging equipment, over a 24-hour period, with 12 hours of active day and 12 hours night scenario as noted (Off, Idle, Low Power).

## Product utilization (Cont.)

### Ergonomically designed

**Patient setup and positioning**

AI-based Auto Positioning enables automatic landmark detection and identifies the scan range center automatically to ensure table positioning alignment. The scanner uses the scan range center information and automatically aligns this to isocenter of the gantry.

Automatic table elevation and cradle movement into the gantry completed with one simple click—no need to use positioning buttons on the gantry.

**Reduce staff burden**

Intelligent Protocoling uses machine learning to automatically suggest a protocol for each exam. Learning from each site's individual behaviors, Intelligent Protocoling reduces the time spent searching for protocols and may help in reducing errors in protocol selection.

For flexible options, the remote control panel allows the technologist to make table position adjustments or set a landmark from the console.

# End of product life

We are increasingly putting our retired products' materials back into the supply chain to maximize efficient use and minimize unnecessary waste. This circularity model enables our imaging products to extend their clinical impact through longer lifespans while reducing the environmental footprint. Additionally, we offer our customers partnered support for upgrades and services throughout a product's lifespan to maintain optimal performance and help drive better patient outcomes.

Our refurbishment programs involve an extensive inspection and testing process, designed to bring equipment back to its original certified manufacturing specifications. If the system is not suitable for refurbishment, eligible parts are harvested for reuse after quality and performance testing, while the rest are returned to dedicated recycling facilities.

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| **Guidance for end of lifecycle** | Equipment instructions are provided to minimize the environmental impact for disposal or recycling. |
| **Upgrades: hardware and software options are provided as a solution to extend the product lifespan.** | Revolution Ascend offers multiple upgrade options to extend the lifespan of the system, including upgrading from 64 to 128 slices. |
| | Software upgrades are also available, such as TrueFidelity, our deep learning image reconstruction. Utilize Smart Subscription to help keep your software up to date. |
| **Parts harvesting and refurbishment: options are provided to reduce waste and environmental impacts while extending imaging access to less advantaged regions.** | CT system parts are eligible for assessment for the refurbishment program, in which they are assessed for refurbishment, harvesting, or recycling at the appropriate time in the lifespan.[11] |
| | 94–96% of most systems are reused, refurbished, or recycled, extending the lifetime of each product.[11] |
| **Waste reduction** | This system is in accordance with Waste Electrical and Electronic Equipment (WEEE) regulations. |

[11] Products within MR, CT, Nuclear Medicine, and PET/CT are eligible for refurbishment, although whether a system is actually refurbished versus harvested for parts or otherwise recycled or reused is dependent on the state of the system when GE Healthcare takes possession of it.

# GE Healthcare product stewardship commitment

For more than 20 years, GE Healthcare's GoldSeal program has played a vital role in reducing medical imaging equipment waste by promoting and enabling the reuse of equipment and parts from de-installed imaging systems. After undergoing an extensive inspection and testing process, GoldSeal equipment is refurbished to meet the original system specifications. Buyers of GoldSeal MRI, CT, or PET/CT products can save on the acquisition costs associated with buying new equipment. Machines deemed unsuitable for GoldSeal refurbishment are dismantled at end of life, and after successfully passing acceptance testing criteria, specific parts are harvested for reuse. Where harvesting is not appropriate, GE Healthcare recycles about 94–96% of most systems. In a typical year, GoldSeal refurbishes approximately 8,000 pieces of imaging machines and ultrasounds.

**NEW PRODUCT PURCHASE OR LEASE**

**GOLDSEAL PROGRAM:**
**LEASE RETURN PRODUCT OR BUYBACK**
- Comprehensively refurbished and/or remanufactured
- Updated with new software
- Recertified following all FDA requirements
- Equipment backed with 1 year, same-as-new equipment warranty

**RECLAIM FOR PARTS AND MATERIALS**
Identify parts for refurbishing and/or repurpose

**END OF LIFE**
About 94–96% of most systems are recycled, substantially reducing the volume of waste en route to landfills.

# Digitizing healthcare through transformative innovations for a resilient tomorrow

We are committed to investing in digital capabilities that help accelerate clinical decision making, optimize imaging operations, and drive efficiencies in exam workflows, all of which can improve patient outcomes. Enabling digital transformation will further enhance our predictive and maintenance service operations for the life of your products.

**We are also dedicated to driving a more resilient and sustainable future in healthcare.** Many factors, including the pandemic, climate-related weather disasters, and supply-chain issues amplified this need. Managing operations through these challenges requires resiliency and perseverance.

## Advancing clinical outcomes

Advanced applications and cutting-edge AI tools provide personalized data to drive actionable insights, helping healthcare professionals make fast, accurate clinical decisions for care pathways.

**Drive advancements with precision health**

While the CT scan itself is the fastest in diagnostic imaging, the sequence from referral to report needs to be faster to meet procedure volume. To accomplish that, we have redefined the entire CT experience with Revolution Ascend, a 75 cm wide-bore CT system making the CT process faster, more intuitive, and approachable while providing the image quality you expect.

With an AI-based workflow, smart user interface, and cutting-edge technology, Revolution Ascend substantially simplifies, streamlines, and automates the CT experience.

## Advancing clinical outcomes (Cont.)

**Gain actionable clinical insights quicker for earlier diagnosis**

Whenever there is residual motion in the coronary arteries, let SnapShot Freeze 2 go to work in further reducing the motion within the vessel. Minimize the motion within the structures of the heart, and further improve image quality of anatomy that is constantly in motion.

A reproducible method for segmenting the liver guided workflow, DL Hepatic VCAR can help in assessing the complete liver anatomy to assist in surgical planning and lesion evaluation.

Musculoskeletal studies are made simpler with automated spine labeling by DL Bone VCAR.

Automate detection of lung nodules with digital contrast agent Lung VCAR.

Review all CT series acquired for acute stroke workup with exceptional flexibility and simplicity with comprehensive workflow solution FastStroke.
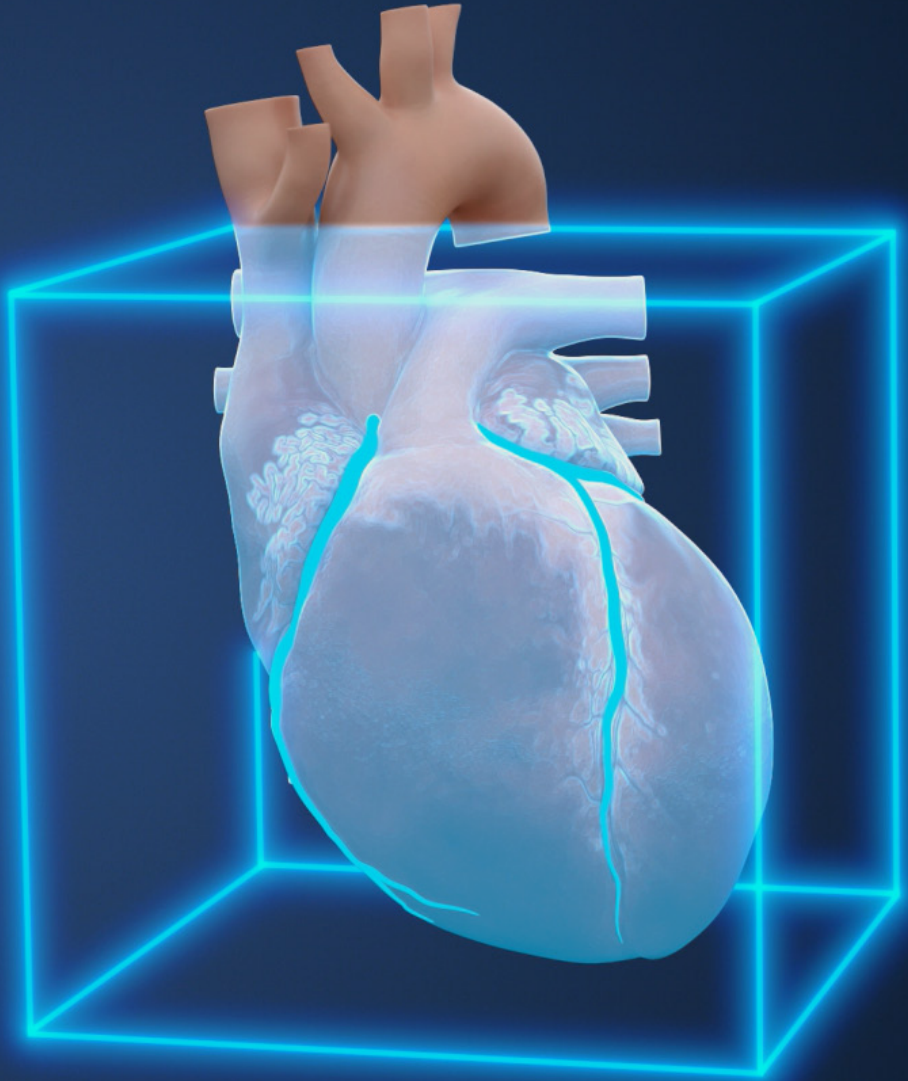
## Advancing clinical outcomes (Cont.)

**Keep your imaging equipment up to date with advanced clinical applications**

Smart Subscription protects your equipment from obsolescence and keeps the system at its best. It improves patient outcomes and productivity due to improved functionality and easy access to innovation.

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**Help improve patient outcomes with improved image quality**

Use up to 82% lower patient dose with ASiR-V™ with the same image quality.[12]

By utilizing our deep learning image reconstruction engine, TrueFidelity sets a new benchmark in CT image quality. Gain outstanding image details, clarity, and texture all at the same time—without compromise.

[12] Compared to standard filtered back projection (FBP) reconstruction. In clinical practice, the use of ASiR-V may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

## Optimizing imaging operations

Our AI-based and advanced digital solutions are designed to increase efficiencies across the radiology spectrum without increasing the administrative and training burden on radiologists and technologists.

**Increase productivity and consistency**

90% protocol suggestion accuracy with Imaging Protocol Manager.[13]

Remotely upload, edit, and monitor protocols for multiple service lines, including CT and MR, to deliver consistent image quality and optimal patient care with Imaging Protocol Manager.

Gain data intelligence and actionable insights across your radiology department to increase productivity with Imaging Insights.

Help reduce repeat scans and ensure accuracy through live support by leveraging centralized expertise and standardized care across the enterprise with Digital Expert.

[13] Results may vary depending on the circumstances, including but not limited to exam type and clinical practice. This analysis was performed on 3175 exams, representing 17 different exam descriptions, collected from 4 different medical evaluation sites.

## Optimizing imaging operations (Cont.)

**Increase productivity and consistency** (Cont.)

Leverage on-demand or scheduled virtual clinical applications training with GE specialists to support staff enabled by Digital Expert Access.

Resilient solutions, such as remote control function combined with 3 in-scan-room cameras, allow the technologist to fully operate the CT scanner without the need for interacting with patients during high-risk or critical times such as the pandemic.

Remote diagnostics and predictive analytics solutions to streamline your needs:

- Enable software updates, reducing the need for on-site support.
- Secure serviceability, review, and system troubleshooting

**Reduce downtime**

OnWatch™ and Tube Watch™ enable predictive services to digitally track key system metrics and detect any anomalies. They send proactive alerts to a remote engineer, who either makes the repair online or schedules a service call.*
- 75% reduction in tube-related downtime
- 41% reduction of overall system unplanned downtime
- 36% of total onsite labor is planned

**Cybersecurity**

GE Healthcare's Design Engineering Privacy and Security (DEPS) process follows GDPR, HIPAA, NIST 800-53, NIST 800-30, ISO 27001, and NIST CSF requirements.

* Results may not be typical of every customer's performance. Versus a break and fix model. Average planned labor hours are calculated by using all the proactive service requests initiated by the system with their associated planned downtime compared to the service requests initiated by the customer with associated unplanned downtime.

## Enabling intelligent exam workflows

Intelligent automation features help to drive consistency, enable fast, easy exams, and improve workflow with fewer resources, all while achieving similar or improved outcomes.

**Reduce setup time**

Streamline the patient setup with Auto Positioning. Starting with smart protocol selection and automated centering, simply click a button to automatically position your patient at the start location of the scan.

**Reduce exam time**

21% reduction in entire exam time with Effortless Workflow[14]

66% reduction in clicks per CT exam with Effortless Workflow[15]

56% reduction in scan setup with Effortless Workflow[16]

[14] Compared to legacy GE CT scanners. Data based on comparison between GE's legacy products (16ch and 64ch scanner) and Revolution Ascend in the three institutions using a pilot product, with routine head and body selected. The data set of this comparison was 838 exams for legacy products and 1387 exams for Revolution Ascend. The time-saving value may not be effective for all institutions depending on the clinical practice. Definition of entire exam time is from "Open new patient" to "Last primary recon completed" for Revolution Ascend and "Close exam" for legacy products.

[15] Compared to legacy GE CT scanners. Required clicks are defined as the number of clicks required to execute a scan, from selecting a new patient to start scan. The number of all associated required clicks for and in clinical practice may vary depending on the circumstances, including but not limited to the clinical task, exam type, clinical practice, and image reconstruction technique.

[16] Compared to legacy GE CT scanner. Data based on comparison between GE's legacy products (16ch and 64ch scanner) and Revolution Ascend in the three institutions using a pilot product, with routine head and body selected. The data set of this comparison was 838 exams for legacy products and 1387 exams for Revolution Ascend. The time-saving value may not be effective for all institutions depending on the clinical practice. Definition of scan setting time is from "Open new patient" to "Confirm setting for scout."

## **Enabling intelligent exam workflows** (Cont.)

**Ease of use**

Seamlessly multi-task with Clarity Operator Environment, leveraging the task list during scan setup to plan ahead and automate repetitive tasks, such as reconstructions, image transfer, image processing, and more.

SmartPlan automatically recommends the scan range from the patient scout based on the clinical indication of the scan protocol, for a faster and more standardized workflow.

Use Auto Prescription for an automated workflow and personalized scanning.

**Cleanability**

Our equipment is designed to be cleaned and disinfected easily. We continue to test and approve new cleaning and disinfecting agents. Visit *Cleaning.GEHealthcare.com* for updates.

The validated cleaning and disinfection instruction manual can be downloaded on the *customer documentation portal* with document number 5881700-1.

# Building a healthy world to help enable better patient outcomes.

GE Healthcare is a member of COCIR, the European Trade Association representing the medical imaging, radiotherapy, health ICT, and electromedical industries.**