

Gigaton Challenge

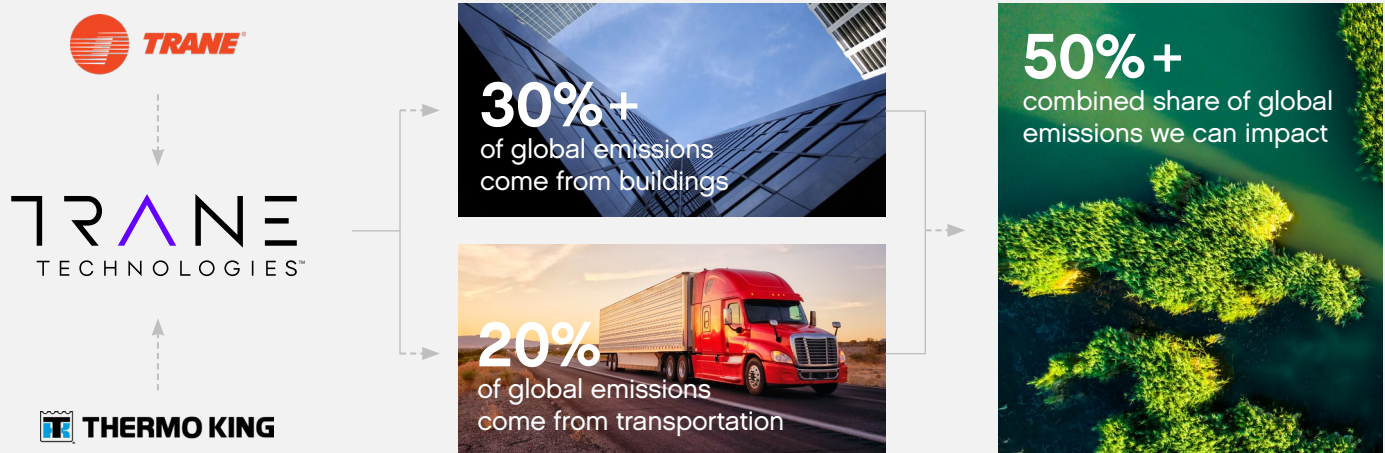
Playbook

TRANE
TECHNOLOGIES™

Why Does the Gigaton Challenge Matter?

The increasing concentration of greenhouse gases (GHGs) in our planet's atmosphere is **warming the planet at an accelerated rate**. This warming is leading to increased risks of natural disasters that threaten human life and our well-being. We are experiencing prolonged heat waves and droughts, stronger hurricanes, more frequent wildfires and floods, and significant undesirable and potentially irreversible ecological changes.

As climate innovators, we are uniquely positioned to lead a movement to reduce the rate of atmospheric GHG concentrations through our innovative products and services. **More than 30%** of **global GHG emissions** are related to buildings and **another 20%** comes from transportation. Therefore, we believe that we can have an impact on more than half of the world's annual GHG emissions.



Our (Big) Bold Commitment

We are reducing one gigaton – **one billion metric tons** – of carbon emissions (CO₂e) from our customer's footprint by 2030 from a 2019 baseline.

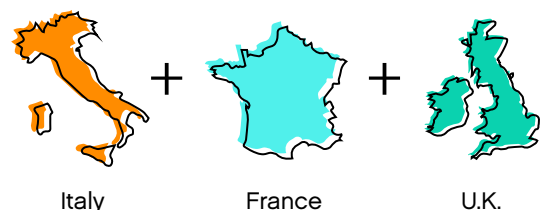
Our Gigaton Challenge is the first-of-its-kind climate commitment related to customer product use of any business-to-business company. We created the Gigaton Challenge in 2019 to address and reduce emissions from customers' use of our products. Customer use of sold products is our largest source of emissions and comprises more than 98% of our carbon footprint. We also established the Gigaton Challenge to help our customers reduce their product use emissions and to drive progress on our Scope 3 science-based targets.

Our math shows that our reduction of one gigaton of carbon emissions equates to 2% of the world's annual emissions – or, the annual emissions of Italy, France and the U.K. combined.

The Gigaton Challenge covers our entire product portfolio – and any product use emissions reductions resulting from our Gigaton Challenge contribute to our near-term and long-term science-based Scope 3, Category 11 “use of sold products” emissions targets. Propelled by this ambitious commitment, we are pioneering innovative solutions that offer strong payback and enhanced sustainability for our customers. By targeting significant reductions in emissions for our customers, we are demonstrating that business growth, bold sustainability commitments and customer value can be achieved.

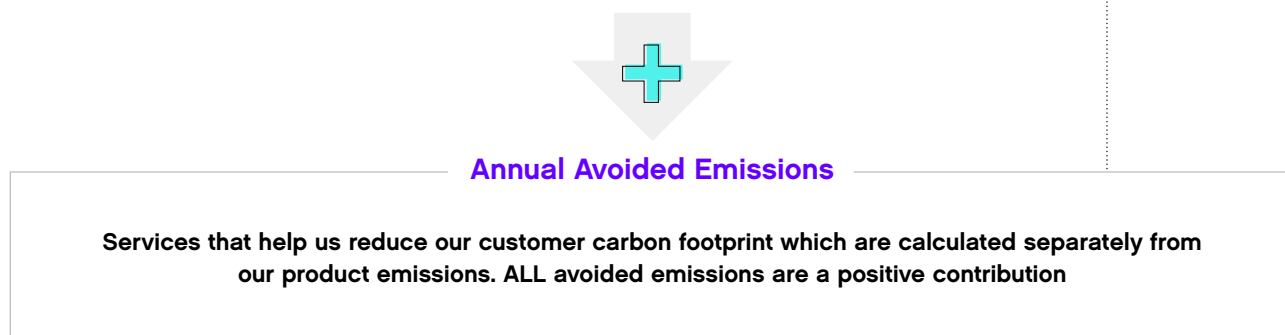
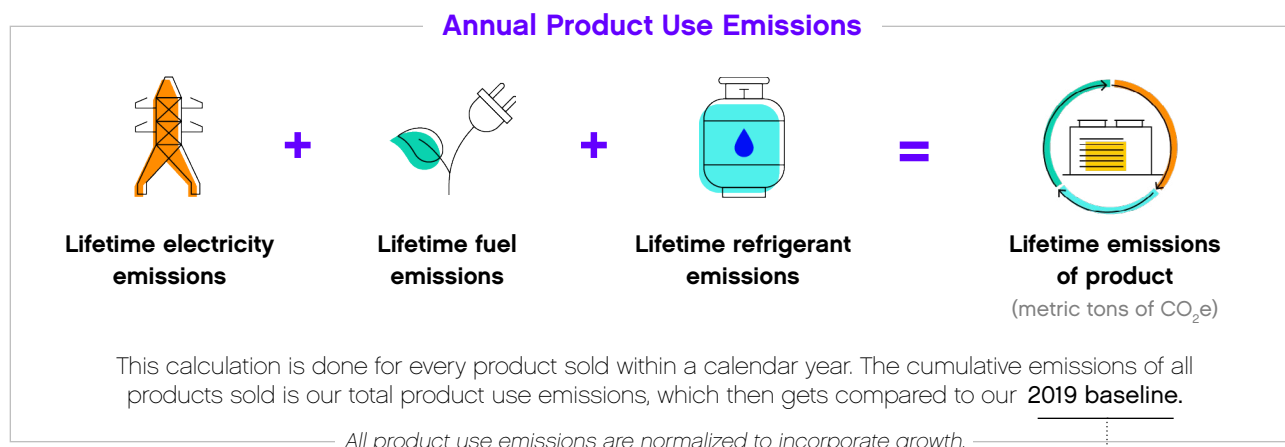
1 Gigaton of CO₂e =

annual emissions of



Calculating our Pathway to Success

The following shows how we calculate emissions that contribute to our Gigaton Challenge:



2030 Gigaton Achievement

Our formula to calculate Gigaton Challenge contribution is reviewed annually and refined as needed to include items that were not able to be measured previously. While we strive to ensure accuracy, it is possible that these data are inaccurate. As we improve our methodologies, we expect to make revisions to our Scope 3 emissions data and associated assumptions and models.

What is the importance of our baseline?

Baseline is a term used when consistently comparing back to the same year through time.

In 2019, we completed a GHG emissions inventory aligned with the GHG Protocol across our Scope 1, 2 and 3 emissions to serve as a baseline for our science-based targets. We chose 2019 as our base year because it represented a standard production year and allowed us to set ambitious emissions reduction targets and strategies. The 2019 baseline Scope 3, Category 11 "use of sold products" GHG emissions serves as a starting point for our Scope 3 emissions reduction targets approved by Science Based Targets initiative, as well as our Gigaton Challenge. For example, if our sold products emit 100 mtCO₂e in 2019 and in 2020 all sold products emit 90 mtCO₂e, then our contribution to the Gigaton Challenge is 10 mtCO₂e for the year 2020. Every year up to 2030 we will do this calculation for our product emissions and the contribution from services that year. Our goal is to have the cumulative of each year's contribution add up to 1 billion mtCO₂e.

Enabling the Gigaton Challenge

Our commitment to sustainable and responsible business affects everything that we do, including the products and solutions developed for our customers and the world.

We have identified four key levers to guide our product development strategy, offering significant opportunities to decarbonize our customers' use of our products and achieve the Gigaton Challenge.

The following are the **four** strongest levers:



Increasing Sales of High-Efficiency Equipment

Higher-efficiency products consume less electricity and have fewer related indirect GHG emissions. We continually expand our product portfolio to include more innovative and efficient equipment and digital solutions to help our customers decarbonize.



Increasing System-Level Energy Efficiency

We promote system-level approaches to increase energy efficiency, including building envelope improvements, controls and lighting upgrades, as well as energy and maintenance services. For example, we provide highly efficient heat pumps and all-electric thermal management systems that reduce the use of existing fossil fuel-powered boilers. Digital services, AI-powered building automation and analytics and auxiliary power units also contribute to gains beyond equipment efficiency, which lead to further emissions reductions for customers.



Expanding Product Mix to Accelerate Electrification

Transitioning to electricity-driven products, such as replacing a gas-powered boiler with an electric heat pump, can reduce our customers' reliance on fossil fuels. We offer customers a broad range of electric product options to support their decarbonization efforts. Additionally, when drawing power from a grid that generates electricity from renewable sources, electric products have the potential to be net-zero solutions.



Transitioning to Low-GWP Refrigerants

We innovate products that use next generation, low-GWP refrigerants that enable our customers to transition away from high-GWP refrigerants and reduce their Scope 1 emissions. Our refrigerant reclaim program also helps our customers manage their refrigerants. Additionally, we evaluate technologies, processes, systems and practices to reduce refrigerant leaks and offer customers the ability to track on-site emissions. We are engaged as an industry thought leader in the development of a circular refrigerant life cycle where refrigerants can be repurposed into new products or alternate materials.

Tracking Our Progress

We maintain standard work to track progress toward our Gigaton Challenge commitment on a quarterly basis for each of our business units. We measure and calculate avoided emissions and absolute product use emissions reductions separately to help us capture both accurately. Leadership meets monthly to discuss key insights and evaluate opportunities to reduce our customers' carbon footprints. Our audit team also annually reviews our calculations and data management procedures.



Everyone Plays a Role

Reaching our Gigaton Challenge Involves all Departments

To meet this bold commitment and support our customers, every team member, product, service and solution at Trane Technologies is oriented to “challenge what’s possible for a sustainable world” — our company purpose. Our Gigaton Challenge rallies our team members to innovate to reduce our product emissions and address global challenges related to climate change.



Every Effort Counts

Reaching our Gigaton Challenge Involves all Businesses

Commercial HVAC Use Case

Trane® worked with one of the biggest office buildings in New York City to decarbonize 3.5 million sq ft of commercial space. The building was upgraded with high-efficiency chillers, thermal energy storage, and advanced controls and building automation. These improvements saved 2 GWh/year of energy, reduced summer peak demand by 2.1 MW, offset 36 million pounds of CO₂e—the equivalent of removing 3,280 gas-powered cars from the road—and saved \$2.5 million a year in building operational costs.



Trane Commercial



Trane Residential

Residential HVAC Use Case

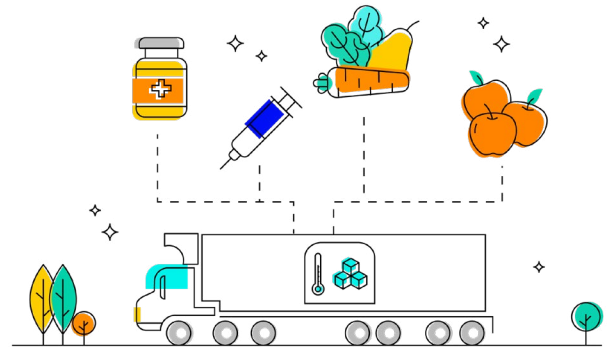
A Tennessee homeowner took advantage of our top-of-the-line efficient HVAC system from a local Trane Residential dealer. The HVAC system was paired with our variable speed heat pumps and thermostat. These upgrades increased overall efficiency, and the homeowner reports an average energy savings of \$200 per month.



Cold Chain Use Case


Thermo King's AxlePower, a trailer-mounted solution for any tractor format, recovers and stores kinetic energy generated while driving and is used to power the trucks refrigeration unit using sustainable energy with no compromise on performance. Powerful enough for long-haul journeys, the technology seamlessly integrates into existing fleets and leverages advanced telematics for system management.

Based on testing with customers, AxlePower is estimated to save approximately 66.5 metric tons CO₂e annually compared to traditional diesel-powered trailer refrigeration systems - the equivalent of 7 homes' energy use for one year.



Thermo King





Additional Information

Follow our Gigaton Challenge journey at
TraneTechnologies.com

For more information regarding the Gigaton Challenge and our 2030 Sustainability Commitments, explore the following resources:

- [Trane Technologies' Center for Energy Efficiency & Sustainability](#)
- [Gigaton Challenge](#)
- [Leading By Example](#)
- [Opportunity for All](#)
- [Climate Transition Plan](#)

Want to learn even more? Reach out to the Trane Technologies' Center for Energy Efficiency & Sustainability (CEES) team at cees@tranetechnologies.com.

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