# Gigaton Challenge Playbook

Our Actions Today

**Make a Difference Tomorrow**

TRANE TECHNOLOGIES

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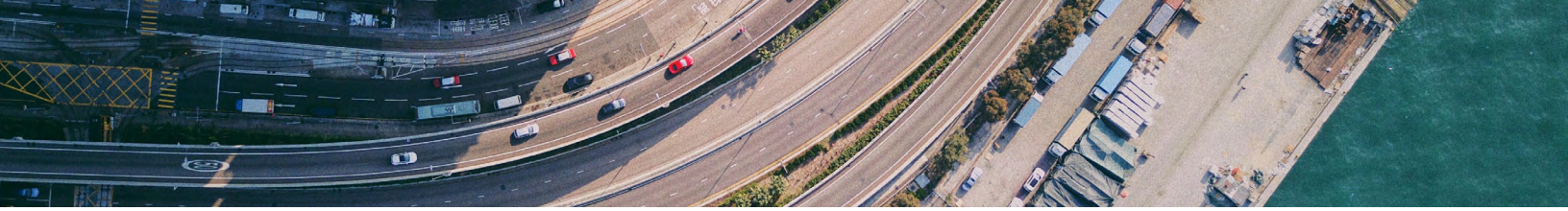


# A Message from Paul Camuti

## Our Actions Today, Make a Difference Tomorrow

**Paul Camuti**
Executive Vice President and Chief Technology and Sustainability Officer

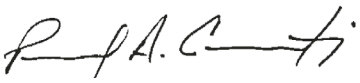
**A movement, by definition, is a change that has followers and momentum**. At Trane Technologies, we are leading a movement in how the world heats and cools buildings and moves refrigerated cargo through our Gigaton Challenge. The Gigaton Challenge is a bold commitment to reduce **one billion metric tons** of greenhouse gas emissions ($CO_2e$) from our customers' carbon footprints by 2030.

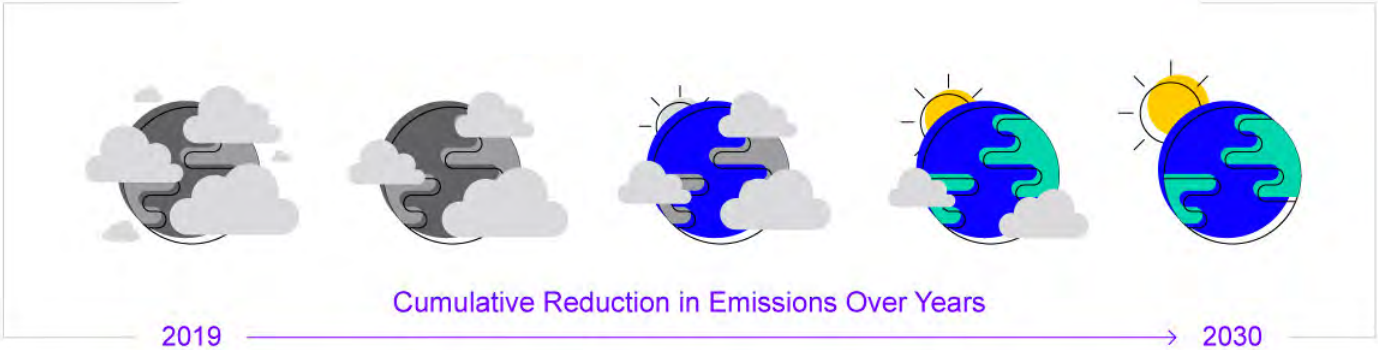
**The Gigaton Challenge is the largest science-based climate commitment related to product use emissions – a testament to our "Challenge What's Possible" resolve**. We believe in this bold commitment because of the collective action across our entire enterprise. We are climate innovators focused on bringing solutions to customers that enable them to reduce their total carbon footprint.

**This journey takes all of us.**

Leading change that drives impact is not new to Trane Technologies. The Gigaton Challenge fuels us with a sense of purpose because we know that **our collective actions today make a difference for all of us tomorrow**. We are embracing and accelerating our efforts to ensure a better, net-positive future.

Thank you,





# Why Does the Gigaton Challenge Matter?

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

Approximately **15% of global annual GHG emissions** are related to heating and cooling buildings and homes, and another **10%** comes from food lost in transport or never consumed. As climate innovators, we are uniquely positioned to lead a movement to tackle climate change and reduce the rate of atmospheric GHG concentration. **Leading by example in sustainability innovation will be how we accomplish this goal.**

**"I'm in my 2nd year of building a house. My 12 and 13 year old daughters are learning all about green, sustainability, and our collective purpose. When making green decisions vs cost – there is a value proposition that will always be considered – and I experienced this personally first hand…and my daughters reminded me how my choices made them feel as stewards and citizens of our world long term... Making a decision that might not be good for the environment but it is cheaper isn't always the right choice – everyone is wrestling with these conversations every day."**

**– Cory Sauls, Trane Commercial**

# Our Bold Commitment

**Doing What It Takes to Make a (Huge) Difference**

## How Huge?

**One Gigaton of $CO_2e$**

We are reducing one gigaton – one billion metric tons – of carbon emissions ($CO_2e$) from our customer's footprint by 2030.

Our math shows that this reduction does equate to **2% of the world's annual emissions** – or, the annual emissions of Italy, France and the U.K. combined.

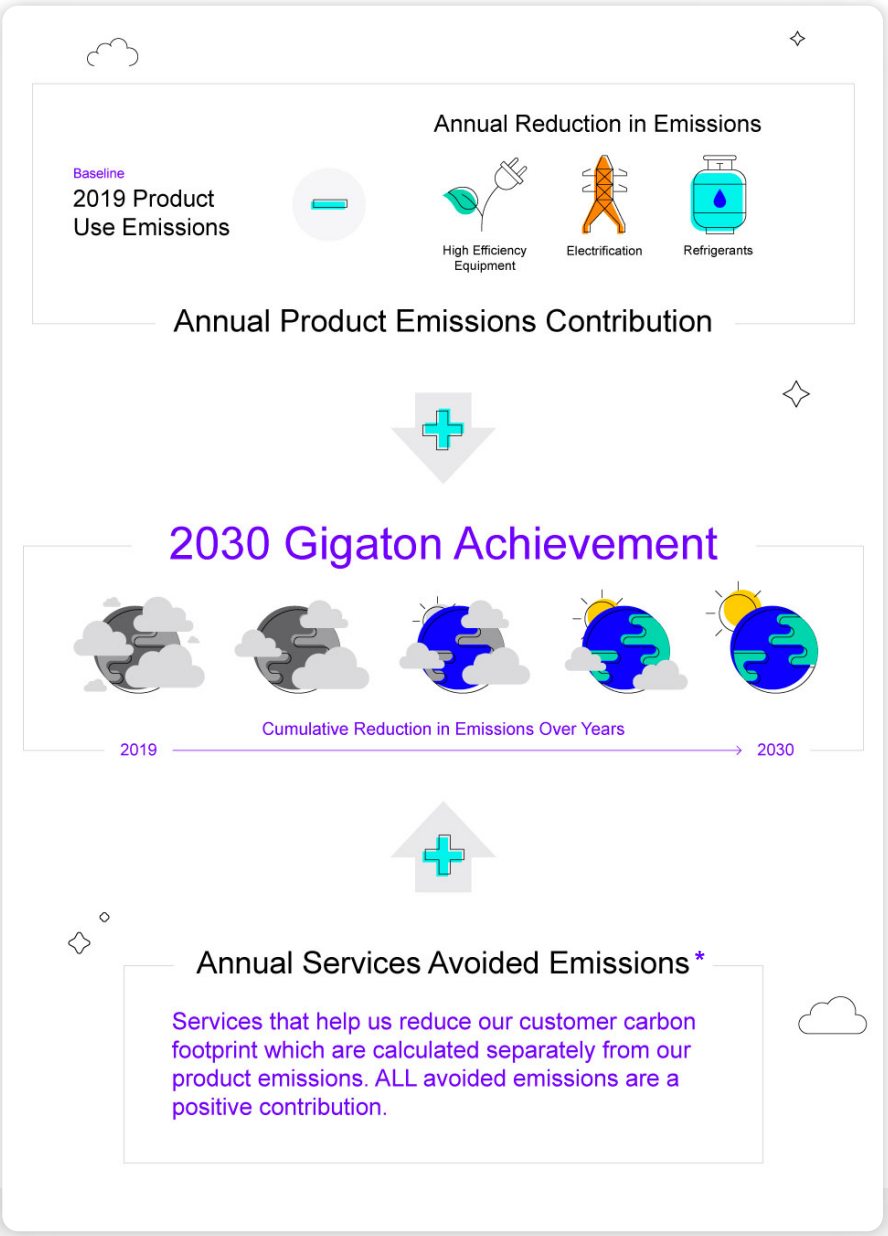
The Gigaton Challenge is related to the use of our products from our customers' operating footprints by the year 2030.

# 1 Gigaton of $CO_2e$ =

annual emissions of

Italy France U.K.

# Calculating our Pathway to Success




**High Efficiency Equipment** – Higher efficiency products consume less electricity and have less related indirect GHG emissions

**Electrification** – Transition from a fuel-sourced product to an electric-sourced product; such as a heat pump replacing a boiler

**Refrigerant Transition Management** – Transitioning from high-GWP refrigerants to low-GWP refrigerants

**What is the importance of a baseline?**

**Baseline is a term used when we are consistently comparing back to the same year through time.** For example, if our sold products emit 100 $mtCO_2e$ in 2019 and in 2020 all sold products emit 90 $mtCO_2e$, then our contribution to the Gigaton Challenge is 10 $mtCO_2e$ 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 $mtCO_2e$.

There is no universal standard for calculating avoided emissions. Therefore, Trane Technologies' methodology is proprietary.

# How we Calculate Product Use Emissions

**The following shows how we calculate product emissions and our commitment to reducing $CO_2e$ through our technology and services.**


**The calculation below shows $CO_2e$ emissions produced from the use of sold products:**

**Electricity emissions**
((Annual kwh consumption * capacity) / product efficiency) * Localized Electric Grid factors

+

**Fuel emissions**
(Annual fuel consumption * capacity) / (product efficiency) * Fuel emission factors

+

**Refrigerant emissions**
((1- recovery rate) + leak rate) * refrigerant charge* GWP

* Expected product life = **Lifetime emissions of product metric tons of $CO_2e$**

**This is done for every product sold within a calendar year. The cumulative emissions of all products sold is our total product use emissions, which then gets compared to our baseline.**

**All product use emissions are normalized to incorporate growth.**

For more information on the calculation, go to the Greenhouse Gas Protocol technical guide (page 117): **https://ghgprotocol.org/sites/default/files/standards/Scope3_Calculation_Guidance_0.pdf -**

$CO_2e$ - Carbon Dioxide equivalent, mt - metric tons, and GHG - greenhouse gas

# Everyone Plays a Role

## In the Gigaton Challenge Journey

To meet this bold commitment and support our customers, every team member, every product, and every service at Trane Technologies is oriented to “challenge what’s possible” — our company purpose.

Every department at Trane Technologies uniquely contributes to the Gigaton Challenge.

### Communications & Marketing

The communications team helps educate our team members about the biggest areas of opportunity for our customers. Marketing teams provide information to assist our customers in making the best investments for themselves and the planet.

### Finance

The finance team uses metrics to meet financial expectations while helping track business progress. Financial metrics become valuable information that enhances how the businesses respond to the market and inspires innovation which leads to a more sustainable world.

### Data Analytics

Data analytics help shape our business strategies by providing valuable insights. Analytics is truly at the core of everything we do, and therefore plays a huge role in our enterprise’s financial and sustainability successes.

### Information Technology (IT)

As a global organization, IT is instrumental in effectively providing connected tools and developing database solutions. Our team continuously improves system automation response, ultimately allowing for more sustainable customer solutions and business insight capabilities.

### Global Integrated Supply Chain (GISC)

Our GISC teams support the reduction of embodied carbon in our products through lean manufacturing and little-to-no waste systems. These decarbonizing efforts enable our enterprise to build more value for our customers and continue to lead by example within our industry.

### Engineering

The engine that drives technological sophistication of our engineering and manufacturing processes is our engineering team. By working with our product management teams they can further enhance the energy efficiency of equipment and improve services, continually driving down energy intensity for our customers.

### Human Resources (HR)

At the forefront of attracting and retaining talent, the HR team focuses on building an organization with the talent and competencies to enhance our products to meet our customers' evolving needs in energy management capabilities.

### Product Management

Our talented product management teams keep a constant pulse on our markets and drive the innovation needed to attract our customers. They work closely with our engineering and sales teams to ensure our business grows with sustainability at the core of everything we do.

### Sales

Our amazing team of sales leaders builds true relationships with customers, old and new. They have the opportunity to communicate key solutions, including our ability to electrify heating and mobile refrigeration, as well as manage the energy consumption and demand of whole buildings, homes, and transport fleets.

# Every Effort Counts

## 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.

There are four areas that have the largest opportunity to enable us to achieve the Gigaton Challenge.

> “Trane’s services provide a great opportunity to positively impact the sustainability goals of our customers as well as our business while contributing directly to the Gigaton Challenge. Once a customer has our systems in their building we can work together to continuously enhance and optimize its efficiency and reduce the carbon impact. Energy optimization of their system ultimately decreases their reliance on the electric grid, while simultaneously reducing a customer's total cost of ownership.”
>
> — **Andrea Rago**
> Trane Commercial

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

### High Efficiency Equipment

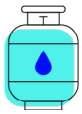
We offer high efficiency equipment with an entire system-level approach to building, home, and transport climate management to further enhance energy efficiency, reducing costs and strengthening regulatory resiliency

### System-level Energy Efficiency

Increase projects that include building envelope improvements, controls, lighting upgrades, as well as energy and maintenance services

### Reduce Food Loss

Increase sales of temperature-controlled transportation in developing countries in order to reduce food loss in global cold chain



### Refrigerant Transition Management

Transition equipment ahead of new GWP regulations and encourage an increase in refrigerant reclamation through our Reclaim Program

These levers will enable us to accelerate our path to achieving the Gigaton Challenge through all businesses in all regions – Commercial HVAC, Residential HVAC and Thermo King.

# Our Businesses

## Reaching our Gigaton Contribution

**HVAC's current estimated contribution is ~85%** of Trane Technologies' total Gigaton Achievement by 2030

HVAC equivalent contribution to the Gigaton Challenge is – **1 Billion acres of forests being planted.**

Trane Commercial

### HVAC Use Case

A county in Tennessee took advantage of our guaranteed performance contracting to improve building envelopes, lighting, HVAC equipment and controls with energy optimization. This helped the municipal buildings use **1.5 Million kWh** less than before, equivalent to burning over **532 metric tons** of coal.

Trane Residential

TRANE
It's Hard To Stop A Trane.

TRANE Supply

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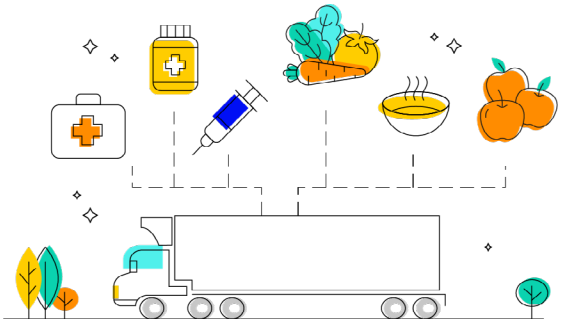


Thermo King

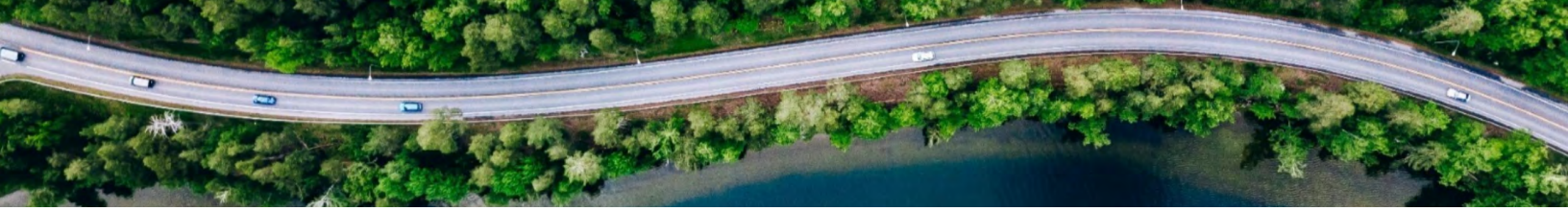
THERMO KING

**Thermo King's current estimated contribution is ~15%** of Trane Technologies' total Gigaton Achievement by 2030

TK equivalent contribution to the Gigaton Challenge is → carbon sequestered by **2.5 Billion tree seedlings** grown for 10 years

### Thermo King Use Case

Combustion engines and hybrid vehicles produce emissions that a top vehicle manufacture wanted to reduce. Working with this company, Thermo King provided a **zero-emission** all-electric refrigeration unit.



# Continuing our Gigaton Challenge Journey

## Fun Facts

*Click underlined titles for more Trane Technologies initatives.*

**Food Loss**
If food loss and waste was its own country, it would be the third largest GHG emitter in the world.
**UN Environment Programme**

**Renewable Energy**
The International Energy Agency (IEA) projects solar and wind surpassing fossil fuel energy capacity by 2024.
**World Economic Forum**

**Energy**
**6%** of global emissions are produced by freight trucks, as more combustion engine trucks take the road this number expands.
**Project Drawdown**

**Refrigerants**
**90%** of refrigerant emissions happen at the end of life.
**Project Drawdown**

Click here to view the **Refrigerant Reclaim Program**

## Success Stories

> Our teams are fully dedicated to our portfolio transformation towards electrification to reduce our customer footprint and contribute to our Gigaton Challenge. The "What we do" is important, but the "Why we do it" is inspiring all of us!
>
> — **Laurent Debias**
> Thermo King

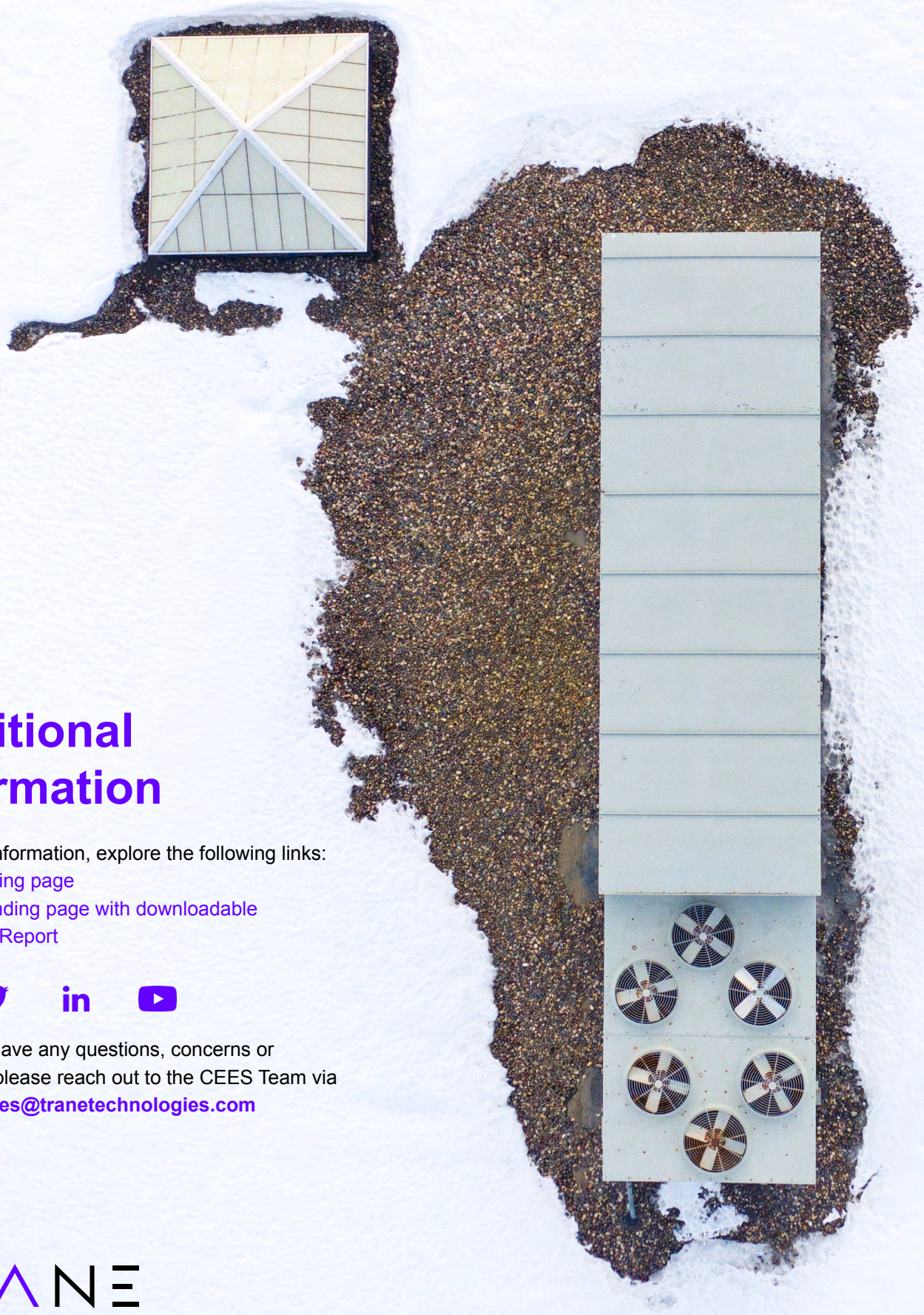
> Hospitals, nursing homes, etc., show the impact that our products can have on people's livelihood – I like to call this life saving cooling.
>
> — **Jackie Sopko**
> Trane Commercial

> As an innovator of technology and defining the energy efficiency of buildings and products, it is our responsibility to minimize the footprint we create. The Gigaton Challenge connects our purpose to something that is very tangible.
>
> — **Erik Van Oossanen**
> Trane Commercial

> The Gigaton Challenge has led me to think about sustainability beyond simply energy use and peak load shaving, but also to consider the carbon footprint. Embracing the electrification initiative is an area of innovative opportunity for HVAC, and we have a clear vision and glidepath to accomplish this very challenging goal showing authenticity, integrity, and affecting the investment community.
>
> — **Jason LeRoy**
> Trane Residential

**The Intergovernmental Panel on Climate Change (IPCC)** works within the United Nations to address Climate Change science. **What is its impact?** The sixth assessment report verifies climate change is happening at a rapid rate because of human influences. **How do we play a role?** The report states limiting $CO_2$ emissions by net zero or better will curb "human-induced global warming," i.e. **The Gigaton Challenge**.

Click the link to learn more:
**https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf**



# Additional Information

For more information, explore the following links:
CEES landing page
Gigaton landing page with downloadable 2021 ESG Report

If you still have any questions, concerns or feedback, please reach out to the CEES Team via email at **cees@tranetechnologies.com**

TRANE TECHNOLOGIES