

MATERIAL TOPIC

Climate Change

Understanding the effects of the changes in the climate related to increased heat, drought, coastal flooding and others, and what these mean for business, society and ecosystems, allows us to formulate climate actions and strategies that mitigate risk and build resilience.



How We Are Managing It

The impacts of climate change are ever increasing, making the need for a cohesive climate resilient strategy imperative. As outlined below, we have undertaken a holistic and comprehensive approach, based on research, science, technology and market realities, to develop our strategy for climate action.

Energy and Emissions

Managing our emissions is an important aspect of our carbon reduction strategy. Our manufacturing processes, transportation, office operations and supply chain are all sources of air and GHG emissions¹. These are emitted when fossil-fuel based combustion processes are used to generate electricity for manufacturing, heating and cooling, lighting and building management systems, and to operate cars, trucks and other small machinery. In addition, we use fluorinated gases, such as R-404a, as refrigerants.

As part of our decarbonization program, we have reviewed our Scope 1, 2 and 3 GHG emissions: Scope 1 emissions arise from onsite operations and company-operated vehicles; and Scope 2 result indirectly from

purchased electricity; and Scope 3 emissions arise from the materials we purchase, business travel, upstream and downstream transportation, waste generation, water consumption and also downstream sources such as energy utilized to operate our products. In this past year, we have mapped out a decarbonization pathway with concrete plans to reduce Scope 1 and 2 GHG emissions by 60% by 2030 as compared to 2021. We are also striving to address our wider Scope 3 emissions beyond our direct operations through various initiatives such as circular economy practices. TTI's approach to circularity initiatives implemented and the overall strategy going forward can be found on p.72 [📄](#). More detail on our journey to decarbonization can be found in the Spotlight on p.50 [📄](#).

Energy management is key to our strategy as increased production requires higher levels of energy input. Maximizing efficiency is our priority and an essential step to reducing our emissions. Energy-efficiency measures include timely maintenance of air-conditioning, heating, ventilation and building management systems, along with

the utilization of LED lights, setting lighting levels based on occupancy and availability of natural light and implementation of energy management systems. Renewable energy production and procurement is also an important element of our energy management plans. There are four levels in our energy strategy:

- Energy efficiency
- Renewable energy production
- Renewable energy procurement
- Fleet electrification

We will continue to ensure that new manufacturing sites include environmental considerations such as energy efficiency, use of renewable energy and water conservation in the design and construction of buildings, as well as systems and equipment.

Diversification

Another way that we reduce GHG emissions and manage climate risk is by diversifying and localizing our manufacturing and supply chains. Through diversification, we are able to source and produce goods closer to market, reducing the transportation required and thereby the emissions generated. This also

GOALS

- Become a net zero organization
- Ensure full compliance with climate-related frameworks and regulations
- Implement a climate adaptation and resilience strategy

TARGETS

- Reduce Scope 1 and 2 GHG emissions by 60% by 2030
- Set energy consumption reduction targets
- Full disclosure on climate action performance and plan
- Conduct a climate risk assessment of both physical and transition risks on all key sites

allows us to build closer ties with new markets as we engage local suppliers. In this way TTI strives to work with business partners around the globe to upgrade environmental and safety standards across our value chain. In addition, we can contribute to local community development, creating a positive impact on their economies, living conditions and educational prospects.

Climate Risk Analysis

To further build our resilience, we have put significant effort into understanding the risks that climate change poses on our business. Working with experts in the field, we have looked at both physical risks affecting key sites and the transition risks we will face, to inform our risk management and strategic planning processes moving forward. This

analysis was conducted in line with the HKEX's "Guidance on Climate Disclosures" (November 2021)² and the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

The physical climate risk analysis entailed modelling the impacts of eight acute and chronic physical risks under three future climate scenarios. This analysis was conducted on 13 key TTI sites across five global markets. A map of TTI key manufacturing sites can be found on p.54 [📄](#). Following the completion of this analysis under all climate scenarios, a portfolio- and asset-level financial analysis was run. This took into consideration potential financial losses from physical asset damage and potential business interruptions (i.e. operational losses). Markets and specific

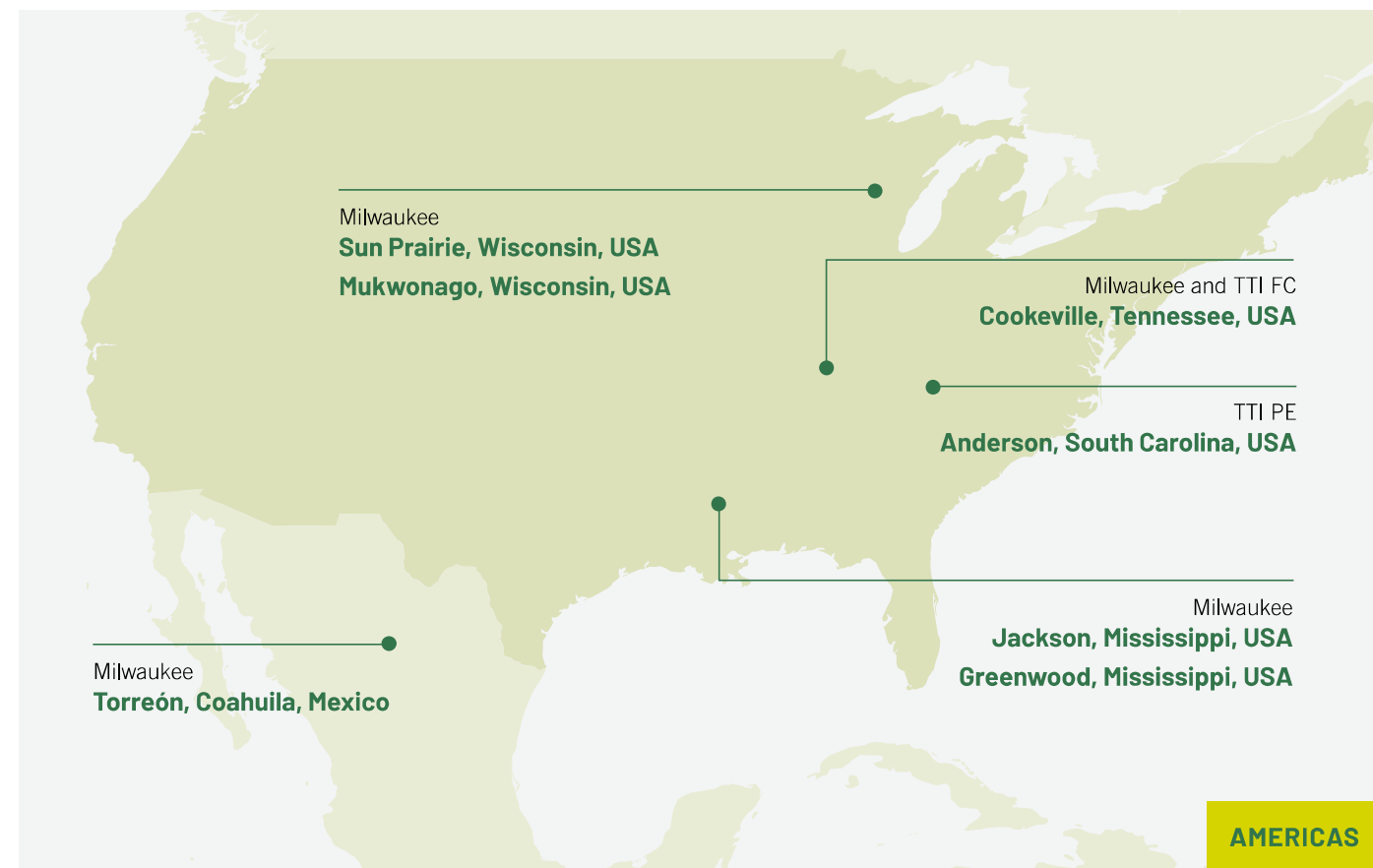
assets were ranked and prioritized in terms of their financial climate value-at-risk (CVaR) to TTI. Preliminary analysis determined that for the identified portfolio, TTI is the most exposed to acute climate events such as typhoons, storm surges and flooding from rainfall and river expansion, and will be impacted by chronic events such as extreme heat.

We also conducted a detailed transition risk analysis to identify the risks and opportunities involved with transitioning to a low-carbon economy. The analysis was conducted under the following climate scenarios published by the International Energy Agency (IEA)³:

- Net Zero Emissions by 2050 Scenario (NZE), which is a stringent pathway; and
- Stated Policies Scenario (STEP), which is a business-as-usual pathway.

1 Air emissions include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur oxide (SO_x), fine particulate matter (PM) volatile organic compounds (VOC), hazardous air pollutants (HAP) and hydrochlorofluorocarbon (HCFCs).
 2 HKEX's "Guidance on Climate Disclosures" https://www.hkex.com.hk/-/media/HKEX-Market/Listing/Rules-and-Guidance/Environmental-Social-and-Governance/Exchanges-guidance-materials-on-ESG/guidance_climate_disclosures.pdf?la=en
 3 IEA's World Energy Outlook 2021 at <https://www.iea.org/topics/world-energy-outlook> as of February 2022.

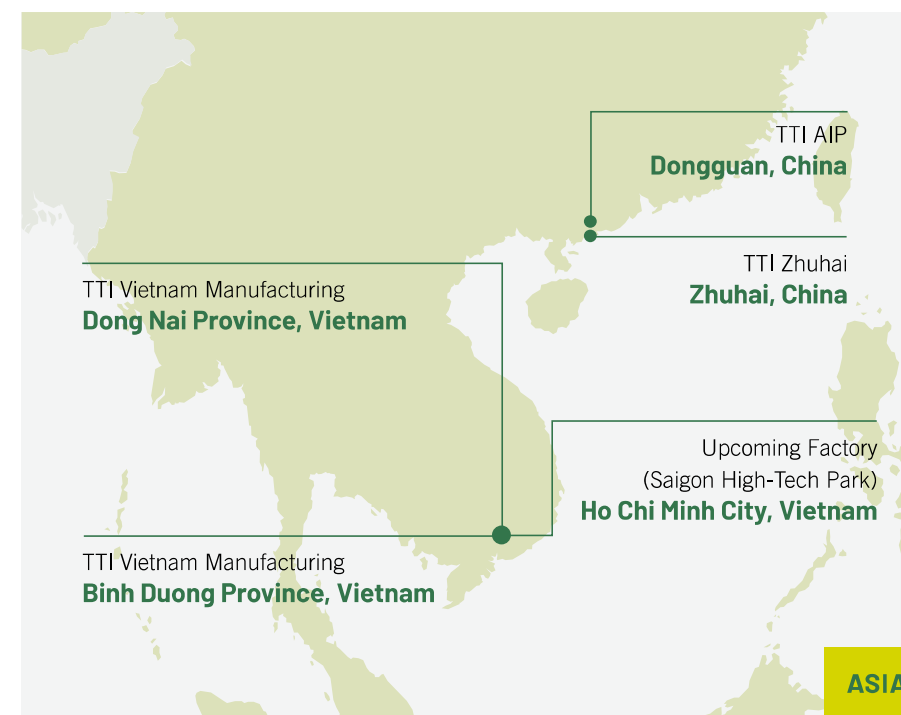
Key Global Manufacturing Sites



Based on the selected scenarios, government policies and standards as well as market and technology trends were reviewed to identify a list of transition risks and opportunities. They were further prioritized according to their impacts to TTI's business and operations and are as follows:

- **Increased carbon price.** Carbon pricing mechanisms through carbon taxes or emission trading systems and emerging carbon regulations will be introduced to all operating markets. This will increase expenditure for compliance or enhancement of energy efficiency in operations.
- **Introduction of energy efficiency labels.** More mandatory energy-efficiency product labeling schemes will be implemented in markets. As a result, the cost of product development will be increased due to efficiency testing requirements.

- **Increased demand for energy-efficient products, electrification and switching to low-carbon sources.** Higher energy prices will drive demand for efficient products. Households will also be less reliant on oil and gas to meet their energy needs, thanks to efficiency improvements and electrification. Increased investment in product research and development may be required. We see this risk as an opportunity to gain further reputation and market share while meeting customer's expectations.
- **Rise of electric mobility.** Adoption of electric heavy trucks will increase, and the supply of internal combustion engine (ICE) cars and vans will cease. As a result, the cost of purchasing or replacing electric vehicles will increase.



▶ KEY INITIATIVES AND PROGRESS IN 2021

Energy Management

Progress in energy management in 2021 is outlined below.

Energy Audits

Comprehensive energy audits were conducted at our main sites in the People's Republic of China (PRC) and the United States of America (USA). We investigated usage of alternative energy sources and energy-saving opportunities, with emphasis on finding short-payback measures and many major scale savings through assessments at individual manufacturing plants. This process included site inspections to assess operations, support machinery and maintenance activities. In the PRC, over 20 energy-efficiency measures were identified and will be implemented as part of our decarbonization program. In the USA, a number of energy efficiency measures were identified and will be implemented in the next few years.

Regenerative Testing

Our Milwaukee Tool business develops a number of battery and battery charger products every year. To guarantee the reliability and longevity of the products, a comprehensive development process has been established. Every stage of development is supported by relevant testing procedures, utilizing significant sample sizes, testing times and specific testing applications. To minimize the impact of the testing on energy consumption, our PRC Milwaukee Test Lab has developed dedicated test systems based on regenerative electronic loads. As a result of this technology, up to 92% of the energy needed to validate and qualify the products can be recovered. In 2021 alone, this newly designed testing system generated a net energy saving of 69,000 kWh over 62,000 test cycles with the potential to generate much more in years to come.

Energy Efficiency

In addition, our BUs took the following steps to decrease emissions and improve energy efficiency in 2021:

- Installing LED lights and light sensors in meeting rooms and offices
- Turning down heating, ventilation and air conditioning (HVAC) when not in use, resealing windows and updating equipment for energy and noise reduction
- Monitoring the status of air compressors through a mobile application, allowing for the regular shut down of the compressors, resulting in expected savings of 82,125 kWh of electricity per year at TTI AIP

- Replacing air compressors with two power saving permanent magnet frequency conversion air compressors
- Replacing a 37 kW air pump at a wastewater treatment station with a 30 kW air suspension pump, resulting in a 20% saving in electricity, equivalent to 126,144 kWh per year
- Installing time-controllers for 46 sets of extractor fans resulting in potential electricity saving per year of 171,648 kWh and for 36 sets of extractor fans in production workshops with a potential electricity saving of 181,440 kWh per year
- Implementing a duct system combined with fans to evacuate the heat generated from chillers in buildings, reducing the energy required to cool the building in summer and to heat the building in winter at Milwaukee Tools

Going forward at TTI AIP, the following initiatives will be implemented while additional steps are under review:

- Turning off unnecessary overhead lights in production workshops to save 518,400 kWh of electricity every year
- Removing the exhaust fan in air compressor rooms and improving the exhaust pipe
- Regularly checking air filters in compressor rooms to avoid drops in pressure and replacing air outlet filter elements
- Reducing the use of compressed air by interlocking the air nozzle of printing machines in the paint shop
- Improving the lamp control circuit of our research and development (R&D) center to save 96,250 kWh of electricity every year

Renewable Energy

We continued to assess the generation of onsite renewable energy through solar photovoltaic panels at a number of our manufacturing sites. Implementation will start in 2022 at our main manufacturing site in the PRC and we are working on the implementation of other onsite renewable energy programs in Vietnam, Europe and the USA. In addition, we have assessed different offsite renewable energy procurement opportunities such as Power Purchase Agreements, green tariffs as well as green procurement and renewable energy certificates.

Initiatives focused on renewable energy included:

- Replacing streetlights with solar lights saving 52,385 kWh of electricity per year at TTI AIP. In 2022, we are planning to do the same in our second largest factory in PRC
- Transitioning from the electricity grid to renewable energy in EMEA and American markets
- Planning to install PV solar panels on the rooftop of TTI AIP
- Planning to implement 1,111 solar panels (7.4 ft long, 3.7 ft wide) in Mexico in 2022, with the expectation of saving an estimated 337 tonnes of CO₂ per year
- Applying to the Tennessee Valley Authority to begin procuring renewable energy at the Olive Branch distribution hub
- Working toward procuring renewable energy for all Wisconsin based Milwaukee Tool locations



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**ENERGY-EFFICIENCY
MEASURES
IDENTIFIED IN PRC**

SPOTLIGHT

Renewable Energy

With renewable energy procurement being a key measure in our decarbonization pathway, we have initiated both onsite and offsite projects.

Solar Energy in the PRC

We are preparing to install solar rooftops at our facilities in the PRC and are now in the final stages of selecting an external partner for this project. Our aim is for our first installation at our main location in Dongguan in 2022 with all phases scheduled to be completed by 2026. The total area covered by solar panels will be over 120,000 sqm, generating an estimated 13.92 MWh of energy by 2027 for TTI AIP, which represents 18% of the electricity consumed at this location in 2021.

Green Energy in the USA

We are also pursuing an offsite project in the USA to help meet our target. Our Milwaukee Tool BU engaged experts at their main energy provider, WE Energies, to perform energy audits at all locations in Southeastern Wisconsin. After review of their projected consumption, Milwaukee Tool entered into a green energy commitment with WE Energies that provides 100% renewable energy at all Southeastern Wisconsin Milwaukee Tool locations. The agreement commenced in February 2022 and makes Milwaukee Tool one of the early adopters of the Energy for Tomorrow program.





TTI's total energy consumption in 2021 amounted to 424,677,328 kWh. This was 25% higher than 2020 figures due to higher levels of production to meet demand. However, TTI saw a decrease of energy consumption intensity of 7% based on sales value US\$ million over 2020.

At TTI AIP, the total energy consumption was at 91,633,162 kWh in 2021, this increased by approximately 14% over the previous year, however, intensity decreased by 15%.

Air and GHG Emissions

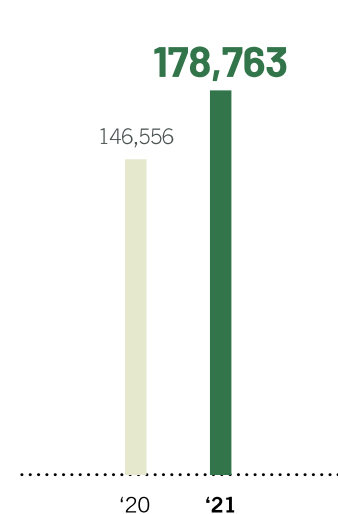
In 2021, TTI did not have any incidents of non-compliance with air emission regulations. Our GHG emissions (Scope 1 and 2) totaled 178,763 tonnes of carbon dioxide equivalent

(tCO₂e), an increase of 22% in absolute emissions and a decrease of almost 9% in intensity based on sales value US\$ million over 2020. This increase in absolute emissions was due to growth in the business and the expansion of our footprint to support this. In 2021, we continued monitoring air emissions. We have assessed which air pollutants are produced, and at what level at the applicable sites. The results show that these air emissions are not significant.*

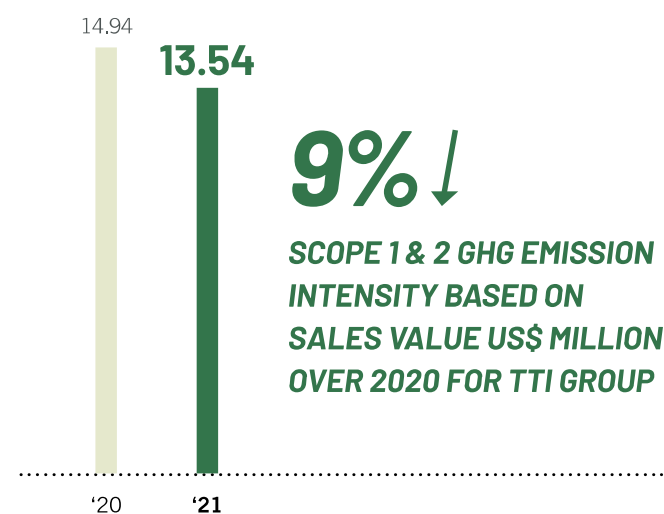
TTI AIP GHG Emissions

In 2021, TTI AIP's total GHG emissions (Scope 1 and 2) totaled 54,735 tCO₂e, an increase of 13% in absolute emissions and a decrease of 16% in intensity based on sales value US\$ million over 2020.

Total Scope 1 & 2 GHG Emissions (tCO₂e)



Total Scope 1 & 2 GHG Emissions Intensity (tCO₂e per sales revenue, US\$ million)



* Total volume of air emissions in 2021.

i. Nitrous Oxides (NOx): 2,098 kg
 ii. Sulphur Oxides (SOx): 135 kg

iii. Volatile organic compounds (VOC): 5,617 kg
 iv. Hazardous air pollutants (HAP): 2,965 kg

v. Particulate matter (PM): 4,027 kg
 vi. Hydrochlorofluorocarbon (HCFCs): 233 kg

Building Certifications

We continue to strive to reduce impact on the environment. Accordingly, a number of our global locations that consist of leased and owned properties have been or are in the process of being certified in Leadership in Energy and Environmental Design (LEED), the WELL Building Standard and other sustainability building standards.

TTI NA is LEED EBOM-Gold Level certified. TTI Anderson is a Energy Star Partner (USEPA) and working towards WELL Building certification for the Innovation Center and LEED Operations for our campus. TTI Canada has earned a BOMA Gold Certificate of Excellence and TOBY Building of the Year and is BOMA Best, Energy Star, WiredScore and FitWel certified. TTI Australia has been awarded 4 Star, Green Star Performance by the Building Council of Australia, while TTI Vietnam is targeting LEED Gold certification.

TTI VIETNAM: A CLOSER LOOK

Our new factory, which will commence operating in Ho Chi Minh City, Vietnam in 2023, is designed to be energy- and resource-efficient and will be certified to LEED Gold. A number of sustainability features and measures are being adopted at this new Ho Chi Minh site, including:

- Parking designed for bicycles and electric cars to encourage green transportation
- Installing both a shaded roof and light-colored pavements with high solar reflectance index to combat the heat island effect
- Designing effective landscape lighting by eliminating excessive uplights to reduce light pollution
- Rehabilitating the site's landscaping with native and climate-adapted vegetation, thereby requiring 55% less water for irrigation and simultaneously enabling workers to connect with nature, reducing stress and enhancing wellbeing
- Reducing indoor water consumption by 40% with low-flow sanitary fittings activated by motion sensors
- Reducing total energy consumption by 25% through demand-tailored design that adopts insulated glazing units, roof insulation, efficient chillers with high Coefficient of Performance, a variable-speed drive integrated ventilation system, and photo and motion sensors controlled lighting with timers to not only ensure users' comfort but also minimize consumption
- Designing indoor environments and systems according to the ASHRAE55 standard for guaranteed thermal comfort
- Contributing to healthy air quality by designing the production facility's ventilation system according to the ASHRAE62.1-2010 Standard with dust filters at the entrances and selecting low-emitting materials for fit-outs with audited environmental product declarations
- Adopting sustainable construction practices, including erosion control, waste management, and indoor air quality controls for construction workers' safety
- Planning for material recycling and reuse

