

GREENHOUSE GAS EMISSIONS

We acknowledge and accept our responsibility to manage our operations to minimize the generation of greenhouse gas (GHG) emissions and the associated impacts on climate change, public health and the environment. Our concerns for these potential impacts will drive our plans and activities to reduce our emissions to sustainable levels. We also consider GHG emission reductions a sign of improved operational efficiency at our manufacturing facilities and a potential business advantage. We diligently monitor our processes in compliance with applicable regulatory requirements and work to minimize our global environmental footprint.

Materion continues to identify and implement measures to reduce GHG emissions. For example, equipment upgrades at our Lincoln facility have enabled GHG emissions reduction of approximately 200 metric tons (MT) of Carbon Dioxide Equivalents (CO₂e). Additionally, in 2022 our Materion Optics Balzer facility in Jena, Germany utilized 100 % renewable electric energy.

Materion is continuing to assess GHG emissions and the results will be used to focus our planning and implementation to those operations and activities that provide the greatest potential for reductions in GHG emissions. In 2023, we are evaluating opportunities to reduce our GHG emissions by potentially adding solar at select facilities as well as increasing our procurement of renewable electricity.

Absolute GHG emissions performance was relatively flat in 2022 versus 2021. Changes observed were related primarily to the acquisition and integration of HCS Electronic Materials late 2021 and production fluctuations at manufacturing operations. GHG intensity performance in 2022 showed an improvement.

The 2019 - 2022 companywide GHG Emission data is provided in the following table.

GHG EMISSIONS

Absolute Emissions	2019	2020	2021	2022
Scope 1 (MM MT CO ₂ e)	0.061	0.065	0.071	0.072
Scope 2 (MM MT CO ₂ e)	0.102	0.112	0.118	0.126
Emissions Intensity	2019	2020	2021	2022
Scope 1 MT CO ₂ e/(\$1,000 Net Sales)	0.052	0.056	0.047	0.041
Scope 2 MT CO ₂ e/(\$1,000 Net Sales)	0.086	0.096	0.078	0.072

ENERGY

Many of our manufacturing processes are heavily dependent on energy and we understand that improved energy efficiency and reduced usage provides economic as well as environmental benefits including reduced GHG emissions. We are committed to investigating and implementing approaches to reduce our overall energy intensity and usage of non-renewable energy sources, as well as increase our use of renewable energy. Our approach includes enhancing energy usage metrics, identification of usage reduction opportunities, equipment, improving process technologies, procuring renewable energy, and other innovative methods to identify and implement efficiency and other energy reduction improvement opportunities across our organization.

Energy reduction initiatives include actions such as lighting upgrades and more efficient LEDs as well as upgrading or replacing equipment with more energy efficient options. For example, equipment upgrades and process improvements at our Lincoln, RI facility have enabled energy consumption reductions of 2,100 GJ of energy per year.

In 2022, Materion initiated a comprehensive energy assessment at two of our largest facilities to further identify opportunities to increase efficiency and reduce usage. The results are being used to ensure prioritization and advancement on the most impactful reduction opportunities at those locations. The learnings and methodologies will also be used to identify opportunities for improvement at other facilities. Materion also completed a renewable energy opportunity assessment across our global facility portfolio.

Greenhouse Gas Emission and Energy



For 2022, we determined that approximately 5% of our purchased electricity is delivered from renewable sources. The assessment results will inform our ongoing evaluation of opportunities to further increase our use of renewable energy in our operations. Currently in 2023, Materion is planning to expand its use of 100% renewable electricity purchasing to several domestic facilities and also to install onsite solar panels at our Jena, Germany facility.

Absolute Energy use in 2021 versus 2022 showed a slight increase, however Materion did achieve an improvement in energy use intensity on a year over year basis.

The 2019 - 2022 companywide Energy Use data is provided in the following table.

ENERGY USE				
Absolute Energy Use	2019	2020	2021	2022
Energy Use (MMGJ)	1.47	1.52	1.62	1.73
Energy Intensity				
Energy Intensity (GJ/\$1,000 Net Sales)	1.24	1.29	1.07	0.99