

HSGC[®] HEMLOCK
SEMICONDUCTOR

2022 SUSTAINABILITY REPORT



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AT HSC, SUSTAINABILITY IS PERSONAL

At Hemlock Semiconductor Operations (HSC), sustainability isn't just good business, it's personal. It's something we take pride in. Our home state of Michigan is defined by abundant natural resources, reminding us every day that the resources across our planet are worth protecting, for today and for future generations.

HSC is America's leading manufacturer of high-purity polysilicon for electronic devices, and we're moving the world toward a greener future by supplying the fast-growing solar power industry. We're committed to doing good for our local and global community, relentlessly improving our operations and encouraging the removal of supply chain carbon emissions. And that's good for all of us. We believe that sustainability is personal, so we encourage our employees, customers and community to learn more about what HSC is doing and how each of us can take actions that create a more sustainable planet.

This report follows our 2020 report with updated information for 2020 and 2021 and covers all HSC operations.



FROM OUR **CEO**

Sustainability is everyone's business.

At HSC, we say “sustainability is personal” because we each have an important role to play in reversing the negative impacts of climate change and creating a more sustainable, inclusive and equitable society. As a father, I continually remind myself: For the sake of my own children and for future generations, I want to leave our planet in better shape than I found it.

As chairman and CEO of HSC, I believe our company has a responsibility to be part of the solution to climate change because we have a broad impact on the lives of our employees and the communities where we live and work. That's why HSC is dedicated to reducing its carbon footprint, setting sustainability goals with science-based

targets and mapping out how we will achieve them, as outlined in this report. I'm excited by the progress our company is making in its drive toward improving our planet and the communities in the Great Lakes Bay Region by becoming more sustainable.

HSC has undergone several important changes since issuing its first sustainability report in 2020. I became the new chairman and CEO at the beginning of 2022, and Corning moved from owning 40.25% of HSC to owning 80.5%, which has allowed us to work more closely with the sustainability team at Corning to make sure our actions are aligned. Over the past two years, we have focused on more deeply understanding the impact of our efforts – both positive and negative – and have worked to refine our sustainability strategy accordingly.

As the world around us changes, we take pride in the fact that the products we make are changing the world. Not only does our hyper-pure polysilicon power the solar technologies that promise to deliver greener, more affordable energy, reducing our dependence on fossil fuels and helping to mitigate the causes of climate change, we are also leading the way in reducing the carbon footprint of our products by producing ultra low-carbon polysilicon with up to 50% less embodied carbon than our competitors. In addition, our R&D team continues to work at the cutting edge of data analytics, machine learning and materials science to enhance the purity of our polysilicon, enabling the production of ever-smaller semiconductors known as microchips that will drive the innovations of the future, from medical technologies to autonomous vehicles.

Since our last sustainability report, we have expanded our external engagement to include initiatives such as the Clean Energy Buyers Institute’s “Beyond the Megawatt,” which leverages the power of large energy users to increase demand for clean energy. We’re also involved with the World Economic Forum’s US Centre for Advanced Manufacturing, which will be located in Michigan. We collaborated directly with the Michigan Department of Environment, Great Lakes, and Energy

(EGLE) and Gov. Whitmer’s Council on Climate Solutions to produce the MI Healthy Climate Plan, which will help guide Michigan to a low-carbon future. And, we continue to work with other industry leaders through the Ultra Low-Carbon Solar Alliance (ULCSA) to expand market awareness and deployment of ultra low-carbon solar technologies that accelerate reductions in greenhouse gas emissions across the solar supply chain.

I’m especially focused on our efforts to advance the social component of the ESG framework, both in terms of our support for a more sustainable and resilient community and through our commitment to building a work culture that exemplifies diversity, equity and inclusion. Our Corporate Citizenship program donates nearly \$1 million annually to worthwhile community organizations and projects that strengthen the fabric of the places where we live and work, and our employees volunteer thousands of hours each year toward achieving the same goal.

We know that our most valuable assets – and the key to our success in the global marketplace – are the talent and dedication of our employees. That’s why earlier this year we onboarded 400 contract workers as HSC employees, empowering them to bring their

“whole selves” to work, positioning them to fully participate in the professional development and career advancement opportunities at HSC, and, most importantly, honoring our “One Team” philosophy.

Our employees are also critical to HSC’s sustainability journey. We work hard to engage every member of the HSC team, to support their personal and professional aspirations, and to foster a company culture where every perspective matters and every voice is heard. We want our employees to feel confident that they can bring their best ideas to HSC’s sustainability efforts and receive support for changes, large and small, that can make a real difference. I invite you to read our latest Sustainability Report to learn even more about the actions HSC is taking to create a more sustainable planet while connecting and energizing the world we share.



Arabinda (AB) Ghosh
Chairman and CEO
[LinkedIn](#)

2020-2021 SUSTAINABILITY HIGHLIGHTS

Innovation



Using advanced analytics, leading the way in developing next-generation technologies.



Participant in building a robust domestic supply chain for solar manufacturing.

Environmental



Launched process to join Energy Star. Achieved in 2022.



Served as Energy Intensive Industries Workgroup co-chair liaison for the Michigan Council on Climate Solutions.

Social



Donated nearly \$1 million annually to local community initiatives.



Created a new role – Diversity & Community Liaison.



Made Juneteenth an official paid holiday.

Governance



Established a Sustainability Steering Team.



Completed a materiality analysis and assessment of the Sustainable Development Goals (SDGs).



Established a set of voluntary commitments.



Began engaging key suppliers on their ESG performance.

ABOUT
HEMLOCK
SEMICONDUCTOR



ABOUT HEMLOCK SEMICONDUCTOR

Hemlock Semiconductor (HSC) is a leading provider of hyper-pure polysilicon products for the electronic and solar power industries. As the raw material used to create semiconductors, polysilicon is crucial for cell phones and computers, as well as the technologies of the future, where the Internet of Things and artificial intelligence meet on new creations, such as autonomous vehicles. We're also moving the world toward a greener future by supplying the rapidly growing solar power industry.

We are passionate about silicon-based technology and its unique potential to connect and energize the world we share. Dedicated to sustainability and environmental responsibility, we have honed our manufacturing process to deliver products with an ultra low-carbon footprint. We also put a strong emphasis on public safety and take pride in being an involved and active community leader in the Great Lakes Bay Region of Michigan.

HSC began operations in 1961 and is owned by two world-leading applied science and technology companies: [Corning Inc.](#) and [Shin-Etsu Chemical Co., Ltd.](#)

At HSC, we are the first step in creating a critical building block for tomorrow's high-tech products. Without the kind of hyper-pure, high-quality polysilicon we provide, the manufacturing of cell phones, advanced electronics and photovoltaic panels for solar energy would not be possible.

61

Years in Business

1,300

Employees & Contractors

~\$1 billion

Annual Revenues

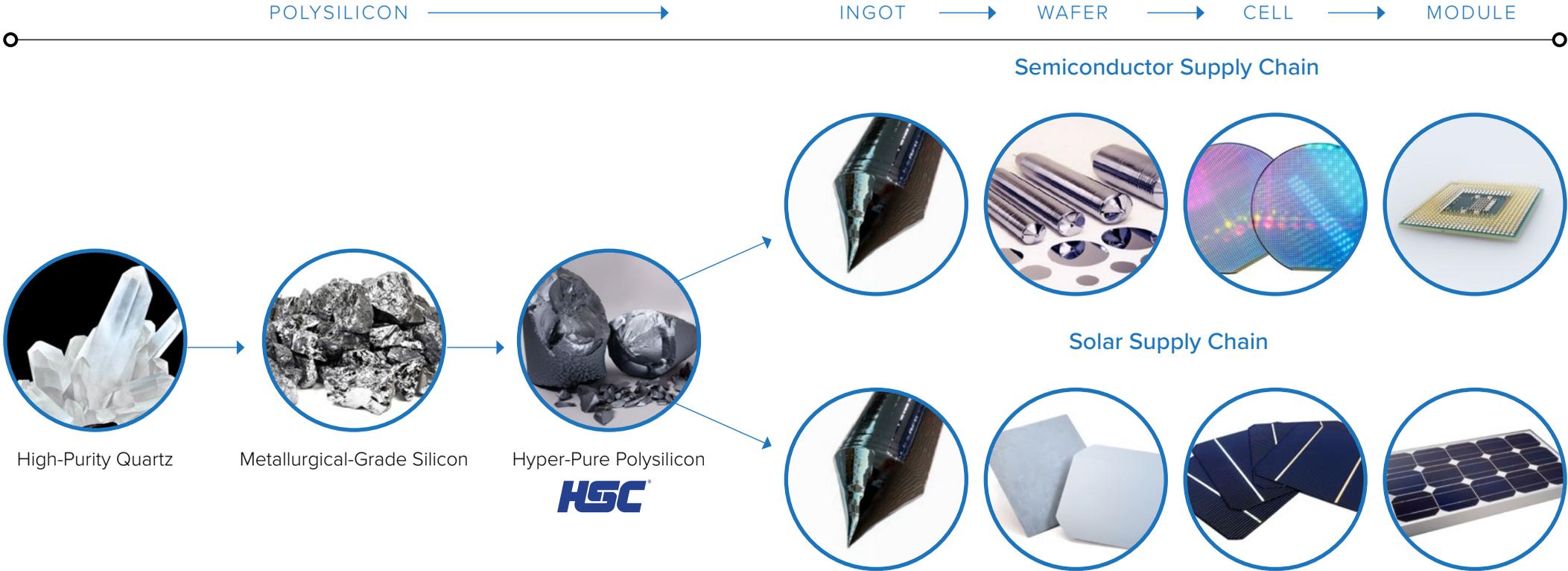


Location: Hemlock Michigan, USA

HSC's key markets are:

- Producing high-purity, solar-grade polysilicon needed to manufacture monocrystalline ingots and wafers, which are then used to produce sustainable solar power cells, panels and arrays.
- Hemlock Semiconductor is one of a small group of manufacturers globally that can deliver polysilicon for use in fabrication of semiconductor wafers. Polysilicon from HSC is the building block for all electronic devices, including cell phones, computers, tablets, televisions, automation and more.

HSC utilizes best-in-class manufacturing technologies to ensure delivery of a high-quality product for our customers every time. We're continuously seeking opportunities to utilize developments in artificial intelligence and machine learning to streamline our production.



OUR **VALUES**

Our corporate values reflect our corporate character. They are the principles that we live by, that create the culture in which we work and the reputation that we enjoy. They calibrate us toward actions that make us proud of our company and earn Hemlock Semiconductor the genuine respect of our stakeholders, customers, suppliers and community.



We collaborate and engage as One Team for the good of HSC, recognizing the important role that each person plays in our shared outcomes.



We are the best in class and are committed to developing an exceptional workforce where people do their best work and produce the best product.



We safely use, manage and protect the resources entrusted to our care.



We deliver quality work to both our internal and external customers on time, every time.



The definition of sustainability encompasses the triple bottom line – People, Planet, Prosperity. We see the direct intersection of sustainability with our core values. We believe this is critical to achieving our objective to fully align our corporate and sustainability strategies.

DESIGNATIONS & CERTIFICATIONS

We have achieved the following designations and certifications:

- Clean Corporate Citizen (C3): Michigan Department of Environment, Great Lakes, and Energy (EGLE) designation. To earn C3 status, companies must display facility-specific environmental management systems, active pollution prevention initiatives and a consistent record of compliance with state and federal environmental requirements.
- Quality Management System
 - IATF 16949 Certification
 - ISO 9001 Certification
- RC 14001 Responsible Care® Management System
- ISO 14001 Environmental Management System



MOVING TOWARD A MORE SUSTAINABLE SOCIETY – OUR STRATEGY, FOCUS AND MATERIALITY DISCUSSION

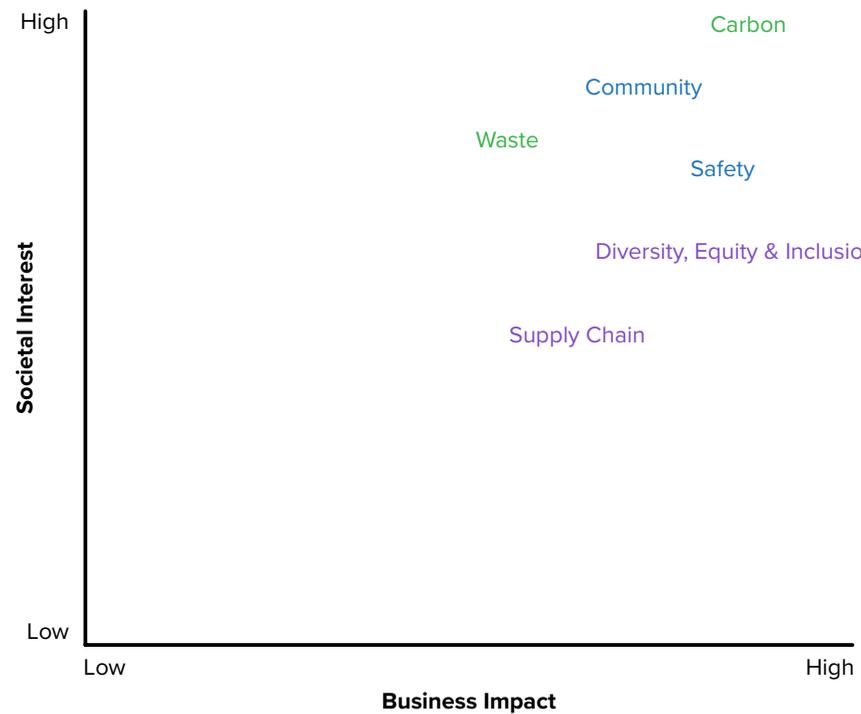
Overall Strategy

HSC manages our overall strategy via our “Strategic Blueprint,” a document shared broadly with every employee. The Blueprint is updated annually to reflect the current business environment and the key initiatives necessary to achieve our objectives. Embedded in the Blueprint is the “Strategic Greenprint,” a document that focuses specifically on our sustainability initiatives.

Our sustainability vision is that “HSC will lead the transformation to a sustainable society by reducing our carbon footprint, exemplifying clean manufacturing, and creating strong supply chain partnerships.” We have developed a set of actions that we believe will drive us to achieve our vision. These actions are measurable and progress is regularly reported to senior leadership.

Materiality Assessment Output

In 2020, we conducted a materiality analysis using key issues identified in the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), CDP (formerly known as Carbon Disclosure Project) and both the American Chemistry Council's Responsible Care® Principles and their Chemistry-for-Sustainability commitment. We engaged senior leadership, a cross section of employees, and our Community Advisory Panel (CAP) to understand which issues were most important for HSC to focus on. Based on that input, we have identified the following issues as the most important for the future health of the business:





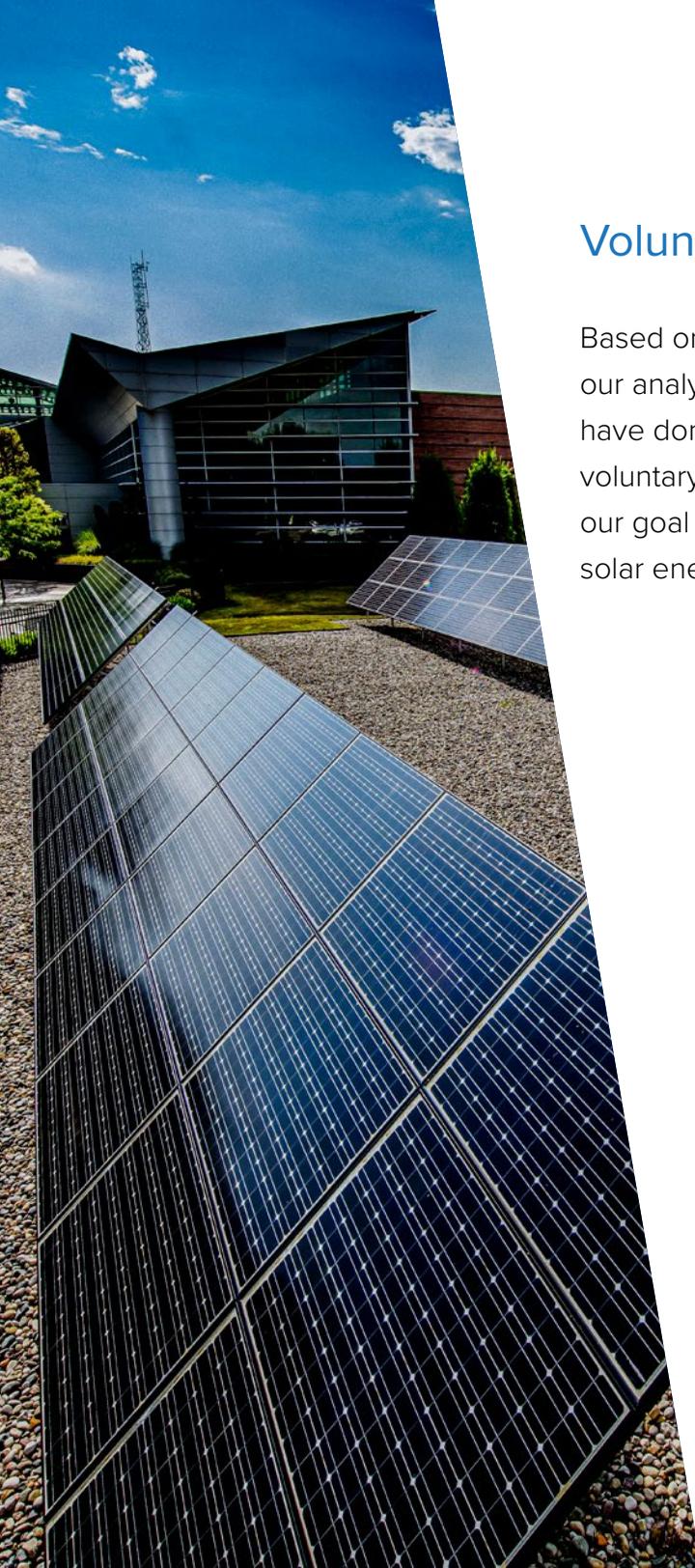
Working to Support the UN Sustainable Development Goals (SDGs)

We also assessed the 17 SDGs to sharpen our focus on the goals that most clearly align with our business. While all the goals are important and we will continue to do our part to contribute to each of them, we believe the goals where we can make the most difference are:



Bringing Life Cycle Analysis (LCA) Expertise Into the Company

As noted in our 2020 report, we believe that having LCA expertise in the company provides valuable information for making business decisions, from R&D to process development to supply chain management. We worked with Michigan State University to train employees as internal experts on LCAs. This has allowed us to assess our products, especially for their carbon impacts, to make better decisions on the most significant opportunities to reduce the impacts of our products throughout their lifecycle.



Voluntary Commitments

Based on the materiality assessment, as well as our analysis of the SGDs and the LCA work we have done to date, we have adopted the following voluntary commitments to ensure that we achieve our goal of leading the transition to a sustainable solar energy future.



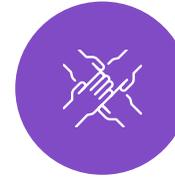
HSC proudly aligns with our parent company's ([Corning Inc.](#)) Science-Based Targets initiative ([SBTi](#)) to reduce Scopes 1 and 2 greenhouse gas emissions 30% by 2028 aligned with a 1.5°C maximum temperature rise.



Enhance strategies to drive waste streams into their lowest possible environmental impact.



Continue learning from our injuries and property incidents to maintain our safety metrics in the top quartile of our industry benchmark – NAICS 327000 – Nonmetallic mineral product manufacturing.



Continue strong corporate citizenship, community financial support and encourage increased employee volunteerism by rewarding and recognizing employees' efforts.



Develop strategies for creating a more diverse, equitable and inclusive culture while advancing underrepresented people within our entire organization.



Partner with suppliers to live our [Supplier Code of Conduct](#) and reduce greenhouse gas emissions.

External Engagement, Memberships and Policy Initiatives

HSC is an industry leader in working to create more sustainable supply chains for both the electronic and solar power industries. HSC works continually with stakeholders to bolster investments in cutting-edge manufacturing techniques along the entire supply chain so the U.S. remains globally competitive in the semiconductor industry.

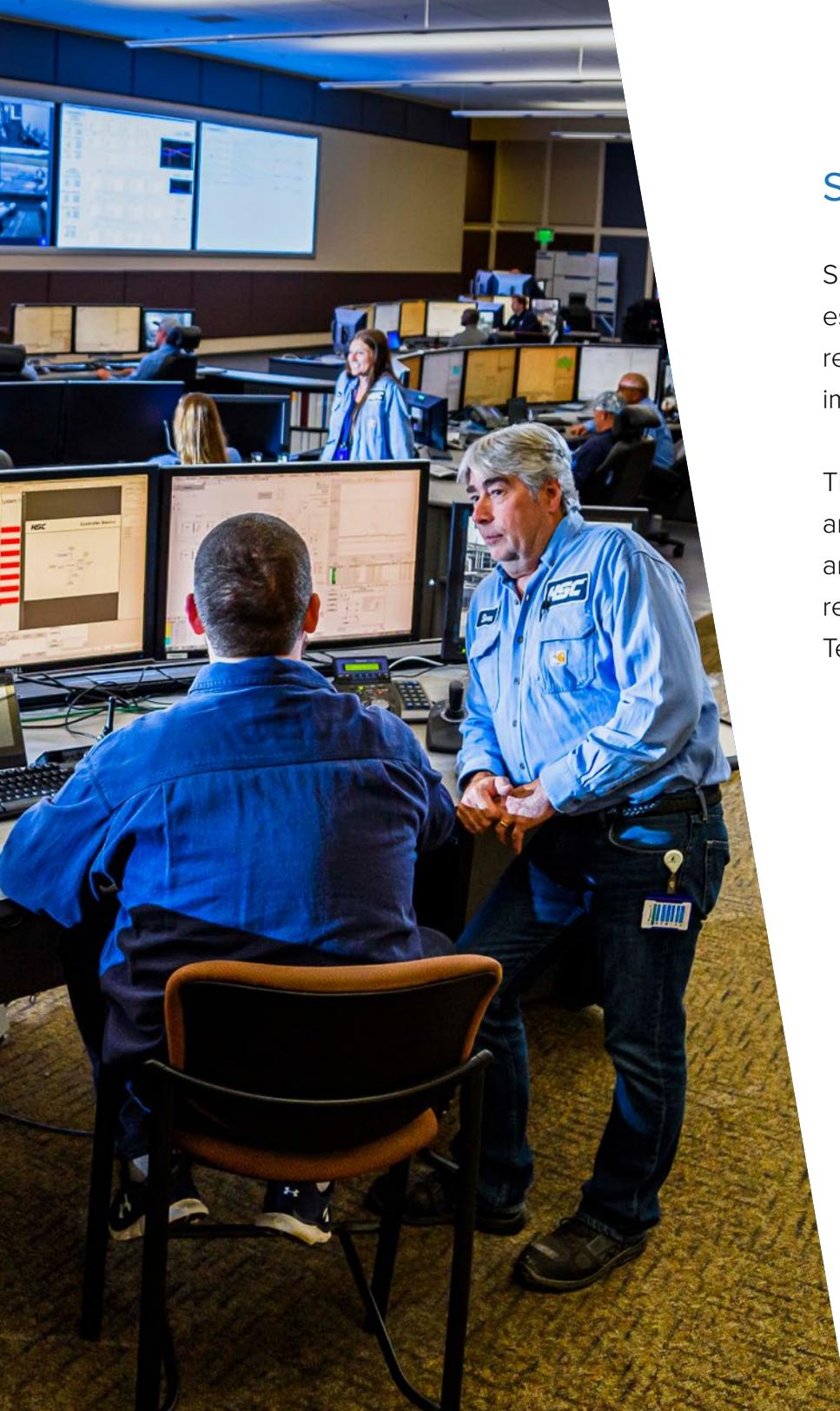
When it comes to solar, HSC teams with partners to spread awareness of U.S.-made polysilicon's imperative role in decarbonizing and de-risking the solar supply chain. U.S.-made polysilicon facilitates the production of ultra low-carbon solar panels—allowing solar developers and owners to reduce embodied carbon by up to 50%. The Ultra Low-Carbon Solar Alliance defines **embodied carbon** as the greenhouse gases (GHGs) that are released throughout the supply chain, including the extraction of materials from the ground, transport, refining, processing and assembly.

Our initiatives include supporting the Clean Energy Buyers Alliance (CEBA) and being a Foundational Founder of its **“Beyond the Megawatt”** (BTM) initiative. BTM maximizes the environmental and social outcomes of the transition to renewable energy by leveraging the influential demand of large energy customers through the procurement of clean energy. The initiative aims to benefit people and the planet by contributing to carbon-free energy systems that are resilient, equitable and environmentally sustainable.

HSC is engaged in driving more advanced manufacturing opportunities to Michigan. Included in this is our support of the World Economic Forum's (WEF) first **US Centre for Advanced Manufacturing** in Troy, Mich., at Automation Alley. The Centre joins a network of 15 centers spanning four continents and is the first center in the world focused on advanced manufacturing.

Affiliations





Sustainability Steering Team

Since the publication of our 2020 report, we have established a Sustainability Steering Team with the responsibility to set our strategy and ensure the implementation of projects to achieve our commitments.

The Steering Team meets monthly and reviews projects and timelines as well as vetting proposed strategies and opportunities. Members of the Steering Team are responsible for engaging with the Executive Leadership Team on recommendations and key decisions.



ENVIRONMENTAL





ENVIRONMENTAL

As one of our primary areas of focus, we believe we must manage the raw materials we use and the products we manufacture in a safe and environmentally responsible manner. It is essential for our customers to have confidence in the products they buy from HSC. We are striving to create zero waste and emissions from our operations while realizing that the implementation of industry-leading standards takes time to achieve.

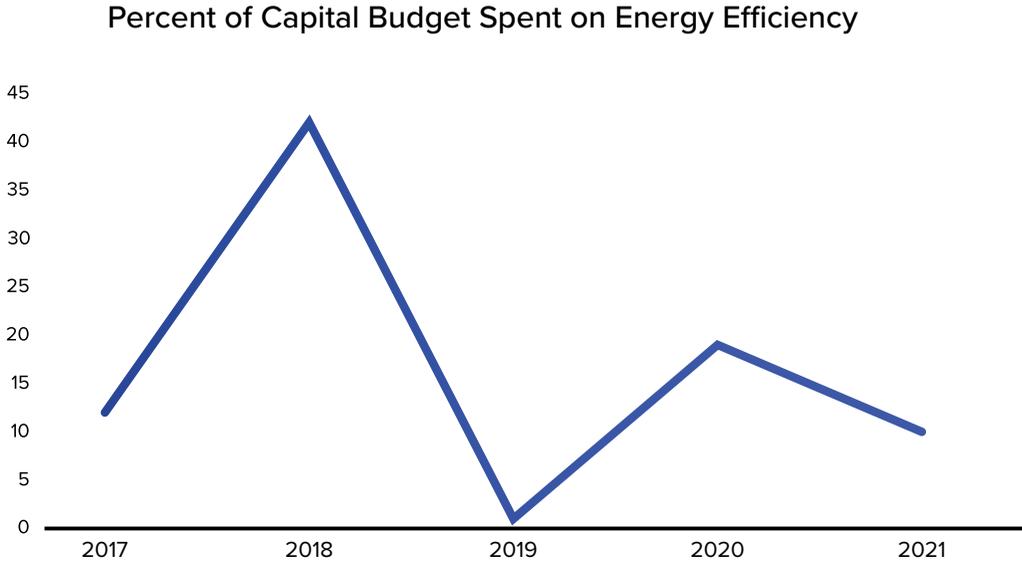
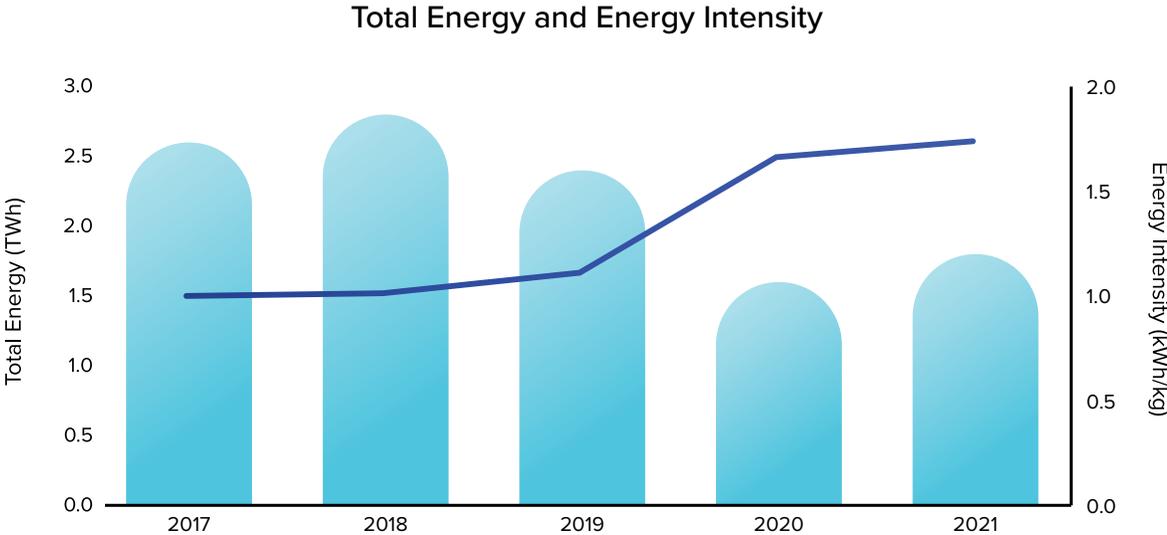
In 2020 and 2021, significant global supply chain and trade challenges impacted our solar production. The reduction in production volumes reduced our use of raw materials and our waste and emissions. We are ramping up operations and expect to be back to full production levels by 2024.

Energy Management

HSC solar polysilicon generates clean energy, nearly five times more energy per year than we use to produce it and over 100 times more clean energy over the life of the solar panel.

It is important to provide not only our total energy use to produce polysilicon, but also the progress on improving our energy efficiency. As the chart indicates, with the reduced production of solar in 2020 our energy use per kilogram of remaining product increased significantly.

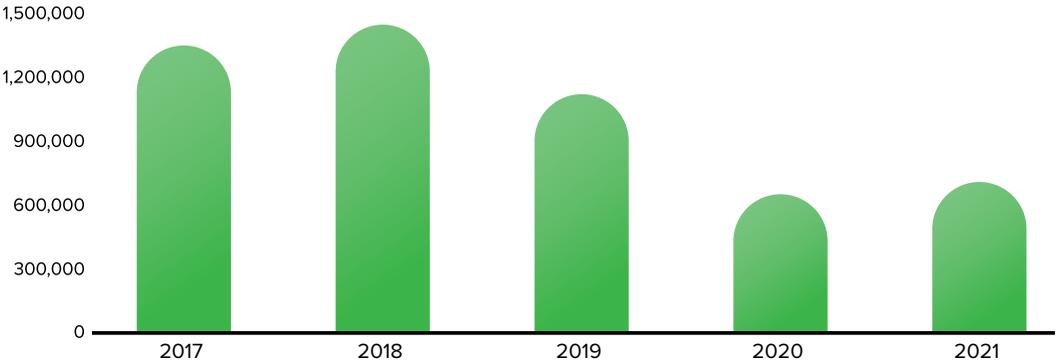
Our energy use has decreased over the five-year period due to significant investments in analytics and data science software that now deliver critical insights toward control and reduction of energy in our manufacturing operations. We continue to pursue energy efficiency opportunities in our operations, including investments in technology to harness greater energy efficiency, upgraded steam boilers, conversion of process motors to variable frequency drives, and the continuing transition to more LED lighting. In addition, 2020 and 2021 energy use was further reduced due to lower production levels. We recognize that we must continue to invest in efficiency-related projects to achieve our goals so we are reinvigorating our energy efficiency innovation focus in 2022.



Greenhouse Gas Emissions

A majority of our greenhouse gas emissions are Scope 2, associated with our purchased electricity. Most of the Scope 1 emissions are due to burning natural gas for on-site thermal energy. Our emissions were lower in 2020 and 2021 due to lower production volumes.

Scopes 1 & 2 Greenhouse Gas Emissions (Metric Tons)



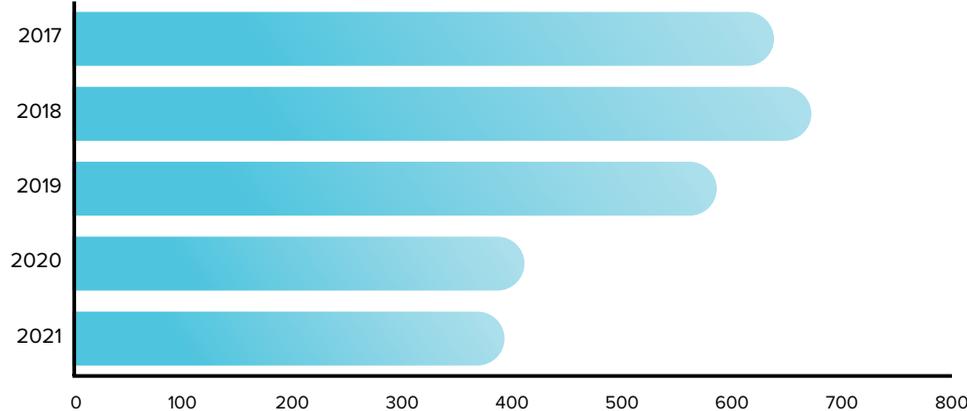
Scope 1 GHG emissions are direct emissions from sources that are owned or controlled by the organization. Scope 2 GHG emissions are indirect emissions from sources that are not owned or controlled by the organization. Scope 2 includes emissions that result from the generation of electricity, heat or steam purchased by the organization from a utility provider.

Water Conservation

HSC believes it is important to measure our water use and continuously assess opportunities to recycle and reclaim water. All water used on our site is potable water. The global nonprofit World Resources Institute (WRI) has developed a publicly available tool for organizations to assess their future water risks. Based on the [Aqueduct World Resources Institute](#), Thomas Township, Mich., is low- to medium-risk in terms of future water scarcity and stress.

Our water consumption in 2020 and 2021 decreased due to lower production volumes.

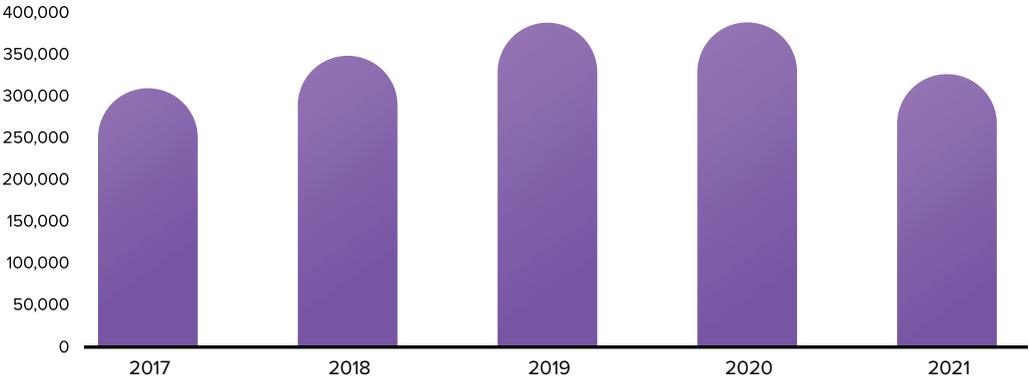
Total Water Consumed (Millions of Gallons)



Wastewater Management

We process our wastewater in two ways: A small amount of brine is trucked to an offsite wastewater treatment plant. The bulk of our wastewater is piped to the local public wastewater treatment plant.

Wastewater Treatment (Metric Tons)

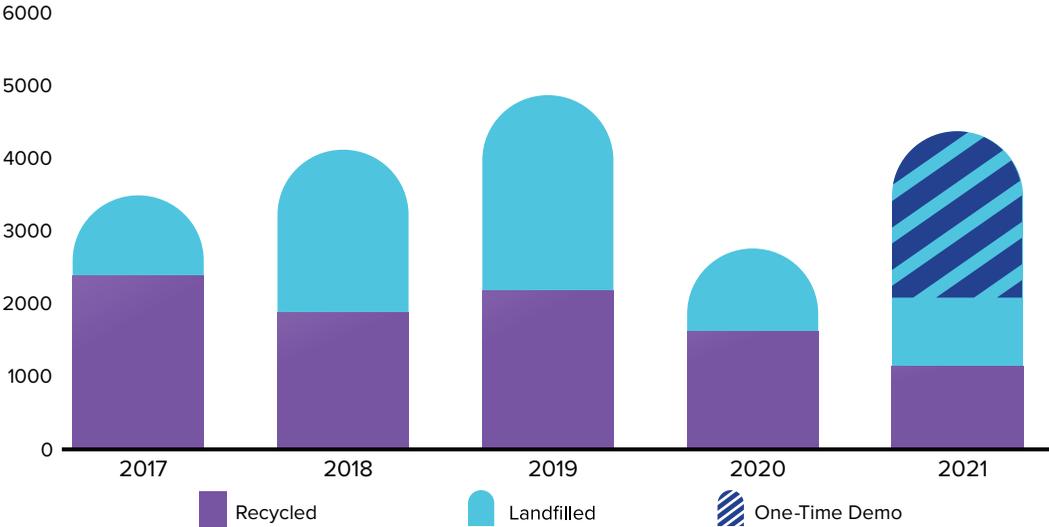


Waste Generation

Non-Hazardous Waste

We strive to recycle as much waste as possible. Our recycle streams include cardboard, pallets, scrap metals, concrete and a mixed stream from offices and the cafeteria. We have partnered with Waste Management to drive continuous improvement to increase the quantities of materials that are recycled. All the non-hazardous waste that cannot be recycled is sent to landfills. In 2021 we demolished a legacy production building to make room for new technology growth opportunities. A large fraction of the demolition waste was non-hazardous waste landfill.

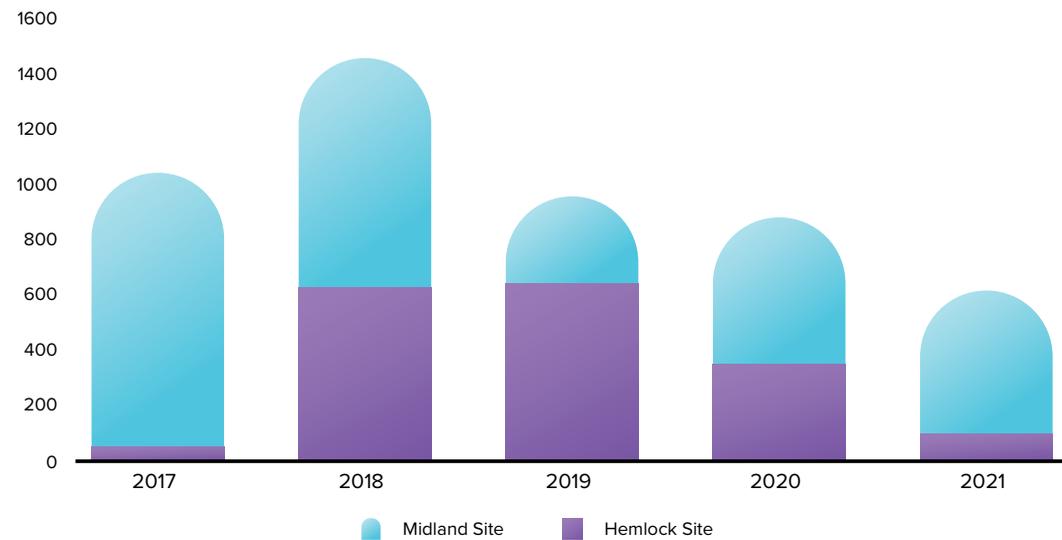
Waste (Metric Tons)



Hazardous Waste

Hazardous waste from our Midland facility is primarily derived from our electronic semiconductor business. Since our solar assets were idled in 2020 and 2021, hazardous waste was significantly reduced. As we ramp up solar production into 2024, we are planning on a capital improvement project to cut in half our Hemlock site hazardous waste intensity compared to 2018-2019.

Hazardous Waste (Metric Tons)



SOCIAL



HSC Emergency Action Team



SOCIAL

We consider the social component of ESG very broadly, taking into account how we engage with our employees as well as the communities around where we operate. We believe it is important that our employees are proud to work at HSC and can carry that pride to our local communities. We are actively involved in building great communities where we live and work.

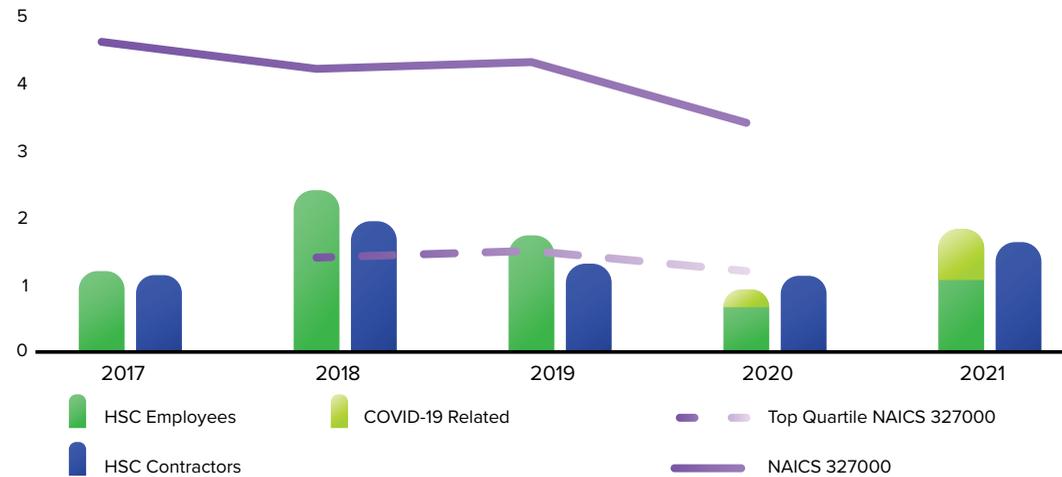
Safety and Health

The safety of our employees is paramount. “Zero is the only acceptable number” is our mindset for long-term safety success. That commitment extends beyond our employees to all contractors working on-site as well as through our engagement with the local community. Between 2017 and 2021, we had zero employee or contractor on-the-job fatalities.

2020 and 2021 were unique years due to COVID-19 related illnesses. During the pandemic, HSC took protecting our workers very seriously, assuring proper protection and quickly performing contact tracing when a case was confirmed. We believe it is important to segregate our ongoing safety performance and our pandemic-related illnesses to better highlight our progress on reducing workplace injuries.

While we are proud that our injury rate is significantly less than the overall U.S. average for all non-metallic mineral product manufacturing, one injury is still too many. As a result, we have included safety as one of the six voluntary commitments we have set and are driving action to achieve. Our objective is to be in the top quartile of our peer manufacturing companies.

Total Recordable Injury Rates & Benchmarks

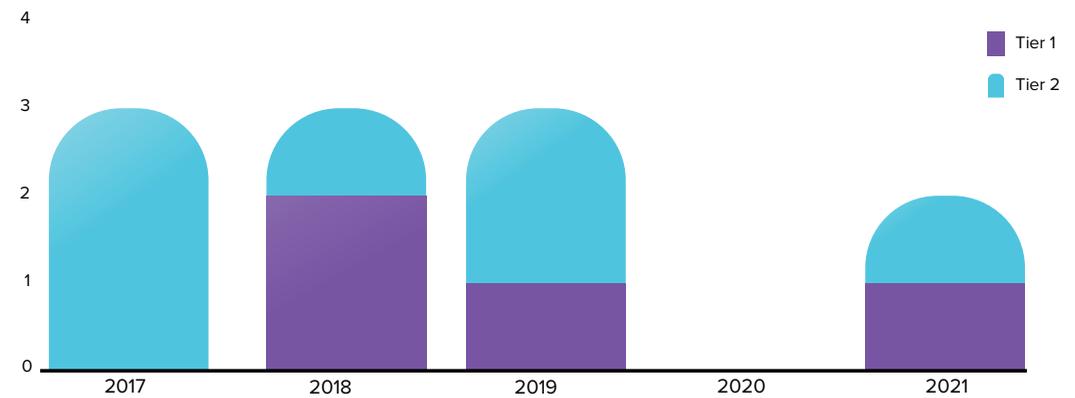


The Top Quartile NAICS 327000 rate is the rate performance of the top quartile of performers of nonfatal occupational injuries and illnesses of NAICS code 327000 – Nonmetallic Mineral Product Manufacturing, U.S., private industry, 2017-2020.

Process Safety

We continue to focus efforts to reduce our process safety incidents to zero.

Process Safety Incidents



Tier 1: An unplanned or uncontrolled release of any material, including non-toxic and non-flammable materials, from a process that results in a consequence above industry-established thresholds.

Tier 2: Similar unplanned release from a process that results in roughly an order of magnitude lower impact than Tier 1 Process Safety Incidents.



Community Engagement

Two-way communication is important to ensure that HSC understands the concerns of the community and the community has access to important information relative to the operations of HSC.

Our Community Advisory Panel (CAP) was established in 1997 and provides a forum to address issues and opportunities affecting Hemlock Semiconductor and the local community. The CAP consists of representatives from the community such as residents, business owners, educators, community and public safety leaders, plus HSC management.

Three times per year, we publish a newsletter to inform our neighbors surrounding our site about happenings at HSC, our employees' engagement in the community, and safety and environmental topics. An example of a recent newsletter is available here: [Community-Newsletter-Summer-2022](#)

HSC's charitable giving and Community and Regional Empowerment (CARE) grant distribution can be sorted into one of three categories: Community Vitality, Public Safety and STEM Education. By partnering with local organizations and providing community grants, HSC helps build a sense

of employee pride in both the company and the community, creating an environment of belonging, and developing pride in ownership for partners and participants alike. In addition to financial support, we estimate that HSC employees volunteered over 6,800 hours assisting local organizations in 2021.

HSC's giving is focused in three areas:

- **Community Vitality** to strengthen the places where our employees live and spend their free time, growing, learning, and raising their families.
- **Public Safety** to encourage community members to engage in trainings, both on-site and off, strengthening their skills and partnerships and helping the Great Lakes Bay Region to flourish.
- **STEM Education** because growing a team does not start with a job interview but with families, and with the introduction and exposure to STEM topics at the youngest levels and ages.



Saginaw Basin Land Conservancy Riverbend West Project – Protecting Our World

HSC employees live in all corners of the Great Lakes Bay Region, which is why it is critical that, as HSC grows, our mission of sustainability never wavers. The Saginaw Basin Land Conservancy received a 2020 CARE grant from HSC to support its Riverbend West project, a conservation and revitalization effort that included construction of a new trail along the Saginaw River that was made from cutting-edge permeable pavement technology to allow for water absorption. This trail and associated tree planting – completed by HSC volunteers – minimizes harmful runoff and erosion in the park. For the volunteers from HSC, working together to plant over 120 trees brought different teams within HSC together for a common purpose, inspired action, and prepared the area to further develop into an accessible yet rustic nature experience.

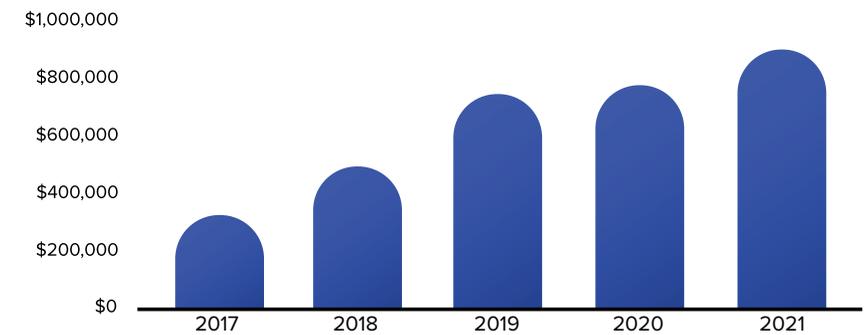


Leading the Way: From Polysilicon to Safety

As the leading U.S. manufacturer of polysilicon and a major employer in the Great Lakes Bay Region, HSC leads the way in connecting and energizing our world. That same leadership extends to HSC's partnerships with regional public safety organizations. Since 2020, HSC has sponsored the training and certification of cadets from 16 local fire stations in Saginaw, Bay, Midland and Gratiot counties. The intensive training, which takes place in part on HSC's campus, provides an opportunity for community members and HSC employees to work together, train in a more industrial setting, and prepare for any eventuality.

With 42 visitors on-site in 2021 for both firefighter and first responder trainings, as well as the purchase of a new fire truck for Thomas Township, the grant dollars distributed by HSC will continue to have an impact on community safety for decades to come.

Annual Dollars Donated



**MICHIGAN
TECHNOLOGICAL
UNIVERSITY**



Michigan Tech Summer Youth Scholarships: Growing Our Community

2022 will mark the 30th year of HSC providing scholarships to the Michigan Technological University Engineering Scholars Program as part of the university's Summer Youth Program – a high-impact, STEM-based educational experience for students in grades 6-11. Recipients of the scholarships, which total over \$30,000 this year, experience college in a fun and engaging way while working alongside their peers.

At HSC, community extends far beyond the walls of an office. By working with students in the Great Lakes Bay Region to introduce STEM concepts, HSC is promoting increased access to primary and secondary STEM education, opening the door to students who may not have otherwise been exposed to many of these concepts.

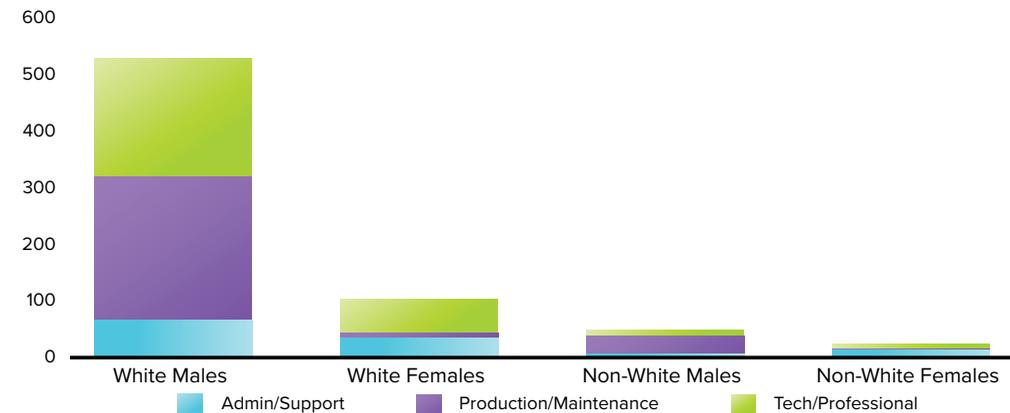
Diversity, Equity & Inclusion

After our 2020 report, HSC implemented a strategy and initiatives to greatly enhance our progress toward diversity, equity and inclusion. We created a new role – Diversity & Community Liaison – and integrated actions into our Strategic Blueprint with a key deliverable to implement a comprehensive Diversity, Equity and Inclusion strategy.

HSC engaged with the [PartnerShift Network](#) to provide support for all current employees to assist them in finding solutions to address their needs relating to transportation, child care, finances, improving skill sets, and other issues that can make it challenging for employees to fully focus on their work. PartnerShift provides coaches that engage employees so they are not forced to leave a job due to personal or family challenges. By providing such an opportunity, HSC moves one step closer to providing solutions that foster and promote equity by considering the unique needs of our individual employees.

In 2021, HSC was proud to announce Juneteenth as an official paid holiday to give our employees the space to celebrate Freedom Day and to honor Black history in the U.S. with their family, friends and neighbors. We encouraged everyone to use this day to reflect on the historic contributions Black people have made, to celebrate the progress we have achieved as a nation, and to acknowledge the work that still needs to be done.

2021 Diversity of Employee Population





Empowering Employee Success

At HSC, we know we cannot achieve our goals as a company without the hard work and dedication of our employees. So, we make sure our employees get back as much as they give by offering them high-tech careers with excellent compensation, benefits and opportunities for advancement.

In addition to a competitive total compensation package (including base pay and a unique goal-driven incentive pay program), HSC benefits include:

- Medical, dental and vision coverage
- 401(k) retirement account
- Employee bonus program
- 11 paid holidays, including Juneteenth
- 128 hours of paid time off the first year; more in future years
- Tuition reimbursement program
- Many other benefits programs, including adoption assistance and scholarships for employee dependents

HSC is invested in the professional development of our employees. We focus on encouraging employees to take on additional responsibilities, get out of their comfort zones, and achieve their full potential.



Employee Spotlight

Janet Wolfgram began at HSC nearly two decades ago the same way many employees do – as a contract worker breaking polysilicon. She quickly worked her way up into a supervisory quality control position, ensuring that operations ran smoothly and efficiently. During this time, she completed her undergraduate and master’s degrees while working full time, with HSC reimbursing her tuition.

Equipped with two new degrees, Janet steadily climbed the company ladder, working as a full-time HSC quality assurance professional before moving into her current role as a quality assurance and testing team leader.

Empowering Employee Success (cont'd)

As Janet's story illustrates, HSC provides its employees the necessary training and resources not only to succeed at HSC but to thrive. Through tuition reimbursement, professional development programs and mentorship, HSC fosters growth in the company for every employee, from floor operators to engineers to professional staff. As Janet herself says, at HSC, "the sky's the limit."

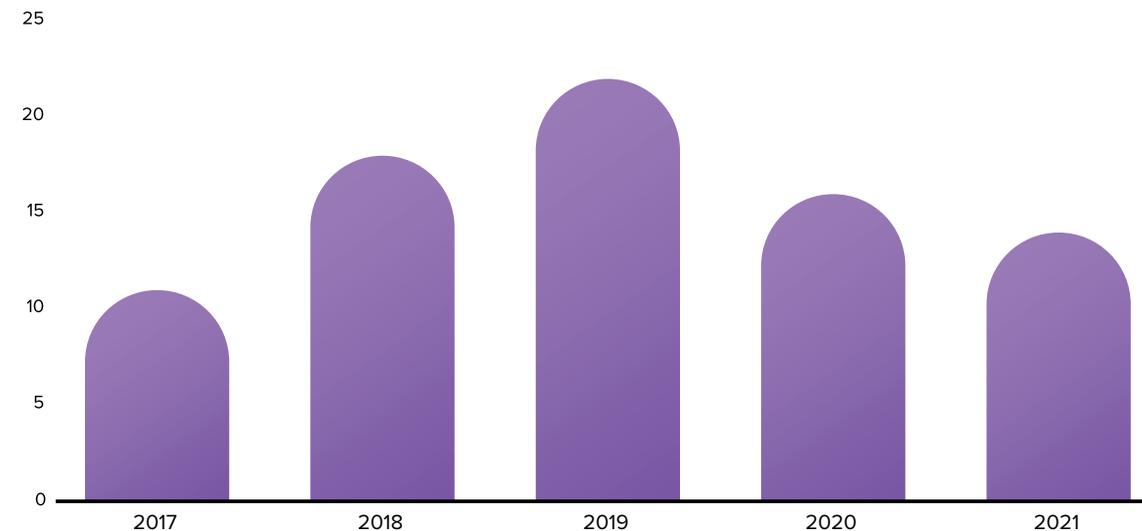
In the 21st century, technology companies like HSC have set the standard for providing educational support and training resources to their employees. HSC understands that the skills and talents of our people are critical to our success in the global marketplace.

We upgraded our Learning and Development (L&D) systems in 2019, consolidated courses, justified frequency of courses, and challenged ourselves to improve the quality of courses. Our goal is not to increase course work per employee, but rather, improve overall quality of training.

In July 2021, HSC modified our partnership with primary contractor, Qualified Staffing Services (QSS), by assuming direct operational control of polysilicon finishing operations. On Jan. 11, 2022, a majority of QSS personnel were transitioned to work directly for HSC. All former QSS employees are now fully integrated into HSC's employee safety management system and have expanded benefits and career opportunities.

"As the needs of the industries and customers we serve evolve, we believe it is essential that how we serve them also evolves," said Andy Ault, HSC Senior Vice President of Manufacturing. "That's why we integrated the QSS and HSC workforces to create a more unified, cohesive working team, enabling higher quality products and more efficient operations. We believe this integration is creating more career options for our employees and growth opportunities within our company."

Courses Completed per Employee





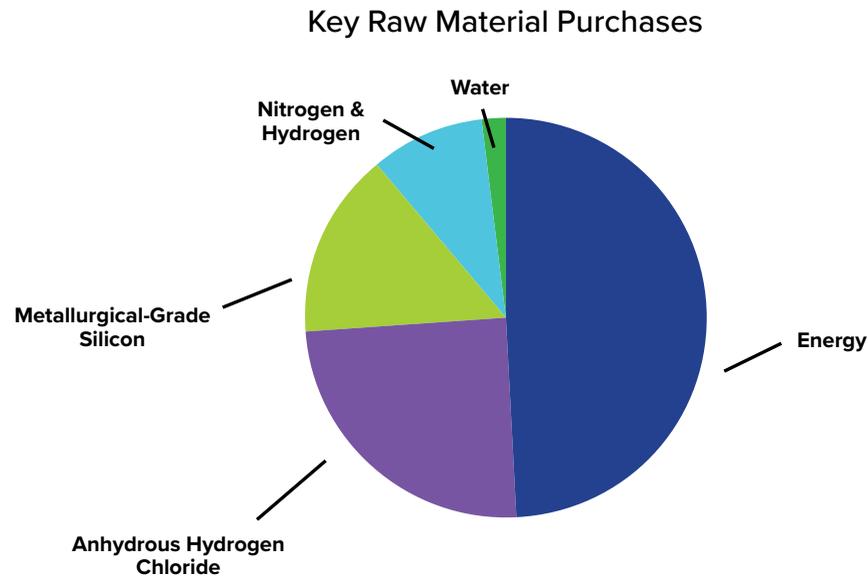
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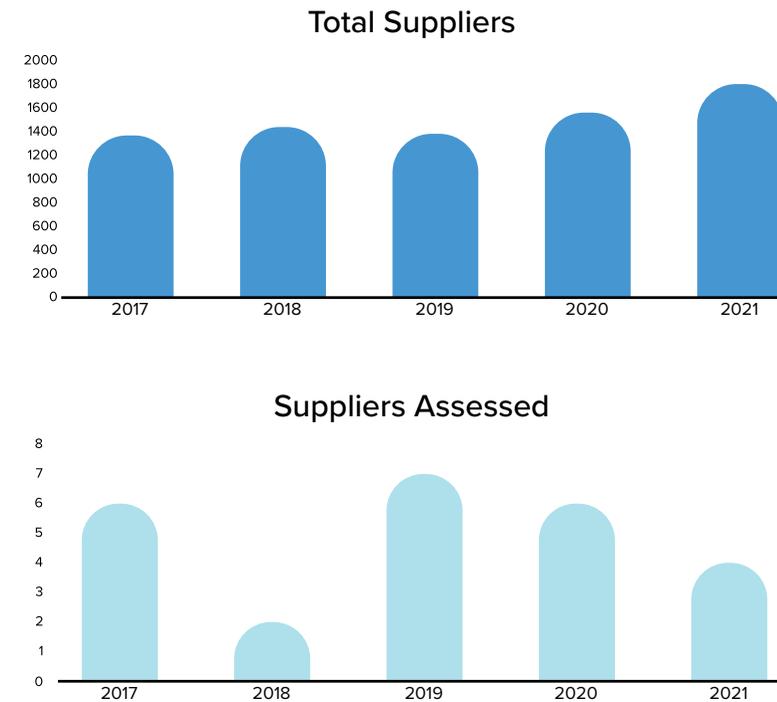
Supply Chain Management

We partner with suppliers who are centered on the environmental, social and ethical standards in our [Supplier Code of Conduct](#). By doing so we help our customers meet their objectives for profitability, growth, innovation, sustainability and safety.

Our key raw material purchases are 100% traceable and sustainably sourced from North and South America. We have increased our total number of suppliers in the past five years.



While we have had a Supplier Code of Conduct in place for many years, we now are sending questionnaires to key suppliers so we can gain insight into their ESG performance and assess where follow-up audits may be needed. HSC recently established a target to complete supplier audits for one-third of critical suppliers annually to ensure alignment with our safety, quality and sustainability efforts.

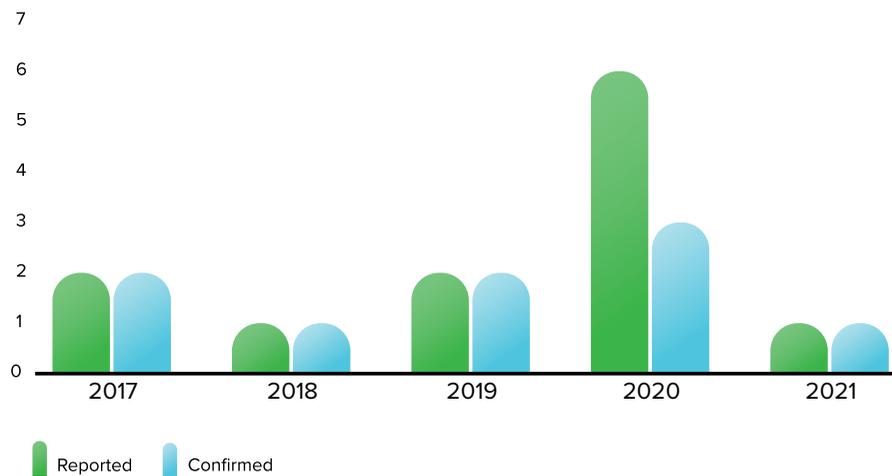


Ethics

As a manufacturing company with a strong safety record, we place a high value on personal accountability and speaking up. Acting ethically and encouraging our co-workers to do the same are conditions of employment at HSC. Each employee is required to not only read and follow our [Code of Conduct](#), but also to report any potential violations of the Code so they may be investigated and addressed.

Following a spike in both reported and confirmed incidents in 2020, we increased our focus on ensuring compliance with the Code of Conduct and were pleased to see a reduction in confirmed incidents for 2021.

Number of Ethics, Code of Conduct Violations



Risk Management

An Enterprise Risk Management (ERM) process is used to identify and assess the top strategic risks for HSC to achieve our full potential. The Executive Leadership Team (ELT) members and organizations each identify key risks, then collectively rank and prioritize all risks. Specific tools are used to aid in ranking, including:

- Each identified risk is ranked on likelihood and impact through blind voting. A heat map and aggregated risk score visualizations offer insights.
- As an additional discussion aid, executives anonymously rank their top 10 risks and the aggregated results produce an alternative ranking and visualization.

The result is a unified view of company-wide risk linked to HSC's strategic plans. Executives own each resulting mitigation plan and periodically perform ELT reviews for efficacy. New risks and additional actions are identified during periodic reviews.

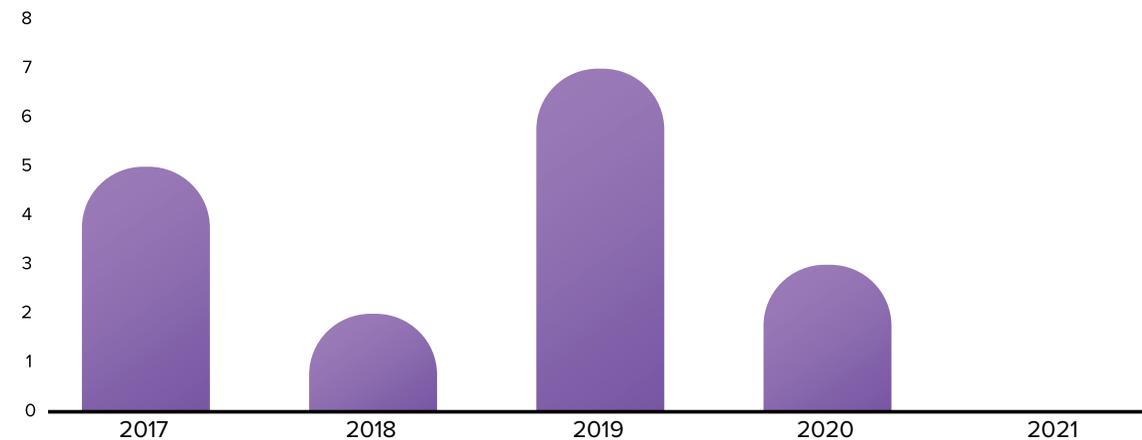
Product Stewardship

As a member of the [American Chemistry Council](#), we are committed to [Responsible Care®](#) Guiding Principles. We take seriously our responsibilities around product stewardship. Our customers want to know that the products they buy from HSC are always properly packaged and documented to identify any hazards or potential safe use issues. For our Chemical Sales business, we work closely with our customers to ensure they can handle the product safely and are trained to ensure that there are no safety incidents associated with use of the product. Due to COVID-19 restrictions, we conducted only one Responsible Care audit in early 2020 and were unable to conduct any audits in 2021. We have resumed our auditing in 2022.

Compliance

HSC takes very seriously all laws and regulations. There have been no significant violation notices in the past two years.

Customers Assessed



INNOVATION





INNOVATION

Product Contributions to Sustainable Solutions

We have relentlessly improved our energy efficiency and energy management to reduce our carbon footprint. This means very low “embodied” greenhouse gas emissions in the polycrystalline silicon materials that we manufacture, enabling ultra low-carbon solar panels and semiconductors through reduced supply chain emissions.

HSC on the Cutting Edge of Computing and Analytics

Not long ago, advanced computing required supercomputers, gigantic machines taking up an entire building’s worth of space. Nowadays, that same computing power can be found in high-performance computing chips, microchips barely the size of your thumbnail which require the purest polysilicon – such as that produced by HSC. These microchips, and the polysilicon they contain, are used in groundbreaking innovations such as cancer treatment and autonomous vehicles. They also have made climate change research possible through extreme weather modeling and analyzing losses in the ozone layer, among other technologies.

Since the invention of these chips, HSC has been a leader in purifying polysilicon to ensure that new world-changing semiconductor device technologies work to their fullest potential. HSC’s analytic laboratory uses state-of-the-art, ultra-trace testing and artificial intelligence to find impurities in its polysilicon and continually innovate to make our products even purer, improving quality and efficiency in our manufacturing process.

Using advanced analytics, HSC will continue leading the way in the science and next-generation technologies made possible by our hyper-pure polysilicon. Specifically, HSC aims to advance battery energy storage technology by creating new materials to help develop higher-energy-density, longer-lasting lithium-ion batteries. More efficient batteries will improve life-saving devices such as pacemakers and CPAP machines. HSC-powered batteries would be on the cutting edge of sustainability as well, making electric vehicle batteries longer lasting and more efficient.

HSC Solar Technologies Advance Social Change

HSC continually strives to make environmentally sustainable products and create meaningful social change. To put these principles into action, HSC has joined the “Beyond the Megawatt” initiative, which seeks to produce cleaner energy and distribute it fairly to all communities. “Beyond the Megawatt” revolves around three pillars – environmental sustainability, resiliency and equity – which guide our work in the solar energy space.

- **Environmental Sustainability.** Not all solar panels are created equal. The cumulative amount of carbon used during production and transportation is known as “embodied carbon.” Solar components made with HSC polysilicon contain up to 50% less embodied carbon than those produced by our competitors. HSC also has joined the Ultra Low-Carbon Solar Alliance, which works to create innovative solutions that further reduce embodied carbon in solar cells and modules.
- **Resiliency.** HSC is helping to build a resilient energy system by playing a key role in the creation of a robust domestic supply chain for solar manufacturing, which can stand up to market forces and keep prices stable for consumers.
- **Equity.** HSC’s solar division has created over 1,000 reliable and lasting manufacturing jobs, which have provided economic opportunities to individuals from traditionally disadvantaged backgrounds.

Through these efforts, HSC has shown what is possible when it comes to creating meaningful social change through solar manufacturing.





WHAT'S NEXT

It has been an exciting two years since I began leading HSC's sustainability work. We have come a long way in understanding the scope of sustainability and how important it is to focus on progress relative to our most material issues.

I also have had the opportunity to be much more engaged externally. As our CEO mentioned in his opening letter, in 2021 I was appointed by Gov. Gretchen Whitmer as liaison to the Council on Climate Solutions, where I served as the co-chair of the Energy Intensive Industries Workgroup alongside the member from the Michigan Department of Environment, Great Lakes, and Energy (EGLE). I am proud that HSC has contributed to the MI Healthy Climate Plan, a comprehensive roadmap to protect Michigan's public health and the environment. This initiative puts Michigan on the path to becoming fully carbon-neutral by 2050 while creating new clean energy jobs.



So, what's next?

- We will be stepping up our energy efficiency work. We are in the process of establishing an energy management governance process. The team will be charged with three key responsibilities: driving energy efficiency of our operations, advocating for more availability of clean energy on the Michigan grid, and signing virtual power purchase agreements (VPPAs). We are also partnering with [Energy Star](#) to help kick-start our next generation of energy efficiency.
- We continue to advocate for reducing the embodied carbon in solar panels by supporting the development of a Low Carbon Solar standard to be included in the [Global Electronics Council](#) EPEAT certification.
- Having transitioned our entire Finishing workforce to direct HSC employment, we are confident that we will enhance our DEI work by developing stronger training and development opportunities for all our employees.

- We continue to be engaged with our local community and seek ways for our employees to build a more resilient and sustainable Great Lakes Bay Region using their unique skills and interests.

Two years ago, I ended my letter with a commitment to transparency. Through this formal report and updates on our website, we will continue to provide important information on our sustainability journey in a timely manner. Please reach out to HSC with your ideas on how to better drive our work toward a sustainable society.

[Steven Holty](#)

Sustainability Leader

[LinkedIn](#)

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