

United States Senate  
Committee on Small Business and Entrepreneurship

Field Hearing  
“Small Business Export Opportunities:  
Accessing Resources to Expand International Sales”

University of New Hampshire Innovation  
Durham, New Hampshire

Testimony of Drew M.P. Matter  
President and CEO, Mikros Technologies

May 29, 2024



MIKROS

24 Colonel Ashley Lane  
Claremont, NH 03743



603.690.2020



[info@mikros.net](mailto:info@mikros.net)  
[www.mikros.net](http://www.mikros.net)



Chair Shaheen and Members of the Small Business Committee,

I am honored to have the opportunity to speak with you this morning. My name is Drew Matter; I serve as the President and CEO of Mikros Technologies, a technology-focused engineering and manufacturing company located in Claremont, New Hampshire. My previous roles at Mikros focused on the technical and strategic coordination of our product development efforts to diversify our client base and reduce our long-term business risk in the highly competitive markets we serve. This focus put me in the direct path of expanding our exporting efforts, which have increased in recent years with the rapid growth of the semiconductor market. Our strong relationships with the NH Department of Business and Economic Affairs (BEA) and US Commercial Service have been critical to our current exporting success. We remain thankful for their continued efforts to help us secure resources to support our future and grow advanced manufacturing jobs in the Claremont area.

Mikros Technologies designs and manufactures high power liquid cooling systems for semiconductors and semiconductor testing, lasers, power electronics, electric vehicles, and other high-power applications that require adept thermal management to perform effectively. Mikros was founded in 1991 from a project to design cooling systems for the Space Station with NASA-Johnson Space Center; 33 years later, we continue to produce some of the most highly effective heat transfer devices in the world. The efficiencies of our systems allow the cooling of high-power chips to be done with less energy input. This can have significant implications in a hyperscale data center or A.I. server installation where cooling can account for up to 40% of the total energy consumption. Mikros' cooling solutions can provide less power consumption for a facility, and more importantly, the municipalities in which they are built, helping companies, and the nation, meet our respective, and collective, sustainability goals.

Chair Shaheen, our company has been grateful for your support over the years. In October 2022, Mikros was honored to host you, along with NSF Director Sethuraman Panchanathan, at our R&D facility in Claremont. I learned then from our founder, Dr. Javier Valenzuela, that you were present at the groundbreaking of that very building in 2000 while governor of New Hampshire. In addition, Mikros has benefitted from your legislative efforts on behalf of small businesses. We have received assistance through STEP Grants with strong BEA support—grants which have funded our marketing efforts in the European Union as well as ITAR training to prepare our manufacturing facilities for government contract work. I am hopeful that another STEP grant will soon help us fund Lean Manufacturing training for all of our employees, which will be critical for us to meet the manufacturing demands of the emerging semiconductor market that can strain limited development resources. Lastly, we recently submitted a concept paper for a CHIPS Act proposal to help fund the scaling of Mikros products that provide critical thermal testing throughout the semiconductor manufacturing process, and your office has offered a letter of endorsement. A CHIPS Act grant for Mikros, although small in terms of total CHIPS funding, could help us double our manufacturing capacity and create a number of new advanced manufacturing jobs in an area of the state where they are needed. For all of your efforts to support small businesses in New Hampshire and nationwide, and for your support of Mikros Technologies in particular, our team would like to offer a special thank you.



MIKROS

24 Colonel Ashley Lane  
Claremont, NH 03743



603.690.2020



[info@mikros.net](mailto:info@mikros.net)  
[www.mikros.net](http://www.mikros.net)



### Our Exporting Moment

As a small business with world-class thermal technology, the challenges to meet the rapidly increasing demands of the tech sector are significant. Many of our current and prospective clients are household names in Silicon Valley, some of whose products you may have already used this morning. These companies have strong engineering talent and their thermal design teams are eager to partner with us on technical projects to achieve high-power computing goals. Mikros invests months, and sometimes years, in customized development with these engineering teams and the agility of our engineering and production staff is critical to their long-term success. When our client's technical goal is achieved and the project moves to production, the design engineer exits to take on the next new project and a procurement representative enters to minimize their supply chain risk. After being viewed as a critical enabling technology, a small business like Mikros can then be viewed a liability. This can result in exaggerated production ramp demands, unfavorable supplier agreements and financing terms, and undue pricing pressure. Mikros often does not see significant revenue from our engineering development efforts for several fiscal quarters, so scaling to production volumes becomes critical for our growth and long-term sustainability. This need can leave us in a weaker negotiating position on critical business terms.

In addition, even though the performance of our customized solution is a good negotiating tool, we then become keenly aware of the risk of intellectual property theft amidst large global supply chains. Despite our powerful product performance and dedicated partnerships, and despite re-shoring efforts of leading technology companies, if a large Mikros client decides that risk-reduction is more important than product performance, then jobs in the Upper Valley can be at stake. This business reality drives our growing need for market and client diversification, and thus the need for increased exporting to supplement our domestic sales. Being a world-leader in thermal management as a small business in New Hampshire is a privilege and we are proud to be anchored in the Granite State. But protecting the jobs of our bright and committed team of engineers, precision machinists and technicians in this "gold rush" A.I. infrastructure moment is also what keeps me up at night.

### Our Exporting Experience

Mikros' export experience has historically been limited to shipping to a few international clients in countries with strong U.S. trade agreements. In 2020, when global supply chains were in upheaval due to COVID, our export breakthrough came from an invitation from our friends at the US Commercial Service to participate in a (Virtual) Trade Mission to India. This event provided us customized connections to firms across the country that could benefit from our advanced thermal solutions. What emerged from that event was our first dedicated international Mikros representative, a relationship that continues today. Because of the strong national initiatives to advance computing and vehicle electrification across India, our business opportunities have grown significantly. That representative has connected us with supercomputing initiatives with the Indian government as well as Indian companies building data centers and EVs nationwide. Though the developments are long-



MIKROS

24 Colonel Ashley Lane  
Claremont, NH 03743



603.690.2020



[info@mikros.net](mailto:info@mikros.net)  
[www.mikros.net](http://www.mikros.net)



term and some potential clients are US-based, the independence of their international business segments provides us a stronger diversity of business and export opportunities.

Our most recent exporting resource has come again through assistance from the US Commercial Service. In 2022, Mikros invested in an international marketing report that helped us identify particular countries to target for increased exporting with lowest potential risk. The analyst team, termed “R.A.I.S.E.”—Rural America’s Intelligence Service for Exporters—cross-referenced Mikros’ product export codes with top importers of those codes worldwide, then allowed us to filter those top importers through further metrics to select target regions and even specific contacts in target companies within those regions. The value of this report far outweighs its cost, and we were also encouraged to use STEP grant funding to help offset the cost if needed. Our experience with the R.A.I.S.E. team was very positive, and I believe other small businesses in the state should be encouraged to use this resource for an effective boost to their exporting efforts. I would also encourage our Representatives and US Commercial Service teams in Washington DC to continue to resource Rural Export Centers effectively and advocate for their continued growth and efficiency so that more businesses like Mikros Technologies across the country can benefit from their work.

Our final recent growth experience in exporting stems from our product line that delivers thermal control for semiconductors during the testing process in manufacturing. Our initial release of this product, commissioned by AMD in Austin, TX, was honored to have won the Product of the Year Award from the NH Tech Alliance in 2022. Since that initial product release, which focuses on late stage “Functional Testing,” we have translated the underlying thermal control technology to other applications within the chip manufacturing process, including System Level Testing, Engineering Development Testing, and Wafer Testing. The initial success of these new prototypes has increased our exports to southeast Asia, where a vast majority of chip manufacturing is still currently done. As we produce a more complex system for another high-value manufacturing process, the exporting and business demands on Mikros now also involve a level of field support that was previously not required. Product reliability, always important when water comes close to a computer, becomes even more valuable when downtime on a chip manufacturing line can be measured in millions of dollars per minute. Thus, our exporting success in this market depends not only on access to strong client contacts worldwide, but also infrastructure building within Mikros’ walls at home.

The CHIPS Act initiative, focused on advancing US national security through the advancement of semiconductor manufacturing infrastructure and ecosystems, will also have an added advantage of helping US companies increase their exports to continued trusted partners in the semiconductor supply chain around the world. Mikros’ particular proposal will help us scale not only our manufacturing in New Hampshire, but also our product testing and field support teams that will help us qualify for large scale production efforts domestically and abroad. We already have the technology and the relationships with decision-makers within these leading chip manufacturers. We now seek capital to help build depth as a supplier to this critical market, for the sake of US national security and export resilience.



MIKROS

24 Colonel Ashley Lane  
Claremont, NH 03743



603.690.2020



[info@mikros.net](mailto:info@mikros.net)  
[www.mikros.net](http://www.mikros.net)



### Our Exporting Need

With the Rise of Artificial Intelligence and Electric Mobility, the largest semiconductor manufacturers in the world are using the image of a “tsunami” to describe the development, manufacturing and supply chain demands they will face over the next three to five years. To quantify that term, one major chip supplier has a roadmap to deploy 1000 1-megawatt (MW) computing systems annually, each of which can contain an average of 1000 1-kilowatt (kW) chips. That could equate to nearly 10,000,000 single-chip cooling systems annually, merely from one manufacturer’s own internal initiative. Even if their estimate is only fractionally correct, the scale of the infrastructure needed to deploy next generation computing systems across all market players in the next 3-5 years is several orders of magnitude above their 2024 levels. As a small business serving this market with sought-after thermal technology, Mikros’ needs for exporting resources will continue to grow proportionately with worldwide demand. The increase in our international business inquiries that we have already received in the past six months bears witness to the emerging semiconductor demand.

US leadership in the semiconductor market, and the ability for small businesses to contribute to the innovation needed for that leadership, will require federal policies and on-the-ground action to provide increasing ease of access to and use of exporting resources. We see small business exporting needs fitting the following categories:

- *Ease of Access to Export Resources and Regulations.* On a day-to-day basis, small businesses feel a more acute risk when shipping any international package of high value. Shipping terms and resources, export compliance, and ease of product delivery can more significantly affect a client relationship and a small business’ bottom line. Funding the continued development of consolidated and up-to-date US export regulations and resources will be key, as small businesses have less margin for the loss of or delayed revenue when shipments are stuck in customs or unanticipated costs are incurred. The US government has made strides in this area, but more can be done to ensure that businesses have the most up to date information to maximize export success and minimize the risk of revenue loss.
- *Intellectual Property Protection Resources.* Ground-breaking technologies are often developed in a small business environment. Yet to fully enter the markets they target, these companies must compete with major players with economic and legal resource leverage, often in areas where defending intellectual property rights is difficult or prohibitively expensive. I lead a company whose products are desired around the world, and every time we ship overseas, I find myself both excited and fearful that we have equipped our larger competitors with our technological advantage. Having stronger government backing would go a long way to help ensure that companies like Mikros can thrive, not only in exporting, but in their domestic business as well. Could there potentially be an FDIC for I.P.?
- *Market Development Resources.* As I noted previously, Mikros has benefited greatly from the federal and state business and export development resources to which we have had access. Our strong relationships have made the Mikros executive leadership team thankful



MIKROS

24 Colonel Ashley Lane  
Claremont, NH 03743



603.690.2020



[info@mikros.net](mailto:info@mikros.net)  
[www.mikros.net](http://www.mikros.net)



to be based in a state where our representatives and government leaders are accessible and committed to small business. My recommendation is to continue funding groups like the Rural Export Centers and others; not only to continue their current level of export assistance, but to grow and achieve their desired structural efficiencies to make the most out of the resources you allocate to them. They are a great help to companies like Mikros, and I see their increased capacities, and access to those capacities, as essential to small business growth across our state and across the nation.

### Conclusion

In conclusion, Mikros Technologies' experience with exporting has been positive and has the potential to continue in this trajectory, despite the inherent risks for businesses like ours with international clients. We have seen the effectiveness of the legislative and on-the-ground work of your teams to this moment, and we sit on the precipice of a burgeoning semiconductor market in which the US can continue to maintain a leadership advantage. For Mikros Technologies, the future of computing infrastructure is at the well-known "bend in the hockey stick" of the market curve. Thus the proverbial Wayne Gretzky business adage is apropos—we must "skate to where the puck is going." That will require continued exporting resources to small businesses across the nation so that local economies and their workforces can rise to meet the need of a more technologically focused, advanced manufacturing future.

Thank you for your continued service to small businesses and the opportunity to share our exporting experiences and future needs with the committee.