

## \*\*COMPLETE THIS FORM TO INITIATE SUPPLIER SCOUTING\*\*

### MEPNN Supplier Scouting Opportunity Synopsis

\*The submitting entity agrees to notify NIST MEP of the status of actions taken as a result of this scouting instance within 30 days after receiving a results report. For instances where the submitting entity is an MEP Center submitting on behalf of a client, the MEP Center agrees to notify NIST MEP on behalf of their client. For instances where the submission is direct from federal/state agencies or is a private company, the submitting federal/state agency or private company entity agrees to notify NIST MEP. Notification should be via email to [scouting@nist.gov](mailto:scouting@nist.gov), indicating the following:

- Contact with matches identified in report complete and supply contract awarded, process complete
- Contact with matches identified in report complete and no supply contract awarded, process complete
- Contact with matches identified in report complete and supply negotiations underway, process in progress
- Contact with matches identified in report underway; supply negotiations not yet begun; process in progress
- Contact with matches identified in report not yet begun, process in progress
- Contact with matches identified in report will not occur within the next 6-months, process complete

Reactive Ion Etcher for silicon and silicon-based dielectrics

Item to be Scouted

\_\_\_\_\_ days  
Opportunities will be posted for 30 days unless specified

Please describe the item application/ the end use of item.\* Provide the item number if applicable: (N95 Mask vs Protective Mask).

The National Institute of Standards and Technology (NIST) seeks information on commercial vendors capable of providing an open-load Reactive Ion Etching (RIE) system to support nanofabrication in the Center for Nanoscale Science and Technology (CNST) user facility. The system will be sited and used as a shared resource accessible to researchers from industry, academia, NIST, and other government agencies in the CNST NanoFab. The open-load RIE system is a pattern transfer tool that uses fluorocarbon-based compounds and other chemicals to fabricate structures in silicon, silicon-based dielectrics, and other substrates. Applications include fabricating nano-semiconductor and nano-photonics devices.

2022-133

Supplier Scouting Number (NIST MEP use)

333242

Scouting customer/product NAICS Code, if known

<b>TECHNICAL INFORMATION:</b>	<b>1. Supplier Information</b>	<p><b>a. Type of supplier being sought*</b></p> <p> <input checked="" type="checkbox"/> <b>Manufacturer</b> <input type="checkbox"/> <b>Contract Manufacturer</b> <input type="checkbox"/> <b>Distributor</b> </p> <p> <input type="checkbox"/> <b>Other</b> _____         </p>
		<p><b>b. Reason for scouting submission*</b></p> <p> <input type="checkbox"/> <b>2<sup>nd</sup> Supplier</b> <input type="checkbox"/> <b>Price</b> <input type="checkbox"/> <b>Re-shore</b> <input type="checkbox"/> <b>Past supplier no longer available</b> </p> <p> <input type="checkbox"/> <b>New Product Startup</b> </p> <p> <input checked="" type="checkbox"/> <b>Other</b> _____         </p>
	<b>2. Summary of Technical Specifications and Performance Requirements.</b>	<p><b>a. Describe the manufacturing processes (elaborate to provide as much detail as possible).*</b></p> <p style="font-size: 1.2em; text-align: center;"><b>Item to be purchased as a standalone unit</b></p> <p><b>b. Provide dimensions / size / tolerances / performance specifications for the item.*</b></p> <p>This RIE system is a pattern transfer tool that uses a capacitive-coupled plasma to fabricate micron- and nano-scale structures in silicon, silicon-based dielectrics, and other materials, primarily using fluorocarbon-based compounds and other etching gases. This new RIE system will be used to minimize chemical cross-contamination, improve process repeatability, and add new NanoFab etching process capabilities. 1. System configuration: 1) The system shall have a process chamber that is compatible with reactive chemicals such as CHF3, CF4, SF6, and O2, Ar, and N2. 2) The system shall have a process chamber that is capable of accommodating 8 or more process gases. 3) The system shall have a RIE electrode that operates from 0 W to 500 W or higher. 4) The system shall have a pumping system that is compatible with fluorocarbon-based chemistries and maintains a base pressure of 9x10-7 Torr. 5) The system shall have software that supports both manual and automatic operation with datalogging. 6) The system shall have safety interlocks to keep NanoFab user community safe. 2. Wafer compatibility and wafer heating: 1) The system shall be able to process substrates ranging from 1 cm x 1 cm small pieces up to a single 300 mm substrate or larger. 2) The system shall control the substrate temperature from 10 °C to 40 °C. 3. Established process library: 1) The system shall have established processes for etching Si, SiO2, Si3N4, and photoresist. 2) Established process documentation shall include process parameters such as etch rate, selectivity, and profile with scanning electron microscope pictures.</p>

		<p>c. List required materials needed to make the product, including materials of product components.*</p> <p>Item to be purchased as a standalone unit</p>
	<p>2. Summary of Technical Specifications and Performance Requirements cont:</p>	<p>d. Are there applicable certification requirements?* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Please explain</p> <p>e. Are there applicable regulations?* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Please explain</p> <p>f. Are there any other standards, requirements, etc.?* <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Please explain</p> <p>g. Additional Comments: Is there other information that would impact the item's performance or usefulness? Please explain.</p>
<p>BUSINESS INFORMATION:</p>	<p>3. Volume and Pricing</p> <p>4. Delivery Requirements:</p> <p>5. Ad dit</p>	<p>3a. Estimated potential business volume (i.e., # Units Per Day, Month, Year) *:</p> <p>One unit</p> <p>b. Estimated target price / unit cost information (flexible and negotiable <u>not</u> accepted) *:</p> <p>\$700,000.00</p> <p>a. When is it needed by? (Immediate, 30 Days, 6 months, etc.)*</p> <p>ASAP</p> <p>b. Describe packaging requirements (i.e., individually/group packaging)*</p> <p>Flexible</p> <p>c. Where will this item be shipped? *</p> <p>NIST, 100 Bureau Drive, Gaithersburg, MD 20899</p> <p>Is there other information you would like to include?</p>

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Photos or diagrams of the item (helpful but not required).

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