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Testimony by

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Chairs Sollman, Bynum, Vice Chairs Knopp, Wallan, and Members of the Committee:

For the record, I am Nagi Naganathan, president of the Oregon Institute of Technology (“Oregon Tech”), our state’s designated polytechnic university. I am a mechanical engineer by training and testifying in support of additional investments in workforce development and research as part of Senate Bill 4.

Along with Dr. Lisa Skari, I co-chaired the Talent and Workforce Subcommittee of the Semiconductor Competitiveness Task Force. As part of our work, the committee reviewed Oregon’s semiconductor workforce profile, looked at national models, and spent time interviewing and listening to workforce and talent leaders from semiconductor firms to better understand the critical current and future talent needs and to identify programs, partnerships and best practices that currently exist. I would like to share our findings and recommendations.

We learned that the success of Oregon’s semiconductor industry depends on building and attracting a world-class workforce. Talent is often called out as a top factor driving decisions about where to invest. Oregon boasts one of the most concentrated centers of semiconductor talent in the world. A diverse mix of production, engineering, and research and development workers are employed here. Talent is recruited locally, regionally, nationally, and globally.

Oregon has 15% of the national semiconductor workforce with 40,300 employees, just behind California (23%, 63,300) and Texas (16%, 43,800). In addition, 50% of that semiconductor workforce have credentials and degrees from high schools or community colleges, 30% have baccalaureate degrees, and 26% have graduate degrees.

Shortages in technology talent are a serious production constraint for Oregon semiconductor manufacturers. Technician and operator-level employees are a particular need and a growing challenge because of the aging workforce and increasing scale and innovation in production processes. Oregon’s education systems are producing tech-savvy graduates, but not enough to meet the industry’s large and growing demand.

Engineering & design also drives a strong need for four-year degrees. Research requires employees with graduate degrees, who are most often recruited from out of state/country. There is a lack of awareness and understanding of the industry and its career paths. One challenge in

building a semiconductor industry workforce pipeline is getting students to consider that pathway, and this is particularly challenging for underrepresented communities.

Strong collaboration and partnerships already exist among education, industry, and community to strengthen and diversify the semiconductor workforce, but we need to expand and build upon these best practices.

The Talent and Workforce Subcommittee of the Semiconductor Competitiveness Task Force made the following recommendations:

- Create a statewide semiconductor industry consortium - the key to our success will be building sustained, strategic partnerships between industry, education, and community partners around workforce needs. We also must work collaboratively to expand access to successful models of technology education to increase the number and the racial, ethnic, and gender diversity of graduates earning STE(A)M degrees and credentials.
- Leverage Future Ready Oregon workforce investments to address immediate workforce needs and create pathways for underrepresented communities.
- Develop a comprehensive semiconductor workforce investment package for the 2023 Legislature that includes investments across the P20 education continuum:
 - *Strengthen STEM Education and Awareness of STEM Career Pathways:* Strengthen the K-12 pipeline and increase representation of historically underserved communities through investments in STEM education and the Oregon STEM Hubs, registered youth apprenticeship and apprenticeship programs in the advanced manufacturing sector, awareness building, and partnerships with community-based organizations.
 - *Build Capacity and Strengthen Community College Semiconductor Workforce Training Programs:* Additional investment is needed to build capacity across the state and diversify the workforce pipeline for program development and expansion, capital equipment, financial assistance and wraparound support, and stipends for high-demand college faculty.
 - *Build Capacity and Strengthen University Semiconductor Degree Programs & Research:* Additional investment faculty recruitment, STEM faculty start-up packages, multi-year strategies to increase the most highly trained workers needed for the sector's success, diversifying the pipeline and ensuring investments benefits traditionally underserved communities.

Thank you for your service to our state and your leadership and contributions to make Oregon a place where the semiconductor and advanced manufacturing industry can thrive. ■