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Testimony in Support of HB 2582
Dr. Brian Paul
House Committee on Higher Education and Workforce Development

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Members of the Committee:

For your record, I am Dr. Brian Paul. I am the Tom and Carmen West Faculty Scholar and Professor of Manufacturing Engineering in Oregon State University's College of Engineering. I am here today on behalf of the College of Engineering, in support of HB 2592, the "fighting fund."

Oregon State University's College of Engineering is the 11th largest engineering program in the United States. Today we are home to nearly 9,000 students, 180 faculty and a significant research enterprise. The success of our college is due in part to the 1997 Oregon Legislature creating the Engineering Investment Fund and the Engineering Technology Industry Council (ETIC). With ETIC support we grew our student body by nearly 6,000 students and 80 faculty. Since 1997, the college has more than tripled its research expenditures to $37.2 million by emphasizing highly collaborative research that solves global problems. We are leaders in signature research areas, including precision health, clean energy, resilient infrastructure and advanced manufacturing; and targeted strategic areas, including robotics, materials research and clean water.

Because of our success with students and our recognized research strengths, we are competitors for numerous significant federal grant opportunities that, if successful, benefit our students, faculty, university and the state. Today, I am going to share with you a bit about Oregon State University's engagement with the Manufacturing USA network. (Manufacturing USA is the new brand name for the National Network for Manufacturing Innovation.)

The Manufacturing USA institute program is a network of public-private institutes dedicated to securing high-wage jobs by improving manufacturing competitiveness through manufacturing innovation, education, and collaboration. The institutes are funded through large grants operated by the Department of Defense and Energy. By the end of 2017, we anticipate that 14 institutes will be funded. These grants are very large ($70 to $80 million) in all the federal government has committed over $1 billion to the effort. During the grant process, large collaborative teams are built to develop proposals.

These teams include dozens of universities, national labs, industry partners and state governments. A key to a successful proposal is the ability to garner broad-based in-kind and financial support.

This year Oregon State University was named on three successful proposals. I'd like to talk about two of them and the impact of state commitment.

This fall, we learned that our proposal in partnership with the American Institute of Chemical Engineers, called RAPID (Rapid Advancement of Process Intensification Deployment), was selected as the tenth Manufacturing USA institute with a federal commitment of $70 million over 5 years. The proposal includes 75 companies, 34 academic institutions and seven national labs. Especially gratifying is that I am one of six "focus area leads" responsible for overseeing the technical direction of the institute. We anticipate that this will involve administering a $30 million budget (a $10 million federal and $20 million cost share). Critical to our success, the state of Oregon made significant cost sharing contributions to the RAPID institute. Those contributions included commitments, confirmed in a letter of support emphasizing the state's historical support for commercializing microtechnology and sustainable technology research, made through 15 years of commitment by state leaders, Oregon businesses and our research universities. Those investments included the support of Oregon Nanoscience and Microtechnologies Institute (ONAMI), Oregon BEST, the Advanced Technology and Manufacturing Institute (formerly MBI) and the building donated by Hewlett Packard. The historical commitments proved important to our development as a national thought leader in process intensification and the new commitments are critical for my ability to get Oregon companies involved in the development of a supply chain for producing cheaper, smaller and lighter weight chemical process equipment. Our efforts will enable distributed chemical processing, such as the use of solar energy to produce hydrogen from natural gas for fuel cell cars and chemical refineries, capable of reducing greenhouse gas emissions by 25 percent. A key requirement for small Oregon companies to participate in these research and development efforts is cost sharing. A fighting fund would give these Oregon companies a "fighting" chance to participate in commercializing these technologies, opening up new markets for exporting green technology to the world.

This summer, Carnegie Mellon, the national leader in robotics, asked Oregon State's College of Engineering to join the Advanced Robotics Manufacturing Institute (ARM), a coalition formed to respond to an $80 million proposal call from the Department of Defense, "Robots in Manufacturing Environments." In January, we once again learned that we were part of a successful proposal. This was exciting for us, as our robotics program is relatively new yet ranked fourth in the nation. Very similar to the RAPID

proposal, we joined several other universities, numerous industry leaders, trade associations, community colleges and others to submit a competitive proposal. In this case, when we submitted the proposal we had a letter of support from the Governor but we were not able to gather any matching funds from the state. In the case of ARM, several Regional Robotics Innovation Centers (RRIC) will be established. A key requirement to hosting a RRIC is a commitment to engaging and working with their state to obtain state cost sharing. A fighting fund, would give us a "fighting" chance for the Northwest RRIC, helping us to drive research aimed at keeping manufacturing here in Oregon and in the US.

These are just two examples of great opportunities for our students, the college, the university and the state. Over the past 20 years, the legislature made significant and meaningful investments in engineering throughout the state. Participating in these proposals is a product of the growth you and other legislators helped foster. A solid next step is the fighting fund that will help us participate and compete in these large awards. I will respond to any questions.