Hi,

My name is Andrew Desmond, director of economic development policy for the Oregon Business Council and staff lead on the work supporting the Semiconductor Task Force. Thanks for the time today.

We wanted to take the time today to applaud your effort, and the proposal put forward by Rep Nathanson and Senator Meek, to advance an R&D incentive policy that not just corrects the short-comings of our last credit but that is among the strongest in the nation.

Our last credit was far too small to matter for larger companies, and the smaller, unprofitable start-up types for whom $1M would be a meaningful incentive couldn't use the credit because it wasn't refundable.

The proposal Rep Nathanson and Sen Meek shared two weeks ago goes a long way in correcting those flaws by putting forward a $10M credit cap combined with some of the broadest access to refundability in the country. That said, important modifications need to be made for it to have it's intended impact, which I'll address in a moment.

But first I wanted to share a bit of the research on R&D incentives and how these incentives could influence decision-making in the semiconductor industry.

First, the research on the economic impacts of state-level R&D incentives is fairly clear:

- For smaller start-up companies, these incentives are hugely valuable with research finding they increase the quantity and quality of entrepreneurship. (Fazio et al., 2020)
- But these are not just tools for small companies and start-ups. Research finds that R&D incentives effectively stimulate industrial research and development spending. (Wu, 2005 | Paff 2005 | Wilson, 2009 | Chang, 2014)
- Perhaps most pertinent to the intense inter-state competition for federally supported semiconductor industry investment, a San Francisco Federal Reserve economist found that states with R&D incentives suck research and development spending away from states without such incentives. (Wilson, 2009)

This last point is especially pertinent to the semiconductor space. Nearly all chip-makers in Oregon do R&D in multiple facilities across the country and world. The same goes for the more prominent suppliers. That makes them more flexible in determining where to allocate their research budgets and thus more sensitive to incentives in any one location. For example -- pulling from publicly available data for companies with presences here:

- Lattice Semiconductor has R&D occurring here, California, China and the Philippines.
- Qorvo has seven facilities across the world including in North Carolina and Texas.
- ON Semi has facilities in AZ, CA, Idaho, New York, PA, Rhode Island, Texas, Utah and Virginia.
- Analog Devices has facilities in MA, Washington State, and Ireland.
- Lam Research has R&D facilities in California, Korea, and Austria.
- And Microchip does R&D at facilities in AZ, CO, PA, CA and CT.

Microchip is a good example for us to spend a moment looking at.

- In FY 2022 Microchip's total corporate R&D spend was $989 million. Public documents say R&D is conducted at 15 locations globally.
- Assume R&D is spread evenly across those locations. That would come to $65M annually in each place. An incentive worth up to $10M would represent a meaningful share of R&D spend in any one location and thus represent a compelling inducement to increase the amount of R&D that they are doing in Oregon relative to elsewhere.

I draw your attention to this example to make the point that:

- R&D investment is mobile among the globally distributed semiconductor industry. Incentives matter in their decision-making.
- R&D incentives are not just tools for small companies but have the very real potential to influence behavior for larger ones as well.

However, this is only true if the incentive is successfully designed. As mentioned above, several key points need to be addressed in order to make good on the intention of influencing behavior and drawing more investment here:

- Eliminate requirement that firms must be awarded federal CHIP Act funds to claim the credit. We would recommend a written definition for eligibility.
    - There is no guarantee any one company will receive CHIPS Act aid for their operations in Oregon. CHIPS Act aid will be highly competitive and uncertain for any company operating in Oregon. The program expects 700-800 applications nationwide. (Companies have already committed to $210 billion of investment. The feds have said they plan to subsidize 5%-15% of capex costs. If that's true then somewhere between 25% and 75% of the $39bn manufacturing pot is already spoken for. That's just 50 projects.
    - We have several "fabless" companies whose CHIPS Act success is dubious – because of the federal government's focus on large fab manufacturing. The Semiconductor Task Force identified growing this group as a key opportunity for the state.
    - We've received guidance that small suppliers face low chances of getting CHIPS Act awards unless they apply as part of a consortium. This would exclude most (~75%) of the semiconductor firms operating in Oregon. The Task Force aimed to promote more R&D among these firms.
- Allow large firms with few Oregon sales to benefit
    - Oregon calculates corporate income tax based on a single sales factor. This means the less a company sells to Oregon customers, the lower its tax bill. Most chip makers in Oregon export the vast majority of their products and have very few Oregon sales. Under the current rules, companies with more than 500 employees and low Oregon sales would not qualify for refundability and their tax liability would be too small to use this credit. This would exclude about 25% of firms in our ecosystem and run counter to

the Task Force's goal of attracting more industry R&D to Oregon. Microchip is an example of a firm that would be excluded from tapping this incentive as proposed.
    - Recommendations: either raise the employment eligibility threshold for refundability, allow credit transferability, or allow credit to be used against (a portion of) payroll tax liability (something a few other states do, New Mexico most notable).
- Eliminate the cliff – and the disincentive it creates – that forms at the transition from 150 employees to 151 employees. A company with 150 employees could claim 100% refundability. A company with 151 would only qualify for 50%. That abrupt cliff could discourage R&D growth for firms in that size-range. Applying a more gradual tapering could minimize this effect.

To conclude, I want to thank you all for your effort here. I'll leave you with this last thought. In LRO's 2017 Tax Credit review they provide this remark when summarizing arguments for and against R&D incentives, which I'm paraphrasing slightly:

- "Opponents argue that … given the competitive nature of global markets in today's economy … companies will conduct research regardless of [a] tax subsidy. Basically, markets are so competitive that they effectively require companies to conduct research or risk falling behind their competitors."

The question before this committee right now is not whether these firms will do R&D – because we know they will – but it is WHERE they will do their R&D. We believe a strong incentive as outlined by Rep Nathanson and Sen Meek, including the modifications I described, will help draw industry R&D investment here and help position Oregon as THE global leader in semiconductor research and development and all that entails.

Thank you,

Andrew Desmond