AMERICAN ECONOMIC LIBERTIES PROJECT

July 10, 2024

The Honorable Maria Cantwell
Chair, U.S. Senate Committee on Commerce, Science, and Transportation
Russell Senate Office Building 254
Washington, DC, 20510

The Honorable Ted Cruz
Ranking Member, U.S. Senate Committee on Commerce, Science, and Transportation
Dirksen Senate Office Building 512
Washington, DC, 20510

Dear Chair Cantwell and Ranking Member Cruz:

We write to urge the Committee to adopt active oversight measures to protect CHIPS Act investments in new American semiconductor manufacturing capacity, in particular requiring federal agencies to report on efforts to ensure that domestic demand will match and sustain renewed domestic supply, and to report on market structure and anticompetitive practices. The CHIPS Act and the U.S. Department of the Treasury's investment tax credit have successfully catalyzed re-investment into American semiconductor facilities.[1] The U.S. is on track to build new semiconductor fabrication supply that will increase the global share of American-built semiconductors from 10% in 2022 to 14% in 2032, and the share of cutting-edge logic chips from 0% in 2022 to 28% by 2032.[2]

While US-based chip *supply* is significantly improving, there is no commensurate *demand* commitment. The biggest threat to the long-term health of the U.S. semiconductor industry is weak demand. In a highly competitive global industry, the largest semiconductor buyers– most of which are U.S. corporations– have made no tangible commitment to preference purchases of U.S. fabricated semiconductors. Without Congressional oversight, these new U.S.-based foundries could become empty shells in a few years.

The U.S. Department of Commerce and the CHIPS Program Office (CPO) have done good work incentivizing new domestic foundry and manufacturing capacity; however, insufficient attention has been paid to demand from these new facilities. First, the fabless semiconductor firms - Apple, Nvidia, Qualcomm, AMD, Broadcom, and others - continue to have their chips made offshore and their commitment to domestic sourcing is superficial at best.[3] The fabless business model, where

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[1] The White House, "FACT SHEET: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China" (Aug. 9, 2022), "https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/; U.S. Department of the Treasury, "Treasury Department Mobilizes Semiconductor Supply Chain Investment Incentives with Key CHIPS Investment Tax Credit Guidance" (March 21, 2023), https://home.treasury.gov/news/press-releases/jy1353

[2] SIA/BCG, "Emerging Resilience in the Semiconductor Supply Chain", May 8, 2024 https://www.semiconductors.org/emerging-resilience-in-the-semiconductor-supply-chain/

[3] See, e.g., Todd Achilles et al., "Reshoring and Restoring: CHIPS Implementation for a Competitive Semiconductor Industry," American Economic Liberties Project, p. 14 (Feb. 6, 2024),

firms design and market but do not manufacture semiconductor chips, drove the massive decline in the share of global semiconductor chips manufactured in the United States from 37% in 1990 to 12% in 2020.[4] The incentives of fabless firms– and of the Wall Street financiers that continue to agitate for "capital light" offshoring business models– are not aligned with boosting and sustaining domestic sourcing in a meaningful way.

Voluntary pledges might make for good press releases,[5] but will not match the scale of the demand needed to ensure a sustainable domestic industry. Such pledges also gloss over the maturity of the production processes involved. Leading-edge chips made with the most advanced technological processes are still sourced from abroad. TSMC will start mass producing 2nm chips next year in Taiwan, but its new Arizona fab will lag 3-4 years behind and not produce 2nm logic chips until 2028 at best– by which time 1nm will define the leading edge.[6] Relying on multinational munificence would condemn America to playing catch-up for the next decade.

Second, the largest original equipment manufacturers (OEMs)– Apple, HP, Dell, LG, Samsung, Google, and others– have made no binding commitment to source their semiconductors from U.S.-based facilities. This is precisely the risk raised by GlobalFoundries' CEO when his firm received $1.5B in CHIPS Act subsidies.

> "With new onshore capacity and technology on the horizon, as an industry we now need to turn our attention to increasing the demand for U.S.-made chips…"
>
> Dr. Thomas Caulfield, President and CEO of GlobalFoundries (Feb. 19, 2024)[7]

OEMs have spent three decades optimizing a supply chain where low-price components are sourced near final assembly to minimize logistical overhead. In the case of consumer electronics, assembly largely takes place in China and East Asia, so that is where commodity chips are built. Buying from U.S. fabs would require OEMs to address a major new geographic gap at the assembly stage by either paying to ship U.S chips to Asian assembly plants or relocating assembly closer to

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https://www.economicliberties.us/our-work/reshoring-and-restoring-chips-implementation-for-a-competitive-semiconductor-industry/ (noting that Apple "has accelerated U.S. semiconductor offshoring by relentlessly chasing the cheapest suppliers" while spending "an amount equal to nearly ten CHIPS Acts" on stock buybacks and dividends since 2018) ("AELP Reshoring Report").

[4] AELP Reshoring Report at pp. 11-12.

[5] See, e.g., Apple Press Release, "Apple announces multibillion-dollar deal with Broadcom for components made in the USA," (May 23, 2023), https://www.apple.com/newsroom/2023/05/apple-announces-multibillion-dollar-deal-with-broadcom/ Such press releases also likely reflect list prices, not the actual dollar amount that would be paid to U.S. foundries after power buyers such as Apple extort discounts.

[6] *See*, e.g., Kathrin Hille, "TSMC boosts Joe Biden's AI chip ambitions with $11.6bn US production deal," Financial Times (April 8, 2024), https://www.ft.com/content/4798ab77-e063-4784-bdf3-19852b41fd1f; "TSMC Arizona and U.S. Department of Commerce Announce up to US$6.6 Billion in Proposed CHIPS Act Direct Funding, the Company Plans Third Leading-Edge Fab in Phoenix," TSMC Press Release, April 8, 2024, https://pr.tsmc.com/english/news/3122

[7] GlobalFoundries, "GlobalFoundries and Biden-Harris Administration Announce CHIPS and Science Act Funding for Essential Chip Manufacturing" (Feb. 19, 2024), https://gf.com/gf-press-release/globalfoundries-and-biden-harris-administration-announce-chips-and-science-act-funding-for-essential-chip-manufacturing/

the U.S. Even if American chips become cheaper, OEMs will resist business process changes, which presents a significant hurdle to sustainably rebuilding the U.S. semiconductor industry.

Unfortunately, the CPO lacks the statutory authority to compel semiconductor buyers to preference the U.S. manufacturing facilities built with CHIPS Act funds. Without Congressional oversight and legislative action, there is nothing to stop fabless chip makers and OEMs from continuing the same offshoring practices that hollowed out America's semiconductor industry over the last 25 years.

Moreover, the CHIPS Act does not fully remedy the market structure problems that plague the semiconductor industry. As noted in American Economic Liberties Project's semiconductor industry report, "Restoring and Reshoring: CHIPS Implementation for a Competitive Semiconductor Industry," the foundry sector has an HHI of 3,621 and one firm, TSMC, captures 58% of sector revenue but over 80% of sector profits.[8] Oversight is needed to ensure that CHIPS funding does not reward past antitrust violations or encourage further consolidation, and to ensure that recipients of CHIPS funding are barred from engaging in anticompetitive practices such as exclusive dealing, tying, discriminatory pricing arrangements, predatory pricing, and other coercive contracts.

The American Economic Liberties Project strongly recommends that Congress undertake the following actions:

1) Require CPO and Commerce Department to submit quarterly reports detailing the capacity, utilization, sales and customers for every CHIPS Act funding recipient;
2) Require the Commerce Department and Customs and Border Protection to submit quarterly reports on the domestic content (part count and value) of all electronics shipped to the U.S. from the 40 largest consumer electronics OEMs, such as Apple, Dell, HP, LG, Samsung, Google, and others.
3) Direct the FTC and DOJ to submit regular reports to Congress on foundry sector concentration and fabless chipmaker anticompetitive practices.
4) Prepare legislation that raises the cost to fabless chip makers and consumer electronics OEMs of buying semiconductors from non-U.S. semiconductor firms.

This information and action will allow Congress to monitor the supply-demand balance and identify those fabless chipmakers and OEMs whose business practices undermine the massive CHIPS Act investment, as well as make domestically-produced leading-edge chips more competitively priced.

Sincerely,
American Economic Liberties Project

[8] AELP Reshoring Report at p. 4.