Preliminary Findings from State Interviews on Implementation of the CHIPS + Science Act

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Introduction

The bipartisan Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022 (CHIPS + Science Act) represents transformative legislation for American economic development. For decades, American companies offshored many parts of the semiconductor chip design and manufacturing process to drive down costs for other industries. The CHIPS + Science Act recognizes the cumulative consequences that this constant drive to lower costs has had on America's national and economic security. The Act seeks to rebuild the domestic industry as an innovative and cost-competitive domestic sector capable of generating benefits for a wide array of stakeholders and communities. The Act is an important change in national industrial policy; however, we understand very little about the likely economic development impacts of the CHIPS + Science Act on states and regions.

States have long engaged in industrial policy, and it should come as little surprise that they have a strong interest in leveraging the national attention directed to the semiconductor industry for their own economic benefits. With intentional programs aimed at leveraging these national resources, states have an opportunity to align their local and regional economic development strategies with implementation of the CHIPS + Science Act's national objectives to achieve local priorities. This project aims to examine the roles, perspectives, and activities of state governments in implementing the CHIPS program within the context of national policy.

Through both primary and secondary research on state economic development efforts in the CHIPS ecosystem, we have drawn several conclusions thus far:

- **Emphasis on national competitiveness and economic security.** At its core, Congress designed the CHIPS + Science Act as a national security and competitiveness program. Regional development priorities, such as job creation and socioeconomic equity, are considered secondary objectives among national leaders even though there are explicit directives aimed at promoting more equitable opportunities and an inherent desire to create a more resilient semiconductor manufacturing base.
- **Competing Federal innovation-based economic development priorities.** Beyond CHIPS + Science Act implementation, Federal and state policy makers are collaborating to implement many other bipartisan economic investment initiatives. These have created a great deal of demand on state governments, providing opportunities and challenges, as states execute the myriad of complementary Federal innovation, manufacturing, and industry cluster initiatives that compete for state resources and attention.
- **Reliance on anchor investments and related agglomeration economies.** The economic model of the semiconductor industry, characterized by both its capital-intensive nature and its premium on strong R&D, favors geographic clustering into large industrial hubs. This means that there are several regions likely to be "big winners" in the competition for large semiconductor facilities and the supply chain supporting them. For states where these large facilities are already committed, there is a natural advantage for suppliers to operate from locations nearby.
- **Incumbent advantage.** States with a strong existing presence in the semiconductor industry enjoy a notable incumbent advantage in their ability to leverage CHIPS

program resources. Yet, other states could benefit by promoting the need for a resilient and redundant supply chain serving these facilities. In the context of national policy, the U.S. has a national security interest in seeing the development of a more distributed network of suppliers rather than a large concentration in a few areas.

- **States' willingness to collaborate despite incentives within the CHIPS program that encourage competition**. The highly competitive and industry-driven nature of the CHIPS program does not lend itself well to fostering collaboration between states. Nevertheless, several states have indicated a willingness to establish a dialogue with their peers, especially to address issues of common concern such as federal environmental permitting regulations, workforce pipeline development, and similar issues.
- **Potential for regional networks.** Inter-state collaboration around utilization of CHIPS resources may make more sense at the regional level (e.g., between states in the Mountain West).
- **Opportunities to leverage existing collaboration networks in academia.** States may be able to leverage existing collaboration networks between their universities to jumpstart conversations with other states.

Federal Perspectives on the CHIPS Act and the Role of States

The goal of the CHIPS Act is to strengthen national security and competitiveness.

The CHIPS Act is a product of the National Defense Authorization Act of Fiscal Year 2021, which authorized an incentive program for building and equipping semiconductor fabrication plants (fabs) in the United States, as well as R&D activities to support U.S. leadership in semiconductor technology.[1] The CHIPS Act's origination from defense legislation reinforces federal officials' view that the program is first and foremost a national security and competitiveness initiative. While job creation and community development are welcome benefits of program activities, they are not the program's core policy objectives. Indeed, the overarching vision of the CHIPS program can be described as strengthening three components:

1) **Economic Security** – enable the U.S. to build more resilient supply chains for important components.
2) **National Security** – enable the U.S. to bring the most sophisticated technologies back to the country.
3) **Future Innovation** – Ensure long-term U.S. leadership in a sector that is key to technologies and industries of the future.

To realize this vision, the CHIPS program office holds the stated goal that the United States will have at least two new large-scale clusters of leading-edge logic fabs by 2030. Each cluster will, furthermore, have the scale, infrastructure, and other competitive advantages to ensure that semiconductor manufacturers view continued expansion in the U.S. as economically

[1] Congressional Research Service: https://crsreports.congress.gov/product/pdf/R/R47523

attractive even in the absence of future CHIPS program funding.[2] This focus on a few large regional clusters stems from the economic model of semiconductor manufacturing, one of the few industries that relies heavily on both economies of scale and R&D intensity. As such, locational concentration of activities across the semiconductor value chain creates significant advantages in terms of specialized labor pools, supplier linkages, knowledge spillovers, and the accumulation of tacit knowledge. If national competitiveness is the overarching objective, it is reasonable that federal officials consider the development of a few highly competitive regional clusters as preferable to distributing CHIPS resources throughout the country.

Structure and design of CHIPS programs incentivize competition between states.

This cluster-oriented approach also incentivizes competition for CHIPS resources that offset the cost of large fab projects, especially among states that are already competitive in the semiconductor industry. Many states that do not enjoy such incumbent advantages may view some CHIPS program opportunities as not worth pursuing. However, the program does offer $500 million in funding for smaller-scale semiconductor supply chain projects that may be suitable to a wider range of states. These smaller projects may provide an opportunity to foster inter-state dialogue around supply chain complementarities and ecosystem building.

CHIPS incentives primarily target industry, but states can still play a vital role.

The CHIPS program is distinctive in that it is driven by industry, wherein companies are expected to lead proposals and to use CHIPS funding to offset capital costs. This is unlike most EDA or NSF programs, whose applicants are typically non-profit, public, or academic institutions.

In this context, states can still play a significant role by supporting industry in applying for CHIPS funding, by convening and coordinating partners around cluster building, and by offering their own incentives. As an example, the CHIPS program requires industry applicants to submit a workforce strategy to ensure that facilities have access to the skilled labor required. Though some companies may lack the expertise and connections to assess regional labor markets and to develop a talent acquisition strategy, state economic development agencies and their workforce development partners are well-positioned to help companies develop effective plans that also further the needs of local communities.

Additionally, the CHIPS statute requires that applicants demonstrate that they have secured incentives from the state or local government. In other words, to qualify for federal CHIPS incentives, companies must demonstrate that their projects are accessing state and/or local government investments as well. While the statute provides states flexibility in how they can demonstrate this investment, the fact remains that the CHIPS program considers state and local governments key partners in cultivating globally competitive clusters around semiconductors.

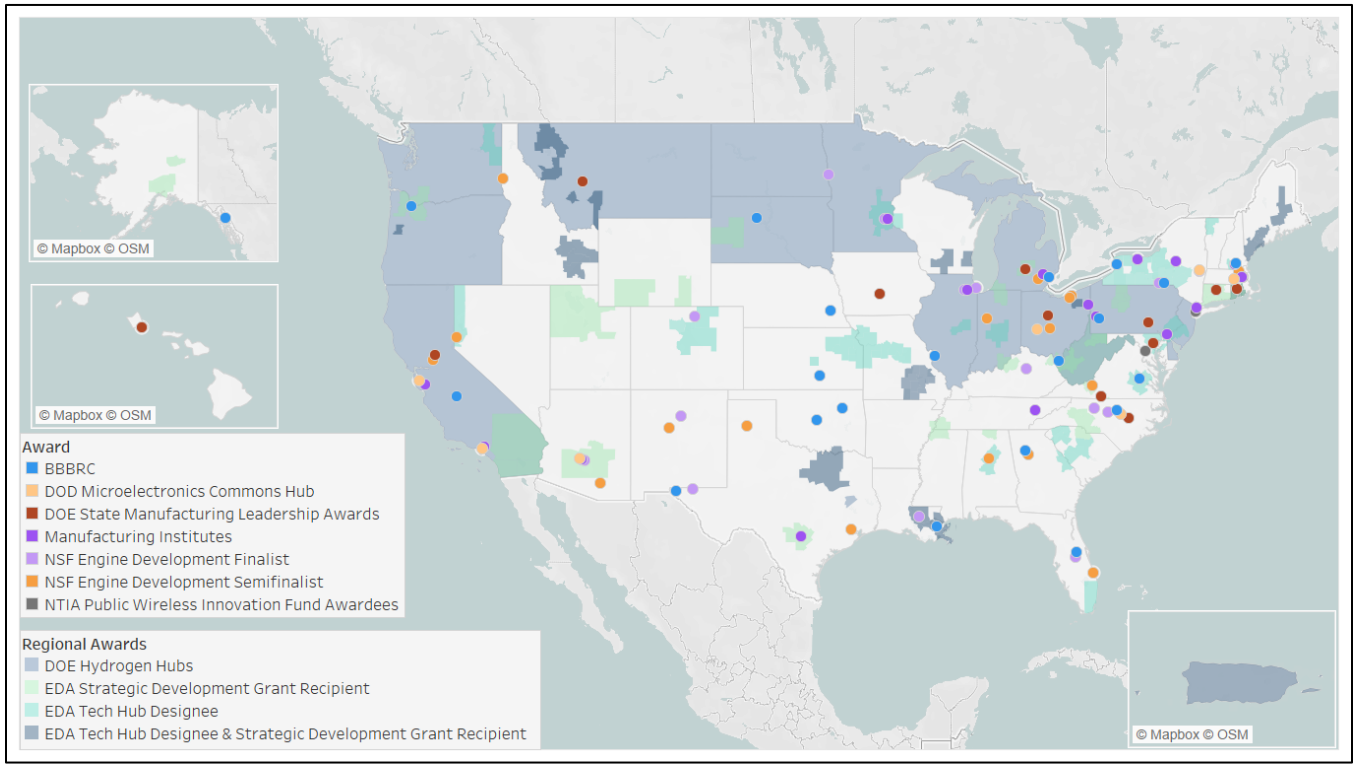
[2] CHIPS Program Office

States can use the new Federal investment to assess their competitive position in growing the semiconductor industry and align with efforts related to other national innovation and cluster-building programs.

States have many opportunities and challenges in determining their ability to compete for semiconductor-related investments and in building the necessary ecosystem to support this industry cluster. Beyond CHIPS, other Federal innovation, manufacturing, and industry cluster initiatives with similar policy objectives can help industry compete for state cluster investments and states to develop the ecosystem required to support a robust semiconductor industry. Understanding the nature and distribution of relevant Federal awards can shed light on what states are choosing to prioritize, their competitive advantages in certain industries or technologies, and how the CHIPS program fits in their overall economic development strategy.

Figure 1 shows the geographic distribution of announced awards in various innovation-related programs (an interactive version of this map can be found here). While a deeper, state-by-state analysis is needed, the map shows that awards are relatively concentrated in the Northeast and Great Lakes regions. A potential explanation is that these regions historically represented a large share of the nation's manufacturing base while also being home to many research universities and population centers. However, some states recently announced new fabs and other large facility projects (e.g., Texas, Arizona, and Utah). These announcements were located in traditionally lower cost areas where long-standing state industrial policy emphasized innovation-based economic development, especially in microelectronics and information technology. This clustering in two areas of the U.S. speaks to a need to understand what makes states and regions competitive in semiconductor manufacturing versus what makes them competitive in technological innovation more generally. Doing so can also help identify potential synergies between the CHIPS program and related federal programs.

Figure 1: Geographic Distribution of Awards from Select Federal Programs[3]
(see interactive version of this map here)



It is important to recognize that CHIPS for America programs are only a small subset of the CHIPS and Science Act.

CHIPS for America is a suite of programs originating from the CHIPS and Science Act that aims to strengthen and revitalize the U.S. position in semiconductor research, development, and manufacturing—while also investing in American workers.[4] Of the $50 billion authorized to CHIPS for America, $39 billion is intended to provide incentives for facilities and equipment investment and is managed by the CHIPS Program Office within the Department of Commerce. The remaining $11 billion will be used to develop a robust semiconductor R&D ecosystem and is managed by the CHIPS Research and Development Office within the National Institute of Standards and Technology.

As shown in Figure 2, this $50 billion is only a small share of the CHIPS + Science Act itself, which authorized approximately $278 billion in total funding. Outside of CHIPS for America, funding is authorized toward Science initiatives led by other agencies, such as the Department of Energy, the National Science Foundation, and the Economic Development Administration.

[3] Source: CREC analysis of public award announcements. An interactive version of this map can be found here.
[4] National Institute of Standards and Technology: https://www.nist.gov/chips

Exactly how these initiatives would complement CHIPS for America programs will be better understood as Congress appropriates funding for these initiatives.[5]

Figure 2: Funding Breakdown of the CHIPS and Science Act
(green highlighted rows indicate Chips for America programs)

Division A "CHIPS" – This portion of the legislation is fully Authorized and Appropriated			
Department/ Organization	Name	Authorized Funding	Appropriated Funding
Commerce	CHIPS for America Fund	$39 billion	$19b (FY23), $5b per year (FY24-FY27)
NIST	Adv. Semi-Conductor Research and Development	$6 billion	$6b (FY24-FY27)
	National Advanced Packaging Manufacturing Program	$2.5 billion	$2.5b (FY23)
	National Semiconductor Technology Center	$2 billion	$2b (FY23)
	Microelectronics R&D/ Manufacturing USA Institute	$500 million	$500m (FY23)
Defense	CHIPS for America Defense Fund	$2 billion	$400 m per year (FY23-FY27)
Treasury/IRS	CHIPS Advanced Manufacturing Tax Credit	~$24 billion	N/A
NTIA	Public Wireless Supply Chain Innovation Fund	$1.5 billion	$1.5b (FY23 or until expended)
State	CHIPS for America International Technology and Innovation Fund	$500 million	$100 m per year (FY23-FY27)
NSF	CHIPS Workforce and Education Fund	$200 million	$25m (FY23-FY24), $50m (FY25-FY27)
Division B "Science" – This portion Was not fully appropriated with CHIPS; it must be appropriated in committee.			
Department/ Organization	Name	Funding (five-year authorization)	FY23 Appropriations
DOE	Office of Science	$50.3 billion	$8.1 billion
	Science and Innovation Funds	$17.6 billion	N/A
NIST	Research and Standards Development	$6.9 billion	$ 1.62 billion
	Developing Partnerships with Manufacturers	$3.1 billion	
NSF	Funding Core Activities to Grow Research	$61 billion	$9.87 billion
	Directorate for Technology Innovation, and Partnerships (TIP)	$20 billion	$880 million
Commerce (EDA)	Tech Hubs	$10 billion	$459 million
	ReCompetes Pilot Program	$1 billion	$159 million
Total Funding (subject to congressional budget appropriations)		~$278.2 billion	

[5] Authorization acts establish, continue, or modify agencies or programs. Appropriations make funding available to these agencies or programs to fulfill their legislative mandates.

Drivers of States' Competitive Advantage in the CHIPS Ecosystem

Through conversations with state leaders and existing research on the semiconductor industry, we identified several factors that may explain why some states are more competitively positioned than others in the utilization of CHIPS resources. The biggest factor appears to be the incumbent advantage enjoyed by states that historically held a strong presence in semiconductor manufacturing and R&D. In other words, states with established semiconductor clusters seem especially well-positioned to leverage the CHIPS program to further develop these clusters. This does not mean that other states lack the agency to develop their own competitive positions in the CHIPS ecosystem. States are increasingly making efforts to better understand and serve the needs of the semiconductor industry, and some are forming regional networks to capitalize on cluster-building opportunities across state borders.

States with an incumbent advantage in semiconductors are strongly positioned to engage with the CHIPS program.

Interviews with state economic development executives have underscored the importance of the incumbency effect in determining state and regional competitiveness in the CHIPS ecosystem. States with a long industrial history in semiconductors benefitted from the presence of large "anchor" companies whose activities catalyzed the development of a robust ecosystem of supporting institutions. Consequently, they are often more organized, resourced, and experienced in securing and using CHIPS dollars.

Texas presents a case study of this incumbent advantage at work. The state enjoys a long history in semiconductors, beginning with the formation of Texas Instruments in 1951 and the invention of the integrated circuit in 1958. In the 1980's, Austin's selection as the site of Microelectronics and Computer Technology Consortium (MCC) – at its time the foremost computer research and industry consortium in the U.S. – spawned the arrival of fab facilities from companies such as Samsung. This in turn created demand for supporting industries, such as software development and equipment manufacturing, and incentivized the state's university system to develop world-class engineering programs.

The growing importance of the semiconductor industry to the Texas economy also prompted state and local government to prioritize its continued development. Advanced manufacturing, which includes the semiconductor industry, has long been one of the state's official target industries. As such, state and local governments worked together to advance business recruitment, expansion, and retention in semiconductors through a combination of strategic planning, financial incentives, and high-touch delivery of economic development services. In 2021, Texas formed the National Semiconductor Centers Texas Task Force to prepare the state to respond to CHIPS requests-for-proposals as they are released. In 2023, the state passed the Texas CHIPS Act, which statutorily codified the task force into the Texas Semiconductors Innovation Consortium (TSIC). Complementing these strategic planning and coordination efforts is the Texas Semiconductor Innovation Fund (TSIF), a $698 million financial incentive program to encourage investments in semiconductor manufacturing and R&D, as well as an additional $644 million toward funding specific programs at state universities. Lastly,

Texas leverages TSIC and the Office of State-Federal Relations to actively coordinate industry development activities with the Federal government.

An often-overlooked element of the incumbent advantage enjoyed by states like Texas is the tacit knowledge and competencies accumulated through decades of experience. Over many years interacting with the semiconductor industry, some Texas communities have developed a familiarity with the industry's needs and were therefore able to streamline permitting processes and to supply the relevant infrastructure and workers. Whereas many other states would have needed to educate themselves about the industry's needs, the experience and know-how of actors across Texas's semiconductor ecosystem endows them with a significant advantage relative to their peers in other states.

Clustering industry activities across the value chain (from "lab to fab) yields competitive advantages.

Several states interviewed for this project emphasized the importance of developing a "lab-to-fab" environment to make themselves more competitive in the semiconductor industry. This term is roughly synonymous with an industry cluster but with an emphasis on the co-location of manufacturing and R&D activity.

The design and production complexities inherent in the semiconductor industry make it one of the few industries where success depends on both economies of scale in manufacturing and high R&D intensity. Companies seeking new locations to build fabs often consider the presence and nature of major research centers. This is because the co-location of manufacturing facilities with R&D activity can accelerate the commercialization process, such that new technologies developed in the lab can be more quickly transitioned to the marketplace. Given the high pace of innovation taking place in the semiconductor industry, the speed with which emerging technologies can be commercialized is a key driver of economic competitiveness. In the United States, universities often serve the role of research centers in that they are a source of both research capacity and talent. However, other institutions such as national research laboratories also enhance their regions' appeal to the semiconductor industry.

Utah and North Carolina present illuminating case studies on the relationship between R&D and manufacturing. In North Carolina, Wolfspeed, Inc. is a large semiconductor company whose founders are graduates of North Carolina State University (NCSU). The company's strong ties to NCSU are one of the reasons for its decision to remain in North Carolina. Today, the company employs over 3,000 workers in the state and recently announced plans to build a $5 billion wafer manufacturing plant that would create 1,800 new jobs. As sources of both innovation and innovators, universities like NCSU spin out technology startups that often maintain ties to academia. As these startups grow, they often leverage these ties to access talent and innovation capacity in a way that benefits the regional economy.

In Utah, economic development executives cited Utah State University as a key asset in drawing semiconductor companies to the state. As an anchor institution that conducts world-class research in electronics engineering and boasts one of the country's highest technology transfer rates, Utah State offers numerous research assets (e.g., prototyping facilities, special

equipment, etc.) that industry can access to accelerate the R&D and commercialization process. Additionally, collaboration between academia and industry is already strong in Utah because the state's aerospace industry works closely with universities on applied research projects. Therefore, semiconductor companies starting operations in Utah found it easy to tap into existing collaborative networks and to integrate themselves into the state's innovation ecosystem.

In both North Carolina and Utah, the responsiveness of universities to industry's needs – by revamping programs and by participating in applied research – serve as a lesson for other states on the role of strong R&D centers in driving competitiveness in the CHIPS ecosystem.

States can take various actions to enhance their value proposition in the CHIPS ecosystem.

States that have a less-established presence in the semiconductor industry can still take action to enhance their competitive position in the CHIPS ecosystem. For instance, they can take steps to streamline the permitting process and, more broadly, make it easier, faster, and less costly for semiconductors companies to open facilities. While financial incentives are one tool available to states to increase their value proposition, semiconductor companies also place a premium on minimizing the time required to finish construction and start operations. States can play a role in enhancing this "speed-to-market" premium by being responsive to the needs of prospective companies and by streamlining regulatory and permitting processes.

Idaho presents a good demonstration of how a smaller state can still enhance its competitiveness in the CHIPS ecosystem. Though Idaho enjoys an incumbent advantage in semiconductors (Hewlett Packard and Micron Technologies have significant operations in Idaho), it is unable to compete with larger states such as Texas or California in the size of financial incentives. Consequently, Idaho has focused on building its value proposition around helping companies investing in the state reach market at speed. The state uses the high level of access and interconnectivity between state agencies and between state, regional, and local governments to promptly direct companies to the right institutions. In one instance, the state was able to help a company start operations within 12 months of the company's first call to the state, in part by connecting the company's leaders to the governor's office early in the process. As such, this proactive approach to business engagement has helped Idaho "punch above its weight" in attracting advanced manufacturing investment.

Inter-state collaboration may initially take the form of regional networks.

According to states interviewed thus far, inter-state collaboration around CHIPS-related initiatives may make the most sense in regions with substantial cross-border activity. In cases where multiple semiconductor clusters are located near one another but across state borders, more opportunities exist for their corresponding states to interact with one another and potentially coordinate CHIPS-related activities. A key lesson here is that industry can play a coordinating and organizing role in formalizing regional networks, as both industry and states benefit from enhanced capacity and outcomes arising from greater collaboration.

An informal regional network around semiconductors is already forming in the northwestern United States. Economic developers in Utah and Idaho, for example, have had informal

communications around supply chain and workforce opportunities between the Boise and Salt Lake City areas. In academia, universities across the Pacific Northwest formed a partnership with Micron Technologies, the Northwest University Semiconductor Network, to collaborate on semiconductor workforce development.

Critical CHIPS-related Issues that States are Addressing

States already have existing initiatives and strategies that they can utilize to support the semiconductor industry; however, they anticipate facing unique challenges in preparing to be competitive. This provides an opportunity for states to advance related issues in workforce, supply chain, permitting, childcare, and more to grow the semiconductor industry.

Workforce

In the CHIPS Act Notice of Funding Opportunity (NOFO), there are requirements for a workforce strategy for applicants. States are determining how to best strengthen the semiconductor workforce, whether that be by convening relevant partners, working with colleges and universities to develop programs, or discussing what resources are available and needed. Some states have created inter-agency working groups to help companies apply for CHIPS Act funding. Some have created a workforce development strategy template for companies to use in their applications. As such, strong state support for CHIPS program applications, particularly in workforce development, alleviates the pressure off companies and streamlines the application process.

Supply Chain

Another key element in growing the semiconductor industry is developing a strong domestic supply chain. States may be aware of the types of suppliers they have in their states, but many have yet to develop a full understanding of their states' semiconductor supply chain. Some states are building databases of local suppliers involved in the semiconductor industry. In addition to informing states' business development efforts more broadly, such databases can provide a "matchmaking" service where manufacturer's needs, such as specifications for products, quantity, or delivery schedules, are connected to regional suppliers that can address those needs.

Environmental Compliance

Permit regulations will be a major barrier to semiconductor expansion. Historically, semiconductor companies building new facilities were required to comply with state and local permitting requirements, and they have since developed a familiarity with state and local permitting processes. However, companies receiving federal CHIPS incentives are required to undergo the National Environmental Policy Act (NEPA) review process. Industry is unfamiliar with this process, and the NEPA compliance requirements raise concerns about lengthy and expensive project delays.[6]

[6] Singerman and Kersten. Center for Strategic and International Studies. "Implementing CHIPS: The NEPA Permitting Challenge." https://www.csis.org/analysis/implementing-chips-nepa-permitting-challenge

Federal permitting challenges aside, some states have relatively open regulatory environments – offering waivers to semiconductor facilities which allow them to bypass some state-level regulations in pursuit of innovation. Some states also allow companies to undergo a pre-permitting process to ensure they meet regulations in a timely manner while providing direct guidance to companies in navigating federal permitting processes.

Representatives in the federal government recognize that they must streamline the permitting process. In late October, 118 lawmakers signed a letter urging the Senate and House Armed Services Committees to preserve language in the *Building Chips in America Act* to exempt major CHIPS projects from NEPA review process.[7] By maintaining this language, semiconductor projects would avoid federal review and may be completed more quickly.

Childcare

Providing childcare for employees of both construction contractors and semiconductor factory workers is vital to ensure the success of new CHIPS projects. Indeed, the Department of Commerce requires any CHIPS-funded investment over $150 million to submit plans to provide "facility and construction workers with access to affordable, accessible, reliable, and high-quality childcare."[8] Many states already provide childcare services to attract business to their communities.[9] These incentives can be used to support CHIPS projects as well. In some states, economic development leaders have coordinated with the Department of Health and Human Services to develop childcare plans to present to large fabrication projects as an incentive to locate in the state. Other states have seen coordination between local organizations and public agencies to provide a wide range of childcare options to construction workers on several plant projects.[10]

The CHIPS Program Office is working to connect construction and facility workers with childcare options. The NIST CHIPS For America Teaming Partner List is a nation-wide repository of potential community partners who provide a range of services, including quality childcare.[11] Companies and states can use this information to build a community of service providers around new CHIPS projects to offer childcare services for incoming workers.

Helping Companies Overcome Barriers and Offer More Economic Opportunity

In addition to growing their semiconductor industries, some states intend to leverage this growing industry to address barriers to employment and equity. For example, economic developers have supplied companies with state demographic and economic data so they can better engage with the communities in which they are based. At the same time, states

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[7] https://www.commerce.senate.gov/2023/10/over-100-lawmakers-call-for-chips-permitting-reform-in-final-defense-bill
[8] https://www.commerce.gov/news/press-releases/2023/02/biden-harris-administration-launches-first-chips-america-funding
[9] https://tcf.org/content/commentary/the-chips-acts-child-care-requirement-is-going-to-unleash-economic-potential-community-partners-can-help/
[10] Ibid.
[11] https://www.nist.gov/chips/chips-america-teaming-partner-list

are actively helping communities position themselves by reducing barriers to employment and to enhance their value proposition to prospective companies.

Another challenge states are faced with is encouraging companies to apply for CHIPS funding. Due to the intensity of the requirements, such as the inclusion of a workforce strategy, companies may feel discouraged from applying for funding. States are actively supporting companies as they explore whether to apply for funding by helping the companies through an application process that may seem daunting.

Opportunities for Inter-State Collaboration

While states are competing aggressively to attract semiconductor companies, there is also room for collaboration between states. Such partnerships are necessary if the US is to build a comprehensive and stable ecosystem for semiconductor manufacturing. Some states have already begun cooperating in this area, but to ensure the success of the CHIPS program, further collaboration should be incentivized and encouraged – both by state governments and federal policymakers.

Some level of organic collaboration between states is already apparent. For example, when Idaho obtained an EDA Tech Hub designation, the state reached out to Utah, Montana, and Oregon to ensure that Micron – which is devoting $15 billion to a plant in Boise – has the workforce and supply chains it needs to support its investment. In a region like the Mountain West, where the population is relatively small and spread out, this type of collaboration is vital to any project requiring large, country-spanning supply chains, and labor supply. This multistate arrangement has already generated interest in the pursuit of common interests and goals, strengthening the economic ties between Idaho, Utah, Montana, and Oregon. Indeed, interviewees indicated that they look forward to collaborating on other issues like water conservation, critical mineral extraction, and capacity building for future projects.

North Carolina is another example of interstate collaboration. In this case, much of the collaboration between North Carolina and its neighbors is facilitated through North Carolina State University, which operates in partnership with other state universities on research and development of semiconductors and related technologies. States across the Southeast have also shared best practices around workforce participation in the Electric Vehicle industry. While collaboration already exists in this region, respondents indicated that they would like to see more collaboration with federal groups like the CHIPS Program Office. This additional synergy could help eastern states better position themselves for future federal projects.

It should be noted that more opportunities for inter-state collaboration around the CHIPS ecosystem will materialize as CHIPS funding awards are announced. That is, as information becomes available on where and how CHIPS dollars would be deployed across the country, actors throughout the CHIPS ecosystem will be able to make more informed decisions on collaboration opportunities across state borders.