

# “NEVADA LITHIUM BATTERIES AND OTHER EV MATERIALS LOOP” TECH HUB

A Tech Hubs Designation is an endorsement of a region’s plans to supercharge their respective technological industry to create jobs and strengthen U.S. economic and national security.

## NEVADA’S ADVANTAGE

- Nevada is home to world-leaders in EV battery development and recycling, as well as the nation’s only operating lithium mine, the largest lithium mine under production in North America, and cutting-edge research infrastructure. This co-location of raw resources, key talent and advanced R&D positions the state to be highly innovative.
- The University of Nevada, Reno is a leader in this regional effort by bringing together diverse stakeholders and ensuring efforts are aligned for the benefit of the state.
- The State of Nevada contains the highest concentration of assets, capital, R&D, labor market, and infrastructure relevant to lithium batteries and other EV materials.
- The University of Nevada, Reno is home to nationally recognized research and education programs related to EV resource and technology.
- In collaboration with relevant industry, Nevada community colleges have well-established workforce development programs that educate, train, and transition the next generation workforce to an economy of the future.
- Nevada-based industries have pioneered cutting-edge innovations in resource extraction, in EV battery technology, in battery reuse and recycling, and in the translational research and development that continuously pushes the boundaries of what is possible.
- Nevada is in a unique position to meet the nation’s growing demand for clean energy through EV technology.
- This large-scale coordination is emblematic of the regional alignment and collaboration that gives Nevada the competitive advantage.

*This Tech Hub envisions a region with innovation supported across the lithium batteries and EV materials supply chain, heightened efficiency, cooperation and competition and mitigated economic distress of previously overlooked geographies and communities.*

## CONSORTIUM DETAILS

- Over 60 consortium partners across the public sector, non-profit sector, and private sector including Tesla, Panasonic Energy of North America, Redwood Materials, Lithium Americas, Dragonfly Energy and many others spanning extraction, processing, advanced manufacturing and recycling
- 16 of Nevada’s 17 counties (excluding Clark County)
- 7 of Nevada’s eight regional economic development authorities (excluding the Las Vegas Global Economic Alliance)
- Both of Nevada’s two US Economic Development Administration Economic Development Districts
- Various industry partners and industry associations including the Nevada Battery Coalition and the Nevada Mining Association
- Academic institutions throughout the state

## REGIONAL COORDINATION

- This Tech Hub designation is one part of a highly coordinated, regional public-private push to transform Nevada’s economy to one that is inclusive, reliable, and capable of meeting the needs of Nevadans and the nation.
- The University recognizes the synergistic opportunities presented by aligning multiple federal, state and industry investments, of which the NSF Engines Development award and this EDA Tech Hub designation are examples.
- This multi-pronged effort to build out our region’s capabilities in every aspect of the lifecycle of lithium and other EV materials consists of more than 50 consortium members, including research institutions, community colleges, private industry, state, local and tribal governments, non-profits and trade associations.

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 The College of Business  
AT THE UNIVERSITY OF NEVADA, RENO

# UCED

University Center for Economic Development



University of Nevada, Reno



**A Tech Hubs Designation is an endorsement of a region's plans to supercharge their respective technological industry to create jobs and strengthen U.S. economic and national security. Some of the support and benefits Tech Hubs Designees will receive include:**

## Follow-on Funding

- ✓ Tech Hubs Designees can apply directly for future Tech Hubs implementation funding.
- ✓ Tech Hubs Designees will be given preference for the Build to Scale program.
- ✓ Distressed communities within Tech Hubs regions will be given higher consideration for other relevant Economic Development Administration funding opportunities.
- ✓ The U.S. Department of Treasury's State Small Business Credit Initiative (SSBCI) will convene and match Tech Hubs with SSBCI capital programs in relevant states.

## Branding and Technical Assistance

- ✓ Tech Hubs Designees will be invited to a Community of Practice to engage with other Designees around the country.
- ✓ Tech Hubs Designees will have access to exclusive Tech Hubs branding and media promotion materials.
- ✓ The U.S. Department of Agriculture (USDA) will work with Tech Hubs to identify relevant USDA Rural Development programs and networks that could help ensure rural communities can benefit from and engage with Tech Hubs.
- ✓ USDA will work with Tech Hubs to identify any relevant rural electric cooperatives that could help provide reliable, affordable energy and broadband access in their regions as needed.
- ✓ The U.S. Department of Housing and Urban Development will help Tech Hubs Designees identify relevant resources, data, and best practices to support long-term housing planning as they prepare their Phase 2 applications, including through a webinar series.
- ✓ The U.S. Small Business Administration will provide technical assistance for the Small Business Investment Company (SBIC) program to increase private investment in Tech Hubs-located small businesses, convene SBIC funds with Tech Hubs leaders, and facilitate connections for Tech Hubs with the Small Business Innovation Research (SBIR) ecosystem.
- ✓ The U.S. Department of Transportation will provide technical assistance and strategic guidance for relevant grant programs.

## Foreign Direct Investment

- ✓ Tech Hubs Designees will have a dedicated presence at the SelectUSA Investment Summit Exhibition Hall in June 2024.
- ✓ Tech Hubs Designees will be invited to webinars to increase FDI interest in Tech Hubs and create new opportunities to showcase their regions for international business investment.

## Intellectual Property Guidance

- ✓ The U.S. Patent and Trademark Office (USPTO) will identify a Tech Hubs Ambassador and highlight Tech Hubs Designees at regional USPTO events.
- ✓ USPTO will provide Tech Hubs Designees strategic guidance and technical assistance on IP.

## Export Assistance

- ✓ U.S. Export Assistance Centers will pilot select Tech Hubs Trade Specialists to serve as export assistance navigators and offer a global resilience stress test for each Tech Hubs Designee.

"TECH HUBS are supercharging our existing innovation foundations, bringing together our premier research institutions with world class companies to create good-paying jobs in these communities, and ensuring the technological advances that define the next century are made in communities across America."

**Gina Raimondo**

U.S. Secretary of Commerce

**EDA Designates 31 Tech Hubs across the nation that are accelerating the development and deployment of technology and innovation to grow the U.S. economy, protect our national security, and create good jobs.**

On October 23, 2023, the U.S. Department of Commerce’s Economic Development Administration (EDA) designated 31 Tech Hubs that are strengthening the country’s economic and national security, and global competitiveness by enabling the industries of the future to start, grow, and remain in regions across the United States. The program was funded through the bipartisan CHIPS and Science Act, signed into law by President Biden in August 2022.

**The 31 Designated Tech Hubs will have the opportunity to compete for \$500 million in implementation funding in the next phase of the Tech Hubs competition.**

Each Tech Hub applied as a consortium of higher education, government, industry, economic development, labor or workforce, and other organizations focused on improving technology and innovation across the country.

From nearly 200 consortia that applied for Designation, EDA designated 31 Tech Hubs that demonstrated that their region can create, scale, and deliver technologies important to our national and economic security while ensuring that the resulting economic benefits are shared by all.

**Departments and agencies across the U.S. government are committed to supporting the global competitiveness and growth of these Tech Hubs by offering them multiple benefits.**

The 31 Designated Tech Hubs, located across 32 states and Puerto Rico, will leverage existing talent, resources, and assets to mature critical and emerging technology sectors, while advancing equitable growth.

Of the Designated Tech Hubs:

- ✓ Six include a tribal government;
- ✓ 22 significantly benefit small and rural communities;
- ✓ Four are headquartered in low population states;
- ✓ Four include coal communities;
- ✓ 12 include strong participation from labor organizations; and
- ✓ 14 include states that have historically received lower levels of federal research dollars.

**KEY**

- Designee HQ
- SDG Recipient HQ
- Designee and SDG Recipient HQ
- Designee States Served
- States Served by Only SDG

Successful Tech Hubs will:

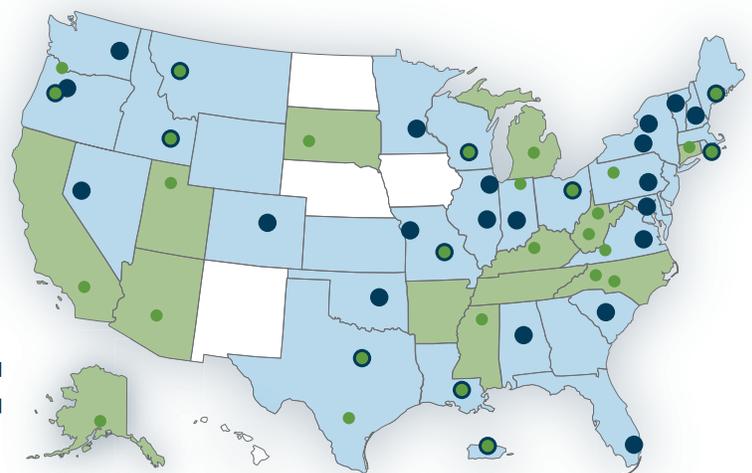
- ✓ **Build the Workforce of the Future**  
Create good jobs and attract the workforce and talent that will drive economic growth in regions across the country.
- ✓ **Enable Growth**  
Encourage more innovative businesses to start and grow all throughout America.
- ✓ **Innovate & Commercialize**  
Test and deploy new technologies and build infrastructure necessary to translate innovation into economic growth.
- ✓ **Boost America’s Economic and National Security**  
Strengthen communities’ economic resilience and maintain our technological edge.

Of the 31 Tech Hubs, 11 received Strategy Development Grants to strengthen their consortia and mature their approach to becoming more globally competitive.

EDA also awarded 18 additional Strategy Development Grants to consortia to further mature their plans and achieve designation in the future.

**All Designated Tech Hubs are focused on technologies and innovation critical to U.S. economic and national security.**

A Tech Hubs Designation is a strong endorsement of a region’s plan to supercharge a critical technology ecosystem and become a global leader over the next decade.



## Designated Tech Hubs Portfolio

The 31 Designated Tech Hubs are:

- Enabling safe and effective autonomous systems (3 Hubs)** to ensure that autonomous systems are deployed — whether on land, in air, or at sea — safely, securely, and equitably and that more of their complex supply chains grow in the United States.
- Maintaining our quantum edge (2 Hubs)** to maintain global leadership in this foundational technology that will underpin new sensing, communications, and computing capabilities to fundamentally change our daily lives and our national security in ways still unforeseen.
- Advancing biomanufacturing (6 Hubs)** to enable the United States to remain at the forefront of innovation in and delivery of positive health outcomes by expanding domestic production of essential small molecule drugs, innovative biologics, regenerative tissue, and medical devices.
- Delivering precise and predictive medicine (5 Hubs)** to improve health outcomes and increase longevity with drugs, devices, and therapies that are closely tailored to each person's unique genome, environment, and history by developing these products and services and getting them in the hands of doctors and patients.
- Accelerating our energy transition (5 Hubs)** to make the United States a global competitor in the energy markets of the future by building diverse, resilient, and sustainable energy generation, storage, and transmission infrastructure to enable continued U.S. growth while strengthening security and mitigating global climate risk.
- Strengthening our critical mineral supply chain (2 Hubs)** to establish innovative and sustainable ways to extract and process the elements and minerals that are essential to manufacturing the products, infrastructure, and environment of the future.
- Regaining leadership in semiconductor manufacturing (4 Hubs)** to grow ecosystems that will produce the increasingly powerful and specialized chips we need by leveraging strengths in areas like new transistor materials, flexible and modular manufacturing and packaging, and microfluidics.
- Growing the future of materials manufacturing (4 Hubs)** to deliver higher performance products and services in a more environmentally sustainable way with next generation materials that will enable the electrification of air travel, carbon negative construction, and an end to plastic waste.

## Overview of the 31 Tech Hubs

Here is an overview of our 31 Tech Hubs Designees, 11 of which were also awarded a Strategy Development Grant (SDG) as indicated by a dot (•) next to their name.

- Advanced Pharmaceutical Manufacturing Tech Hub**, led by the Commonwealth Center for Advanced Manufacturing, aims to accelerate the growth, innovation, and sustainability of the U.S.-based APM industry to re-shore safe and affordable medicines via innovative hybrid and continuous flow manufacturing technologies. This Tech Hub is located in Virginia.
- Advancing Gallium Nitride (GaN) Tech Hub**, led by the University of Vermont, aims to innovate GaN manufacturing, a critical material technology for wireless communication and semiconductor production. This Tech Hub is located in Vermont.
- American Aerospace Materials Manufacturing Tech Hub**, led by Gonzaga University, aims to develop new domestic supply chains to meet the immediate demand for high-rate production of advanced composite aerostructures in defense and commercial markets. This Tech Hub is located in Washington and Idaho.
- Baltimore Tech Hub**, led by the Greater Baltimore Committee, aims to develop innovative predictive healthcare technologies by applying artificial intelligence to biotechnologies. This Tech Hub is located in Maryland.
- Birmingham Biotechnology Hub**, led by Southern Research Institute, aims to become a global leader in drug, vaccine, and diagnostics development by applying Artificial Intelligence-driven biotechnology to increase representation in clinical genomic data and clinical trials. This Tech Hub is located in Alabama.
- Corvallis Microfluidics Tech Hub •**, led by Oregon State University, aims to establish global leadership in the development, scaling, and commercialization of microfluidics technology for use in semiconductor and electronic cooling. This Tech Hub is located in Oregon.
- Critical Minerals and Materials for Advanced Energy (CM2AE) Tech Hub •**, led by the University of Missouri System, aims to position south-central Missouri as a global leader in critical minerals processing to provide the materials needed to support battery technology. This Tech Hub is located in Missouri.
- Elevate Quantum Colorado**, led by Elevate Quantum, aims to solidify the region's global leadership in quantum information technology (QIT) to increase infrastructure resilience and strengthen the quantum hardware supply chain. This Tech Hub is located in Colorado.

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## Overview of the 31 Tech Hubs continued

- Forest Bioproducts Advanced Manufacturing Tech Hub** •, led by the Maine Technology Institute, aims to become a global leader in forest-based biomaterial production and manufacturing by innovating the process of extracting biological building blocks to manufacture environmentally sustainable products. This Tech Hub is located in Maine.
- Greater Philadelphia Region Precision Medicine Tech Hub**, led by the Ben Franklin Technology Partners of Southeastern PA, aims to become a global leader in end-to-end precision medicine. This Tech Hub is located in Pennsylvania, Delaware, Maryland, and New Jersey.
- Gulf Louisiana Offshore Wind Propeller** •, led by Louisiana State University, aims to transition Louisiana's energy economy from its legacy of oil and gas to offshore wind and renewable energy. This Tech Hub is located in Louisiana.
- Headwaters Hub** •, led by Accelerate Montana, aims to become a global leader in smart, autonomous, photonic remote sensing technologies. This Tech Hub is located in Montana.
- Heartland BioWorks**, led by the Applied Research Institute, aims to develop central Indiana into a global leader in biotechnology and biomanufacturing by increasing the region's capacity to make and deploy life-saving medicines. This Tech Hub is located in Indiana.
- iFAB Tech Hub**, led by the University of Illinois Urbana-Champaign, aim to scale precision fermentation to convert underutilized corn feedstocks into high-value, customized alternative proteins, food ingredients, materials, chemicals, and more. This Tech Hub is located in Illinois.
- Intermountain-West Nuclear Energy Tech Hub** •, led by the Idaho Advanced Energy Consortium, aims to position Idaho and Wyoming as a global leader in small modular reactors (SMR) and advanced nuclear energy to contribute to a cleaner energy future. This Tech Hub is located in Idaho and Wyoming.
- Kansas City Inclusive Biologics and Biomanufacturing Tech Hub**, led by BioNexus KC, aims to position eastern Kansas and western Missouri as a global leader in biologics and biomanufacturing, increasing domestic production of life-saving vaccines and other preventative technologies. This Tech Hub is located in Missouri and Kansas.
- Minnesota MedTech Hub 3.0 (MMT3.0)**, led by the Minneapolis Saint Paul Economic Development Partnership, aims to position Minnesota as a global center for "Smart MedTech" by integrating artificial intelligence, machine learning, and data science into medical technology. This Tech Hub is located in Minnesota and Wisconsin.
- Nevada Lithium Batteries and Other EV Material Loop**, led by the University of Nevada, Reno, aims to build a self-sustaining and globally competitive full lithium lifecycle cluster, spanning extraction, processing, manufacturing, and recycling. This Tech Hub is located in Nevada.
- New Energy New York (NENY) Battery Tech Hub**, led by the State University of New York (SUNY) Binghamton, aims to bolster battery technology development and manufacturing across the entire value chain. This Tech Hub is located in New York.
- NY SMART I-Corridor Tech Hub**, led by CenterState Corporation for Economic Opportunity, aims to enhance regional semiconductor manufacturing capabilities while ensuring economic opportunity for underserved communities. This Tech Hub is located in New York.
- Ocean Tech Hub** •, led by the Rhode Island Commerce Corporation, aims to develop, test, and commercialize emerging maritime artificial intelligence / machine learning-enabled robotics and sensors. This Tech Hub is located in Rhode Island and Massachusetts.
- Pacific Northwest Mass Timber Tech Hub**, led by Oregon State University, aims to be a global leader in mass timber design and manufacturing to lower the construction industry's carbon footprint and increase housing affordability. This Tech Hub is located in Oregon and Washington.
- PRBio Tech Hub** •, led by the Puerto Rico Science, Technology and Research Trust, aims to advance the region as a global leader in biotechnology through fast-tracking the discovery, development, manufacturing, and supply of next generation biotechnology and medical device products to detect, treat, and cure diseases and ailments. This Tech Hub is located in Puerto Rico.
- ReGen Valley Tech Hub**, led by the Advanced Regenerative Manufacturing Institute (ARMI), aims to make New Hampshire a global leader in biofabrication to produce cost-effective regenerative therapies that address chronic disease and organ failure. This Tech Hub is located in New Hampshire.
- SC Nexus for Advanced Resilient Energy**, led by the South Carolina Department of Commerce, aims to be a global leader in advanced energy by developing, testing, and deploying exportable electricity technologies. This Tech Hub is located in South Carolina and Georgia.
- South Florida Climate Resilience Tech Hub**, led by the Miami Dade County Innovation and Economic Development Office, aims to advance its global leadership in Sustainable and Resilient Infrastructure (SRI) solutions for the global climate crisis. This Tech Hub is located in Florida.
- Sustainable Polymers Tech Hub** •, led by the Greater Akron Chamber, aims to tackle the severe climate and environmental impacts resulting from the use of fossil fuel-derived polymers (rubbers and plastics) through accelerating sustainable polymer manufacturing and commercialization in the United States. This Tech Hub is located in Ohio.

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## Overview of the 31 Tech Hubs *continued*

- // **Texoma Semiconductor Tech Hub** <sup>o</sup>, led by Southern Methodist University, aims to unify existing and planned semiconductor supply chain infrastructure by enhancing regional collaboration and uplifting underserved communities through workforce expansion. This Tech Hub is located in Texas and Oklahoma.
- // **The Bloch Tech Hub**, led by the Chicago Quantum Exchange (CQE), aims to lead quantum computing, communications, and related solutions. This Tech Hub is located in Illinois, Indiana, and Wisconsin.
- // **Tulsa Hub for Equitable & Trustworthy Autonomy (THETA)**, led by Tulsa Innovation Labs, aims to become a global leader in developing and commercializing autonomous systems for use cases ranging from agriculture and pipeline inspections to regional transportation. This Tech Hub is located in Oklahoma.
- // **Wisconsin Biohealth Tech Hub** <sup>o</sup>, led by BioForward Wisconsin, aims to position Wisconsin as a global leader in personalized medicine, an emerging healthcare approach that tailors tests, treatments, and therapies informed by a patient's unique genetic code, medical record, and environment. This Tech Hub is located in Wisconsin.

## Overview of the 18 Strategy Development Grant Recipients

Below are the 18 consortia that received only a Strategy Development Grant (SDG).

- // **Advanced Manufacturing of Critical Materials Strategy Development Consortium**, led by the Utah Advanced Materials Manufacturing Initiative, will develop a regional strategy to advance the production and manufacturing of critical minerals needed for clean energy technologies, many of which lack any domestic production presence. This consortium is located in Utah and Idaho.
- // **Alaska Tech Strategy Development Consortium**, led by the Cook Inlet Tribal Council, Inc., will develop a regional strategy to leverage the state's oil-and-gas economic infrastructure, tribal sustainable natural resource management ethos, and raw resources to incubate and scale firms focused on carbon-neutral energy technologies, carbon-negative technologies, and climate-adaptation technologies. This consortium is located in Alaska.
- // **Black Hills Deep Underground Frontier Strategy Development Consortium**, led by Elevate Rapid City, will develop a strategic framework to leverage the region's physical assets, industry capacity, and research capabilities to advance autonomous mining equipment and underground technology. This consortium is located in South Dakota.
- // **Carolinas Innovation Center for Optics and Metrology (CICOM) Strategy Development Consortium**, led by the University of North Carolina, Charlotte, will develop a regional roadmap that develops and applies optics and metrologies technologies to create a sustainable manufacturing framework. This consortium is located in North Carolina and South Carolina.
- // **Lithium Valley Clean Tech Strategy Development Consortium**, led by the University of California, Riverside, will develop the regional coalition and strategic framework to further develop and implement direct lithium extraction from regional lithium brine deposits, contributing to a sustainable, inclusive, advanced-energy ecosystem in Southern California and securing the national lithium-based energy supply chain. This consortium is located in California.
- // **Materials Advancement and Research Solutions (MARS) Strategy Development Consortium**, led by Michigan State University Research Foundation, will foster a regional coalition and develop a strategy to advance synthetic diamond — a lab-made material widely used as coating for industrial equipment ranging from semiconductors to quantum sensors — and rare isotope production. This consortium is located in Michigan.
- // **Medical Device Manufacturing Multiplier Strategy Development Consortium**, led by the Greater Phoenix Economic Council, will accelerate a regional strategy to leverage artificial intelligence and machine learning technologies in smart medical device manufacturing, bolstering domestic manufacturing production capacity and processes, and building pathways for inclusive economic growth. This consortium is located in Arizona.
- // **Midwest Wireless Innovation Strategy Development Consortium**, led by the University of Notre Dame, will develop the regional strategy to accelerate wireless technologies and networked systems by translating and commercializing university research, providing infrastructure and support for advanced radio frequency (RF) testing, and piloting new products and applications in city-scale network testbeds. This Strategy Development Consortium is in Indiana and Michigan.

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## Strategy Development Grant Recipients continued

- Model-Based Enterprise Tech Strategy Development Consortium**, led by the State of Connecticut Department of Economic and Community Development, will advance the regional framework to scale the adoption of Model-Based Definition (MBD) — which uses high-performance computing, automation, and cybersecurity to manage the product lifecycle with three-dimensional, semantic digital representations — in the commercial manufacturing sectors of aerospace, medical devices, and clean energy. This consortium is located in Connecticut, Massachusetts, and Rhode Island.
- North Central Pressed Materials Strategy Development Consortium**, led by the North Central Pennsylvania Regional Planning and Development Commission, will develop a strategic roadmap to diversify the production of pressed materials and machined parts and their use cases, such as their emerging application to electric vehicle production, in rural North Central Pennsylvania. This consortium is located in Pennsylvania.
- Pacific Northwest Smart Energy Strategy Development Consortium**, led by Portland State University, will develop a regional strategy that advances “front of the meter” energy storage technologies and products to facilitate renewable energy sources’ integration into the utility grid. This consortium is located in Oregon and Washington.
- Regional Energy Business, Education, & Commercialization Convergence Accelerator (REBECCA) Energy Strategy Development Consortium**, led by the University of Louisville Research Foundation, will develop a strategy and regional coalition to repurpose a remediated brownfield site into an energy hub that incubates emerging companies and technologies related to advanced energy, such as batteries, hydrogen, solar energy production, and biofuels. This consortium is located in Kentucky.
- Secure Manufacturing in South Texas Strategy Development Consortium**, led by the University of Texas at San Antonio, will develop a regional coalition and innovation roadmap to mature cybersecurity and secure manufacturing technologies. This consortium is located in Texas.
- Southeast Biotech Collaborative (SEBC) Strategy Development Consortium**, led by the University of Mississippi, will develop a regional strategy to advance biomanufacturing, biologistics, and precision population health to reduce national dependence on foreign suppliers and reduce drug shortages. This consortium is located in Mississippi, Alabama, Arkansas, and Tennessee.
- Virginia’s Additive Manufacturing & Applied Materials Strategy Development Consortium**, led by the New River Valley Regional Commission, will advance a regional strategy to develop and deploy additive manufacturing system technologies for heavy industry to re-shore manufacturing and strengthen domestic supply chain resilience. This consortium is located in Virginia.
- West Virginia Advanced Energy & Industrial Technology Manufacturing (WV-AEIM) Strategy Development Consortium**, led by the Allegheny Science & Technology Corporation, will develop the strategy to onshore manufacturing and emerging technologies — including carbon and graphite materials and energy storage solutions — and critical supply chains across the state. This consortium is located in West Virginia.
- Western North Carolina Industrialized Construction (NCIC) Strategy Development Consortium**, led by ADL Ventures, will foster an industrialized construction strategy for offsite manufacturing of prefabricated construction components, contributing to affordable housing production and sustainable construction materials and techniques. This consortium is located in North Carolina.
- WV Tech Strategy Development Consortium**, led by the West Virginia Department of Economic Development, will advance a regional strategy to develop digital identity solutions that support identity management and trust support services, individual privacy, and national security. This consortium is located in West Virginia, Kentucky, and Ohio.

