

UC Federal Governmental Relations Summary: H.R. 3684, Infrastructure Investment and Jobs Act — Provisions of Interest

On Tuesday, August 10, the Senate approved a nearly \$1 trillion bipartisan infrastructure package that invests in roads, bridges, water and other infrastructure initiatives, including research in transportation, energy, the environment and other key areas in which the University of California is a leader. Below is a summary of the legislation aspects that could support UC's efforts.

The House of Representatives is expected to consider the legislation next week.

Transportation

University Transportation Centers (UTCs)

Outlines plans for the UTC program and specifies cybersecurity implications of connected vehicles, connected infrastructure, autonomous vehicles and other areas.

- **Eligibility:** UTCs will be leading in carrying out research on autonomous vehicles and other areas.
- **Funding:** \$95M is appropriated for FY22-FY26. UTCs are currently funded at \$75M/year, so this would be an increase of \$20M per year.

Advanced Research Projects Agency (ARPA-I)

Creates an Advanced Research Projects Agency—Infrastructure (ARPA-I) within the Department of Transportation. The ARPA-I will employ program directors to oversee these projects. Encourages the director of ARPA-I to seek opportunities for partnering with minority serving institutions and UTCs to accomplish goals of the ARPA-I.

- **Eligibility:** Institutions of higher education are eligible for transportation infrastructure funding.
- **Funding:** While the legislation creates ARPA-I, it does not provide funding. UC FGR will work to build support for funding in future budget requests and annual appropriations.

Transportation Resilience and Adaptation Centers of Excellence

Designates one national Center of Excellence for Resilience and Adaptation and 10 regional Centers of Excellence for Resilience and Adaptation to advance research related to improving resilience of U.S. regions to natural disasters and extreme weather. Eligible entities will submit a proposal describing grant activities, with criteria for funding consideration including past experience and performance in carrying out these activities, the level to which the proposal

would advance the state of practice in resilience planning and identify innovative solutions for transportation assets and systems and ways they can engage various community groups.

- **Eligibility:** Institutions of higher education are eligible.
- **Funding:** Subject to availability of appropriations, each Center of Excellence would receive a grant of not less than \$5M for each fiscal year in FY22-FY31.

Research and Technology Development and Deployment

Enhances transformative innovations from the Department of Transportation, such as the creation of a new Center of Excellence on New Mobility and Automated Vehicles and the Open Challenge and Research Proposal Pilot Program. The latter would include solicitations from UTCs and other entities.

- **Eligibility:** Institutions of higher education can partner on some of these programs.
- **Funding:** \$20M authorized FY22-FY26 for accelerated implementation and deployment of advanced digital construction management systems.

Emerging Technology Research Pilot Program

Directs the Secretary of Transportation to establish a pilot program for conducting emerging technology research to increase the structural integrity and cost-effectiveness of surface transportation infrastructure. The program will also focus on reducing the impact of automated and connected driving systems and improving the transportation infrastructure in anticipation of automated driving systems and advanced driver-assistance systems.

- **Eligibility:** Eligible entities are not specified; however, UC FGR will work with department to seek eligibility opportunities for universities.
- **Funding:** \$5M authorized per year from FY22-FY26.

Open Research Initiative

Establishes a new Advanced Transportation Research initiative, which creates a pilot program for open research. Directs the Secretary of Transportation to facilitate interagency coordination on research, development and demonstration activities, including with the Secretary of Energy, the National Science Foundation (NSF) Director and others.

- **Eligibility:** Institutions of higher education, and UTCs can submit unsolicited research proposals.
- **Funding:** \$50M is appropriated for FY22-FY26.

Grants for Charging and Fueling Infrastructure

Establishes a new grant program to strategically deploy publicly accessible electric vehicle charging infrastructure, hydrogen fueling infrastructure, propane fueling infrastructure, and natural gas fueling infrastructure. Provides funding to eligible entities including a state, or political subdivision of a state, units of local government and other entities.

- **Eligibility:** Universities are not specifically mentioned as eligible to apply for grants. However, states are eligible. UC FGR will work with SGR to identify potential funding opportunities.
- **Funding:** Maximum grant amounts are \$15M. Once implemented, UC FGR will work with SGR to identify potential funding opportunities.

Workforce Development, Training and Education

Establishes a Transportation Education and Training Development and Deployment Program to make grants available to educational institutions or state Departments of Transportation related to training the transportation workforce, including outreach and partnerships with industry.

- **Eligibility:** The type of educational institution eligible is not specified; however, UC FGR will work with program leads to seek eligibility opportunities for universities.
- **Funding:** The Secretary may use “funds available” to carry out these activities.

Public Transportation Innovation

Requires the Secretary of Transportation to conduct testing evaluation and analysis of low or no emission vehicle components. Also requires the Secretary to enter into a contract or cooperative agreement with at least one institution of higher education to operate and maintain a facility to conduct research of low or no emission vehicle components.

- **Eligibility:** Institutions of higher education may contribute to evaluation and analysis. Once implemented, UC FGR will work with the department to identify potential funding opportunities.
- **Funding:** No funding is specified for this program. Vehicle technologies are currently funded at \$400M in FY21.

Risk and System Resilience

Requires the Secretary of Transportation to develop a process for quantifying annual risk related to the resilience of the U.S. surface transportation system, and to identify and support fundamental research to develop a framework and models to support risk-based analysis related to increasing system resiliency.

- **Eligibility:** State departments of transportation and local governments are eligible to contribute to this effort. UC FGR will work with SGR to identify potential funding opportunities.
- **Funding:** No funding is specified. The Secretary will use existing research facilities, including UTCs.

Rail Research and Development Center of Excellence

Directs the Secretary of Transportation to award grants for establishing and maintaining a Center of Excellence to advance research that improves rail safety, efficiency and reliability for rail research.

- **Eligibility:** Institutions of higher education are eligible to apply. Once implemented, UC FGR will work with the department to identify potential funding opportunities.
- **Funding:** Grant funds will be used for research, education, transportation, rail infrastructure and other areas, with the federal share being 50 percent of the cost of establishing and operating the Center of Excellence and related research activities.

Energy

Clean Hydrogen Programs

Describes the Clean Hydrogen Research and Development Program, with the goal of advancing research and development to demonstrate and commercialize the use of clean hydrogen in the transportation sector and other sectors. Establishes regional clean hydrogen hubs to support the development of clean hydrogen standards and the production, processing, delivery, storage and end-use of clean hydrogen. These hubs are a network of clean hydrogen producers, potential clean hydrogen consumers and connective infrastructure located in close proximity.

- **Eligibility:** Institutions of higher education and national laboratories are eligible for clean hydrogen hubs and for clean energy hydrogen manufacturing and recycling programs.
- **Funding:** \$8B is authorized for FY22-FY26 for clean hydrogen hubs. Hydrogen and fuel cell technologies are currently funded at \$150M in FY21 enacted, so if adequately funded this could lead to a significant new investment.

Deployment of Technologies to Enhance Grid Flexibility

Establishes the Smart Grid Investment Matching Grant Program to provide flexibility and help to rebalance the electrical system, aggregate distributed energy resources, provide energy storage and anticipate and mitigate impacts of extreme weather events or natural disasters on grid resilience.

- **Eligibility:** Institutions of higher education are not listed as being eligible for funding. However, the program covers buildings, wireless broadband and energy storage which may be relevant to UC campuses.
- **Funding:** \$3B authorized for FY22 until expended. Currently, there is limited funding at DOE for grid research, so if adequately funded this could lead to a significant new investment.

Enhanced Grid Security

Develops and carries out a program on cybersecurity for the energy sector research, development and demonstration, whose goal is to create advanced cybersecurity applications and technologies for the energy sector, assess risks to the energy sector, perform pilot demonstration projects, develop workforce development curricula for energy sector-related cybersecurity and preserve the electric grid in the face of natural and human-made threats and hazards.

- **Eligibility:** National laboratories may collaborate with other entities on these programs. Doesn't specify institutions of higher education. However, UC FGR will work with the

department to urge that UC should be able to apply based on the relevance of research topics.

- **Funding:** \$250M in FY22-FY26 for the research, development, and demonstration program; \$50M in FY22-FY26 for modeling and assessing energy infrastructure risk.

Future of Industry Program and Industrial Research and Assessment Centers

Supports assessments of manufacturer plant sites, optimizing energy efficiency and environmental performance, research and development for alternative energy sources, and other purposes. Internships and apprenticeships for students will also be supported.

- **Eligibility:** Institutions of higher education and national laboratories are eligible.
- **Funding:** \$550M is authorized for FY22-FY26.

Battery Processing and Manufacturing

Describes advanced batteries as consisting of a battery cell that can be integrated into the module, pack or system to be used in storage applications, including electric vehicles and the electric grid. Establishes the Battery Material Processing Grant Program to expand U.S. capabilities and enhance national security. Grants will be awarded for demonstration projects, as well as manufacturing, processing and recycling.

- **Eligibility:** Institutions of higher education and national laboratories are eligible.
- **Funding:** \$3B for manufacturing authorized for FY22-FY26; \$3B for processing and recycling authorized for FY22-FY26. Battery research is currently funded at \$75M in FY22 enacted, so if adequately funded this could lead to a significant new investment.

USGS Energy and Minerals Research Facility

Develops a USGS research facility to support energy and minerals research, to be funded by the USGS Director through a cooperative agreement with an academic partner.

- **Eligibility:** UC campuses may be eligible for this funding in collaboration with USGS.
- **Funding:** \$167M is authorized for FY22, to remain available until expended.

Critical Minerals Mining and Recycling Research

Establishes a grant program for critical minerals and supports supply chain resiliency. The Secretary of Commerce in coordination with the NSF Director will issue competitive awards for this research, and the National Science and Technology Council will coordinate federal science and technology efforts.

- **Eligibility:** Institutions of higher education and national laboratories are eligible.
- **Funding:** \$100M is authorized for FY21-FY24.

Wildfire Risk Reduction

Establishes a Community Wildfire Defense Grant Program to award grants to at-risk communities to develop and carry out wildfire protection plans. Funding is allocated for federal agency distribution.

- **Eligibility:** Funding is provided to states, but UC may be eligible as a subgrantee. UC FGR will work with SGR to identify future funding opportunities.
- **Funding:** \$3.369B is authorized for FY22-FY26.

Use of Agricultural Commodities in Construction and Consumer Products

Directs the Secretary of Agriculture to carry out a pilot program to study the benefits of using agriculture commodity materials derived from agricultural products in the production of construction and consumer products. Directs the Secretary of Agriculture to partner with at least one qualified bioproduct research facility located near an institution of higher education.

- **Eligibility:** Institutions of higher education may be eligible through partnerships facilitated by the Secretary of Agriculture. Once implemented, UC FGR will work with the Secretary to identify funding opportunities.
- **Funding:** \$2M is authorized for FY22-FY23.

Ecosystem Restoration

Authorizes the Secretaries of Agriculture and Interior to enter into contracts, including stewardship contracts or agreements, in order to restore ecological health on federal land and to establish a Working Capital Fund for these contracts. Also authorizes the Secretaries of Agriculture and Interior to develop a ranking system that categorizes federal land based on priority for ecological restoration involving vegetation removal.

- **Eligibility:** Funding is provided to states, but UC may be eligible as a subgrantee. UC FGR will work with SGR to identify future funding opportunities.
- **Funding:** \$2.1B is authorized for FY22-FY26.

Energy Storage Demonstration Projects

Authorizes funding to carry out demonstration projects for pilot energy storage systems to improve the security of critical infrastructure and emergency response systems, to improve the reliability of transmission and distribution systems in rural areas and to integrate renewable energy resources, among other purposes.

- **Eligibility:** Eligibility is not specified. However, UC may benefit from this funding if partnering with local energy companies.
- **Funding:** \$355M for FY22-FY25 for energy storage demonstration projects pilot grant program; \$150M for FY22-FY25 for long-duration demonstration initiative and joint program.

Carbon Capture Demonstration and Pilot Programs

Authorizes funding for carbon capture projects and demonstration programs for industries using coal, environmental organizations and others, and for testing the development of technologies to control and remove mercury emissions from coal mines.

- **Eligibility:** Eligibility is not specified. However, UC may benefit from this funding if partnering with environmental organizations at the state level.

- **Funding:** \$378M for FY22, \$200M for FY23, \$200M for FY24 and \$150M for FY25 for carbon capture large-scale pilot projects; \$937M for FY22, \$500M for FY23, \$600M for FY25 for carbon capture demonstration projects.

Drinking water and wastewater infrastructure

Stormwater Infrastructure Technology

Authorizes funds to eligible institutions to establish and maintain centers of excellence for new and emerging stormwater control infrastructure technologies across the U.S., with each center conducting research on the geographical region in which the center is located.

- **Eligibility:** Institutions of higher education are eligible.
- **Funding:** \$5M is authorized for each fiscal year in FY22-FY26.

Broadband

Broadband Grants for States, District of Columbia, Puerto Rico, and Territories

Establishes a Broadband Equity, Access and Deployment Program, which will make grants to eligible entities. Provides grants for broadband deployment for filling gaps in unserved and underserved locations.

- **Eligibility:** States are eligible for this funding. Community anchor institutions are also eligible. UC may benefit from this funding if awarded to the state of California, or UC could potentially partner on a grant with (or be a subgrantee of) a community anchor institution requesting funding.
- **Funding:** \$42.45B is authorized for this program; certain amounts will be designated for states, including a minimum allocation per state of \$100M.

State Digital Equity Capacity Grant Program

Establishes a state Digital Equity Capacity Grant Program in the Department of Commerce, with a goal of promoting digital equity and building capacity for states to ensure access to broadband by residents of states. Administering entities can make subgrants to eligible entities. Amount of funding eligibility will be calculated based on the state population and level of access to broadband, with the minimum award no less than 0.5% of the total amount per state.

- **Eligibility:** States are eligible for this funding. Community anchor institutions are also eligible. UC may benefit from this funding if awarded to the state of California; UC FGR will work with SGR to identify future funding opportunities.
- **Funding:** \$60M is authorized for digital equity grants to remain available until expended; \$240M is authorized for FY22 and \$300M for each year in FY22-26.

Digital Equity Competitive Grant Program

Requires the Assistant Secretary of Commerce for Communications and Information to establish a Digital Equity Competitive Grant Program to support efforts for achieving digital

equity and to assist with greater adoption of broadband among certain populations. Eligible entities include subdivisions of states and may include Community Anchor Institutions, which may include institutions of higher education, non-profit entities and certain other organizations.

- **Eligibility:** Community anchor institutions are eligible for this funding. UC may benefit from this funding if partnering on a grant with (or be a subgrantee of) a community anchor institution requesting funding.
- **Funding:** \$250M for each of the 5 fiscal years in which funds are available.

Digital Equity Act of 2021

Provides access to broadband services in order to accomplish common tasks and to acquire digital skills, and address digital equity, inclusion and literacy, among other topics.

- **Eligibility:** States are eligible for this funding. Community anchor institutions are also eligible. UC may benefit from this funding if awarded to the state of California; UC FGR will work with SGR to identify future funding opportunities.
- **Funding:** Does not specify specific funding amounts.

Bond Provisions

Private Activity Bonds for Qualified Broadband Projects

Expands permitted uses of private activity bonds to include certain broadband projects that are designed to provide broadband service to areas where more than 50 percent of residential households do not have access to fixed, terrestrial broadband service.

- **Eligibility:** Broadband service providers.
- **Funding:** Funding information is not specified. If implemented, UC FGR will work to identify potential funding opportunities including collaboration with broadband service providers.