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Office of the President

TO MEMBERS OF THE SPECIAL COMMITTEE ON INNOVATION TRANSFER AND ENTREPRENEURSHIP:

DISCUSSION ITEM

For Meeting of January 27, 2023

UC RIVERSIDE'S ROLE AS AN ENGINE OF ECONOMIC ACTIVITY IN THE INLAND EMPIRE

EXECUTIVE SUMMARY

Chancellor Wilcox will provide an overview of innovation and economic development activities in the Inland Empire, and the role of UC Riverside – the region's only highly-intensive research institution – in leading and scaling these efforts. He will discuss innovative faculty research, local entrepreneurship activities, regional collaboration, and significant infrastructure investments currently underway to transform the innovation and entrepreneurship ecosystem for the Inland Empire.

BACKGROUND

With more than 27,000 square miles, the Inland Empire is larger than ten states in the country, encompassing urban, suburban, and rural communities, as well as tribal lands and March Air Reserve base. Topographic features include the Salton Sea, Mojave and Sonoran Deserts, Santa Rosa and San Bernardino Mountains, and farmland.

The expanse and diversity are both fact and metaphor, symbolizing the unique breadth of opportunity. As one example, Inland Southern California is home to one of the densest concentrations of critical materials on Earth. The desert area near the Salton Sea known as Lithium Valley, sometimes called the "Saudi Arabia of lithium," represents immense growth potential for clean energy innovation and progress.

The Inland Empire is the heart of the logistics industry. More than 40 percent of all goods sold in the U.S. travel from the ports of Los Angeles and Long Beach through one billion square feet of warehouses and distribution centers in Riverside and San Bernardino counties. The logistics industry employs more than any other sector in the region. However, most of the 262,000 jobs offer low wages, while under threat of displacement by automation.

In some ways, rapid growth already is the norm. The Inland Empire has one of the fastest growing populations in California. More than half of the nearly five million people living in the region identify as Latino/a, African American, or Native American. In metro areas, over 80

percent of neighborhood residents are people of color. In terms of population, it is the 12th largest metropolitan region in the country, surpassing both the San Francisco Bay and Greater Seattle areas. Among the Inland Empire's population, however, per capita personal income ranks 342 out of 382 metropolitan areas in the nation.

More than 200,000 students, a majority of whom identify as Latino/a, attend Inland Empire community colleges and universities. UC Riverside is the only research university in the region, providing advanced degrees and greater opportunities for research and innovation. Most UCR students remain local and want to live in the Inland Empire, but often must leave after graduation to find higher wage jobs.

In contrast, many skilled workers move to the Inland Empire for the lower cost of housing (compared to neighboring Los Angeles, Orange, and San Diego counties) and commute to the coast for higher paying jobs.

Economic Development in the Inland Empire

The Inland Empire has a thriving small business community. With more than 130,000 small businesses, the city of Riverside and the broader region are often highlighted in national rankings for a positive small business environment. In 2018, Riverside was ranked #19 by *MSN Money* for cities where small business owners thrive, and it currently ranks #23 on *Inc Magazine's* list of best cities to start a business using the Surge Cities Index.

The Inland Empire's technology sector is its own kind of startup. For example, Inland Empire residents received as many patents as Orange County inventors over the past five years; however, the infrastructure and support systems present in Silicon Valley and other technology hubs for venture capital, incubation, facilities, mentorship, and talent are still needed.

Notwithstanding, the Inland Empire holds immense potential to drive positive change in California and across the nation as a result of UCR faculty research and activity in the following areas:

- Decarbonizing the logistics industry to meet California's net zero emissions goals;
- Education that facilitates greater innovation and entrepreneurship leading to wealth creation and financial equity among communities of color; and
- Job creation that fully utilizes a diverse, educated population.

The Role of the University in the Region

As the only R1 institution in the region, UCR plays a leading role in economic development. The University actively collaborates with local governments, state agencies, community organizations, and the private sector. One significant outcome of these efforts involved the relocation of the southern California headquarters of the California Air Resources Board (CARB) and laboratory facility to Riverside – an investment of $400 million, creating the largest zero-emission building in North America.

According to an economic study sponsored by UCOP, UCR delivers an estimated economic impact of $2.3 billion in the Inland Empire. The University generates over $200 million per year in research expenditures with $5 million to $7 million in industry contracts per year, and over $6.4 million in industry-sponsored research agreements. UCR is one of the largest patent holders in the Inland Empire, with about 50 to70 disclosures per year and $5 to $7 million annually in royalty income.

Additionally, UCR has developed the infrastructure to support innovation and entrepreneurship on campus and in the community. In 2016, UCR launched the Office of Technology Partnerships to integrate all operations related to technology transfer, industry-sponsored research, and innovation and entrepreneurship into a single department. The campus' innovation and entrepreneurship activities are centered in four key areas of support: entrepreneurial education, dedicated mentorship delivered by experienced entrepreneurs in residence, access to capital, and access to incubator space.

Through internal campus investments and aggressive pursuit of competitive grants, UCR has secured over $24 million to deliver programs that support innovators and entrepreneurs from campus and the region. Recent accomplishments resulting from these investments include:

- Over 6.000 undergraduate students have participated in entrepreneurial exposure through the Blackstone Launchpad.
- The UCR Small Business Development Center has mentored 137 companies and raised $70 million in private capital and grants, including federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants. These companies have created or retained 523 high-paying jobs in the region.
- Recruitment of 15 Entrepreneurs-in-Residence who are supported through the Small Business Development Center thanks to the State's Small Business Administration and Governor's Office of Business and Economic Development (GO-Biz). They deliver close to 3,000 hours of mentorship per year.
- UCR trained 267 Teams through the National Science Foundation (NSF) I-Corps program and provided $2 million in proof-of-concept funds to 59 teams from UCR to further develop their technology.
- To overcome lack of access to capital, UCR invested in the creation of the Highlander Venture Fund. It raised $4.6 million but fell short of the $10 million target. The campus partnered with community members to launch Citrus Seeds LLC, a local investment vehicle to encourage angel investment in startups.
- In partnership with the Latina Business Women Association, UCR created MicroMBAs through UCR Extension. Forty women business owners have graduated from this program.

The Salton Sea and Lithium

An interdisciplinary group of UC Riverside scientists, engineers, medical experts, and economists formed the Salton Sea Taskforce in 2019 to identify critical scientific research necessary to guide policymakers and industry in making decisions regarding the region's lithium deposits. Lithium, along with other minerals found in the region including boron, graphite, and others, are vital for a range of applications such as zero emission vehicles, clean energy technologies, defense and weaponry, semiconductors, rocket propellant, high-grade film lighting, and permanent magnets. Federal research opportunities within the Bipartisan Infrastructure Law provide an opportunity for UC Riverside to lead in this broader industry and market for California, and particularly to advance a clean energy economy and to transform the aerospace and defense industries.

Opportunities to Advance Sustainability, Innovation, and Social Inclusion (OASIS)

The University has assumed a leadership position in regional economic development initiatives in order to attract innovation-based, clean technology companies to the Inland Empire. Accordingly, OASIS is a portfolio of physical and programmatic activities in collaboration with than 17 regional organizations.

Some of the physical infrastructure projects for OASIS include:

- Development of the Clean Tech Innovation Park in proximity to CARB and the University to create an innovation and workforce development hub co-locating state-of-the-art research facilities, the UCR Extension program, incubator spaces, and established companies;
- Building an Agricultural Innovation Center with the City of Riverside to incubate and train next generation farmers and "deep tech" startups in climate-smart solutions to ensure food security for the region; and
- Creation of an analytical training laboratory for the characterization of critical minerals on the Palm Desert Campus. These minerals are key for the battery and semiconductor industry and for the nation's growth and security.

Further, UCR is leading the submission of a $160 million proposal for a Regional Innovation Engine from the newly created and CHIPS Act supported Directorate for Technology, Innovation and Partnerships (TIP) at NSF. This project is focused on the creation of a center of excellence in sustainable logistics. The other UC Southern California campuses —UC Irvine, UCLA, and UC San Diego – have joined this effort.

On the programmatic side of OASIS, UCR is investing $1.7 million in seed grants to support research and translation. The focus is on six pillars – (i) sustainable transportation and infrastructure, (ii) renewable energy and fuels, (iii) agriculture technology and food security, (iv) natural resource management, (v) community health and health disparity, and (vi) human development – all of which align with the campus' strategic goals.

With support from the Irvine Foundation and the Economic Development Administration, UCR will deploy close to $4 million over the next three years for entrepreneurial education and expert

commercialization mentorship to build a pipeline of innovative startups from the community focused on climate technology.

Vision for the Future

UCR will lead and catalyze transformation across Inland Southern California. External investment from both public and private entities will be required to leverage the university's existing activities and scale them toward much-needed infrastructure in the region, such as access to specialized testing facilities, laboratories, and incubators, and to develop a robust network of intellectual capital that lives and works in the region. Under UCR's OASIS umbrella and in partnership with the California Air Resources Board, the University envisions a broad portfolio of clean technology innovators, entrepreneurs, women- and minority-owned businesses, large companies, and multinational corporations that will elect to locate or relocate to the Inland Empire.

Moreover, as one of the fastest growing and most diverse regions in the nation, UCR will collaborate with local schools and community colleges to create a robust education pipeline for highly-skilled workers. These workers will be trained locally and will be academically prepared to contribute to the nation's broader aspirations for cleaner air, improved health equity, more nutritious and sustainable food sources, next-generation battery and electrical power, and sustainable supply chains.

In order for this vision to be realized, UCR will work together with Office of the President, Regents, and State of California to identify one-time and permanent funding to support the expansion of UCR's current activities. Furthermore, UCR will continue to steadfastly pursue corporate partners and capital investors eager to scale innovation and diversity efforts in the region.