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Nevada Governor's Office of
ECONOMIC DEVELOPMENT

Realizing Nevada's Electric, Innovative, and Connected Future

5-Year Comprehensive Economic Development Strategy

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Nevada Governor's Office of Economic Development

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Executive Summary

In the wake of the COVID-19 pandemic, the economic landscape of Nevada changed immeasurably. It is estimated that Nevada's tourism and creative economy lost around $1.3 billion in revenue and experienced 64% unemployment due to COVID. The crisis also accelerated ongoing shifts in the international supply chain and accelerated the integration and implementation of new technologies more rapidly than expected. Moreover, the pandemic highlighted the national security implications of outsourced resources extraction, parts manufacturing, and advanced manufacturing production.

Nevada, however, is uniquely situated to turn these headwinds into a win for the state's economy and a win for national economic recovery, security, and sustainability. The Governor's Office of Economic Development (GOED) collaborated with SRI International to assess Nevada's current economic landscape, map key assets and challenges to growth, identify opportunities for emerging industries and diversification within mature industries, and develop strategies and action steps to catalyze a vibrant, innovative, and sustainable economy with high-paying jobs for Nevadans. This five year statewide economic development strategy, **Realizing Nevada's Electric, Innovative, and Connected Future**, provides a roadmap for state leadership to leverage Nevada's assets, build upon its emerging growth, diversification, and innovation, while ensuring inclusive growth.

Key Findings

- Given the development in Nevada's clean tech industry and its complete lithium supply chain, **Nevada is positioned to be ground zero for the energy transition and to play a key role in securing the energy independence and security of the United States.** The development of the IT and Advanced Manufacturing industries, Nevada's access to and production of natural resources such as lithium, and its proximity to innovation hubs and talent, has enabled clean energy to flourish in the state. The expansion of existing Redwood Materials operations has closed the electric value chain loop for electric batteries giving Nevada a significant competitive advantage in the industry as the only state in the nation that can claim such a feature.

- Nevada's **innovation ecosystem benefits from a strong entrepreneurial culture, dynamic economy, low cost of living, and easy access to the fifth largest economy in the world**, California. Furthermore, the state's Knowledge Fund recruits highly specialized science and research faculty, expands existing research areas, and assists applied research centers in supporting industry innovation in Nevada. Nevada's strong flow of venture capital investments and patenting activity indicates additional significant innovation potential. Despite these trends, Nevada lags competitors in new business growth and research and development.

- To diversify the economy and grow target industries, Nevada needs a **new generation of infrastructure** and has transformative opportunities underway, including Nevada's Comprehensive Connectivity Strategy, funding from the Infrastructure Investment and Jobs Act

(IIJA), funding from National Telecommunications and Information Administration to expand internet access to 11 Tribal communities, and an agreement to develop high-capacity transit in Las Vegas.

- **Significant economic disparities exist among Nevada's diverse communities.** Nearly 13% of Nevada's population live in distressed communities located throughout the state. The distressed communities within Nevada are concentrated in three regions: Northeast (Elko), Northwest (Reno), and Las Vegas. The state should prioritize collaboration with community leaders, such as the Southern Nevada Enterprise Community (SNEC), to understand the challenges these communities face and develop specific programmatic interventions necessary to mitigate these challenges.

Current Conditions

Higher wage, innovation-based industries grew more quickly over the past decade than more mature state economic drivers, demonstrating the positive structural changes taking place in the economy. However, structural change is not without pain points. Hospitality worker unemployment soared, underscoring the imperative of inclusive growth and creating pathways to allow these workers and others to access new opportunities within growing industries.

Nevada's population and labor force is driven largely by in-migration, with many new residents coming from California. Although Nevada has a relatively high share of associate degree graduates with technology skills, the state lags in science, technology, engineering, and mathematics (STEM) education overall. While entrepreneurship and research and development (R&D) lag competitors, rapidly increasing venture capital investments and patenting activity across a diverse range of industries indicates significant innovation potential in the state. Key assets of the state's economy are its natural resources, favorable business environment, and recreational amenities. Key economic enablers such as housing availability and affordability, water supply, grid infrastructure, healthcare, and quality of K-12 education threaten growth if not addressed. The state should encourage and support creation of high-quality healthcare centers of medicine to improve healthcare quality in communities, enhance access to medical care, and serve as a catalyst for economic development.

Several industries are particularly well-positioned to grow and provide quality jobs in the coming years, including Information Technology, Transportation and Logistics, Natural Resources and Technologies, Hospitality, Tourism, Sports, and Creative Industries, and Advanced Manufacturing. Over the past decade, Data Hubs, the largest **Information Technology** industry sector and highest paying, was also the fastest growing, while Broadband declined. The pandemic exacerbated core challenges related to the **Transportation and Logistics** industry. While several sectors demonstrated strong growth in recent years, including Warehousing, Trucking, and Multi-Modal Hubs; Rail, Wholesaling, and Air were not as resilient. These declining sectors are also some of the better paying. The **Natural Resources and Technologies** industry has gained employment and comparative advantage over the past decade, notably in the areas of clean energy. Nevada's natural assets, mining workforce, manufacturing capabilities, proximity to regional innovation hubs, and attraction of key employers have resulted in Nevada as one of a few, if only, locations in the world with a complete lithium supply chain and overall natural resources and technologies ecosystem ripe for further growth.

The higher-wage Sports and Creative Industries sectors in the **Hospitality, Tourism, Sports, and Creative Industries** grew faster over the past decade than gaming and other mature sectors within the industry and experienced slower decline during COVID. This points to adaptation, structural change, and diversification within the hospitality and entertainment-related industries. The ongoing green transition has provided an opening for the state to develop its own **Advanced Manufacturing** hub by disrupting the traditional emission-based supply chain. While aerospace and defense continue to remain the largest manufacturing sectors by volume, Clean Technologies and various types of

transportation that use electric energy (E-Mobility) have grown, especially E-Mobility as battery storage manufacturers flock to the state.

Vision and Goals

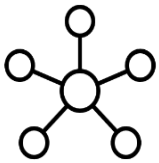
GOED's vision is a vibrant, innovative, and sustainable economy with high-paying jobs for Nevadans. This economic future will be realized by pursuing clean energy, strengthening innovation ecosystems, and bolstering critical infrastructure.

Electric Nevada

Nevada will be a global player in a circular economy by leading the development of clean energy innovations. It will capitalize on its assets and export the innovative processes and products in mining and production of batteries and solar energy to new global markets. Nevada will be ground zero for the energy transition.

Innovative Nevada

Nevada's economy will be supported by a thriving innovation ecosystem that builds on state assets, history, and culture, and strengthened by collaborating academia, industry, and government players. It will engage a workforce with technical skills at all levels, attract a diverse portfolio of investments, and develop and commercialize world-changing new ideas.



Connected Nevada

Nevada will lead next generation infrastructure that connects industries and businesses within the state to accelerate new economic opportunities. The state will capitalize on its strengths and enhance its connectivity efforts by updating multimodal inland ports and industrial parks, adding new rail links, and expanding broadband infrastructure. Nevada will make investments as necessary to convert its unique geographic locations in the northern and southern regions into connected hubs for re-shored supply chains and digital networks.

Strategies

GOED will advance Nevada's unique competitive position, address critical gaps, and strengthen coordination and collaboration amongst stakeholders with a new five-year strategy supported by the following actions:

Electric Nevada

- Assess and strengthen electric vehicle (EV) production vertical supply chain
- Enable solar energy-related innovations
- Support completion of utility connectivity
- Support the build out of EV infrastructure

Innovative Nevada

- Create a unified vision for innovation
- Increase capital access to startups and later-stage businesses
- Strengthen university technology transfer system
- Scale industry partnerships to expand STEM workforce
- Lead globally on water scarcity policy and innovation

Connected Nevada

- Support development of multimodal inland port
- Develop tech-ready industrial parks
- Identify private-sector investment opportunities for freight rail
- Support planned airport-related infrastructure developments
- Support expansion of broadband and 5G infrastructure

At the core of Nevada's new economic development strategy is its people. The success of the strategy rests on a foundation of educated, healthy, and connected communities with capable public services and access to quality jobs. As such, the strategy includes a Leadership Plan for Inclusive Growth to ensure that residents throughout the state, regardless of background or zip code, can contribute to and benefit from economic growth.

These action items and overall strategy move Nevada closer to fulfilling its vision, leveraging the state's unique economic assets, culture, and history, and enabling the collaboration necessary to realize Nevada's electric, innovative, and connected inclusive future.

Strategy Development Approach

The Governor's Office of Economic Development (GOED) worked with SRI International to develop this strategy and its underlying goals. To generate the insights for this strategy. SRI's Center for Innovation Strategy and Policy (CISP):

- Facilitated convenings of the leadership of the regional the Regional Development Authorities (RDA) within the state and the GOED Board of Directors;
- Interviewed key stakeholders across government, the private sector, academia, and community organizations;
- Gathered and analyzed economic and workforce data; and reviewed previous and current regional and state economic development policy documents; and
- Researched best practices from Nevada and other states.

In addition to a comprehensive economic and community assessment and SWOT analysis, the insights from these efforts supported the identification of five target industries (Information Technology; Transportation & Logistics; Natural Resources &Technologies; Hospitality, Tourism, Sports, & Creative Industries; Advanced Manufacturing) and actions to advance them over the next five years.

Introduction

Nevada is accelerating economic diversification and increasing its competitiveness in industries critical to world markets, including Information Technology, Transportation and Logistics, Natural Resources and Technologies, and Advanced Manufacturing. The most innovative components of the Hospitality, Tourism, Sports, & Creative Industries are also fast growing, including professional sports, e-sports, and the performing and digital arts.

This statewide Comprehensive Economic Development Strategy, **Realizing Nevada's Electric, Innovative, and Connected Future**, lays out a roadmap for Nevada to fully develop these industries over the next five years. It uncovers the state's core economic assets, threats, and gaps; provides a rigorous analysis of the state's competitive position vis-à-vis global and national market trends; and synthesizes these findings into a strategic plan to align and coordinate action by state policymakers the following comprehensive economic and community development goals:

Electric Nevada

Nevada will be a world leader in the development and use of clean energy innovations. It will capitalize on its strengths and export the innovative processes and products in mining and production of batteries and solar energy to new global markets supported by a robust, statewide electric vehicle (EV) and energy storage infrastructure. Nevada will be ground zero for the energy transition.

Innovative Nevada

Nevada's economy will be supported by a thriving innovation ecosystem that builds on state assets, history, and culture, strengthened by collaboration among academia, industry, and government. It will prepare and engage a workforce with technical skills at all levels, attract a diverse portfolio of investments, and develop and commercialize world-changing new ideas.

Connected Nevada

Nevada will lead next generation infrastructure that connects industries and businesses within the state to accelerate new economic opportunities. The state will capitalize on its strengths and enhance its connectivity efforts by updating multimodal inland ports and industrial parks, adding new rail links, and expanding broadband infrastructure. Nevada will make infrastructure investments as necessary to convert its unique geographic locations in the northern, southern regions as well as rural areas into connected hubs for re-shored supply chains and digital networks.

The Governor's Office of Economic Development (GOED) worked with SRI International to develop this strategy and its underlying goals. To generate the insights for this strategy, SRI's Center for Innovation Strategy and Policy:

- facilitated convenings of the leadership of the Regional Development Authorities within the state and the GOED Board of Directors;
- interviewed key stakeholders across government, the private sector, academia, and community organizations;
- gathered and analyzed economic and workforce data;
- reviewed previous and current regional and state economic development policy documents; and
- researched best practices from Nevada and other states.

In addition to a comprehensive economic and community assessment and SWOT (strengths, weaknesses, opportunities, threats) analysis, the insights from these efforts supported the identification of five target industries (Information Technology; Transportation & Logistics; Natural Resources & Technologies; Hospitality, Tourism, Sports & Creative Industries; Advanced Manufacturing) and actions to advance them over the next five years. The success of these strategies, however, requires that Nevada's economy rest on a solid foundation of educated, healthy, and connected communities with capable public services and access to quality jobs. To this end, this five-year strategy also includes a Leadership Plan for Inclusive Growth detailing how the state will ensure that residents, regardless of background or zip code, can contribute to and benefit from economic growth.

GOED's vision is to foster an economy that is vibrant, innovative, and sustainable with high-paying jobs and great quality of life for all Nevadans. This plan moves Nevada closer to fulfilling this mission by leverages the state's unique economic assets, culture, and history, to enables the collaboration necessary to realize Nevada's electric, innovative, connected, and inclusive future.

Economic and Community Assessment

While the state's economy is historically pro-cyclical, and the impact of the COVID-19 pandemic on travel and hospitality worsened this exposure, Nevada has rebounded and is well positioned for growth. Significant public and private investments in recent years have diversified the economy, leveraged emerging technologies, and developed state assets. The ability for Nevada to capitalize on these growth opportunities for long-term prosperity will require an understanding of core strengths and weaknesses and coordinated action across a diverse set of public and private stakeholders.

This assessment of Nevada's economy lays the foundation for action and examines workforce quality and alignment, industry and occupational landscape, innovation capacity, infrastructure, quality of life and overall community development to better understand growth and change in key economic enablers. The analysis assesses changes over the past decade, puts shorter-term impacts from COVID-19 into a broader context, and compares indicators across peer states of Arizona and Utah and with the United States overall.

Key findings from the economic and community assessment:

- **Population and Talent**: Net migration was a key contributor to population growth over the past decade, with most new residents coming from California. Although Nevada has a relatively high share of associate degree graduates with technology skills, the state lags in science, technology, engineering, and mathematics (STEM) education overall.
- **Diversification**: Those occupations and industries growing most quickly in the state are also those offering the highest wages.
- **Innovation**: While entrepreneurship and research and development (R&D) lag competitors, rapidly increasing venture capital investments and patenting activity across a diverse range of industries indicates significant innovation potential in the state.
- **Infrastructure and Quality of Life**: Key enablers of the state's economy are its infrastructure, renewable energy, and recreational amenities. Housing availability and affordability, water supply, grid infrastructure, and quality of K-12 education threaten growth if not addressed.
- **Health Quality and Access**: Among Mountain West states, Nevada has the lowest rate of adults with a dedicated healthcare provider, the lowest rate of adults attending regular dental visits, the lowest rate of adults with a flu vaccination, and highest rate of adults who avoided care due to costs. Increasing capacity, coordination, and innovation within the healthcare sector is of critical importance. Although more employees are needed in this field to meet growing demand, healthcare practitioners and technical workers are some of the fastest growing occupations within the state.

- **Business Environment:** The state's taxes, policies and regulations are some of the most favorable towards business in the nation. Combined with a lower cost of living, Nevada's business environment is a strong economic asset.

Data were collected from both administrative sources such as the U.S. Census Bureau and proprietary sources such as Lightcast. Additionally, stakeholders from industry, government, and education provided insights on the current state of the economy, target industries, and ideas for government support. This first section of the report forms the foundation for the subsequent SWOT Analysis, Strategy and Action Plan, and Inclusive Growth Leadership Plan.

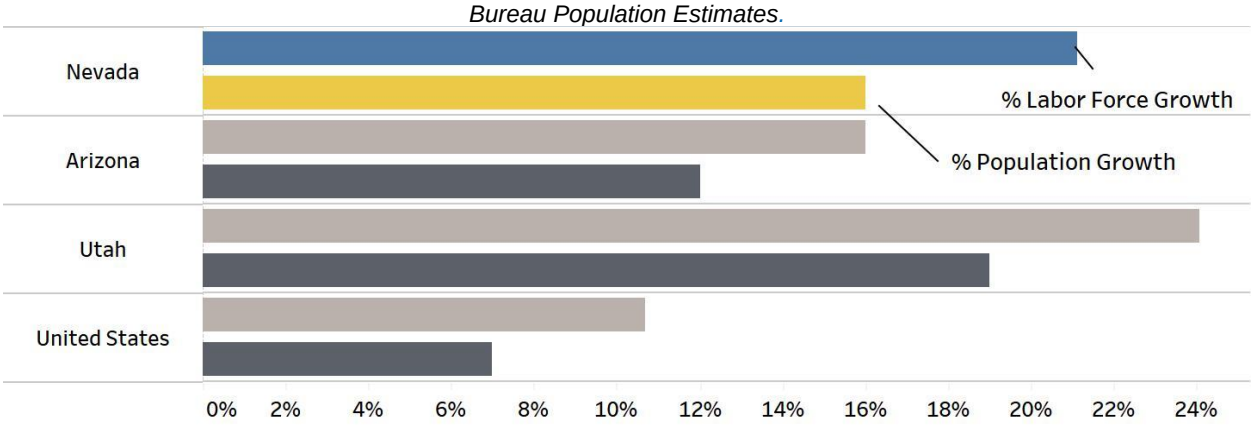
Population and Talent

Successful economies rely on a thriving population and workforce. From 2011 to 2021, Nevada's population grew 16% — a rate that outpaces that of Arizona and the United States overall, and that is second in the nation only behind Utah (Figure 1). The state's labor force grew (21%) even more quickly than the overall population over the past decade.

Nevada's labor force grew more quickly than overall population driven by a complex set of trends, including strong in-migration from California.

Nevada's labor force grew more quickly than overall population.

Figure 1: Change in population and labor force participation among Nevada, peer states, and the United States for populations aged 16 and over, 2011–2021. Source: U.S. Census Bureau Employment Estimates, U.S. Census Bureau Population Estimates.

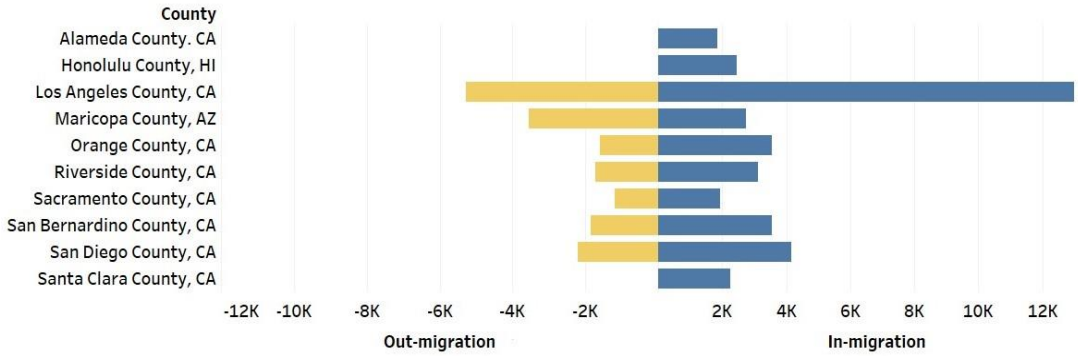


For Arizona, Utah, and the United States the light grey bar indicates labor force growth, and the dark grey bar indicated population growth.

Given the scale of the hospitality and tourism industry in the state, the pandemic severely disrupted labor force participation in Nevada, more so than peer states. Nevada's unemployment rate of 4.6% continues to be one of the highest in the nation.[1] The prime-age (25–54 years old) employment rate (76%) is down more than five percentage points from 2019 pre-pandemic levels, the most significant decline experienced by any state in the United States.[2] Strong labor force growth over the decade, however, buoyed what could have been an even more catastrophic economic impact of the pandemic on the state's economy.

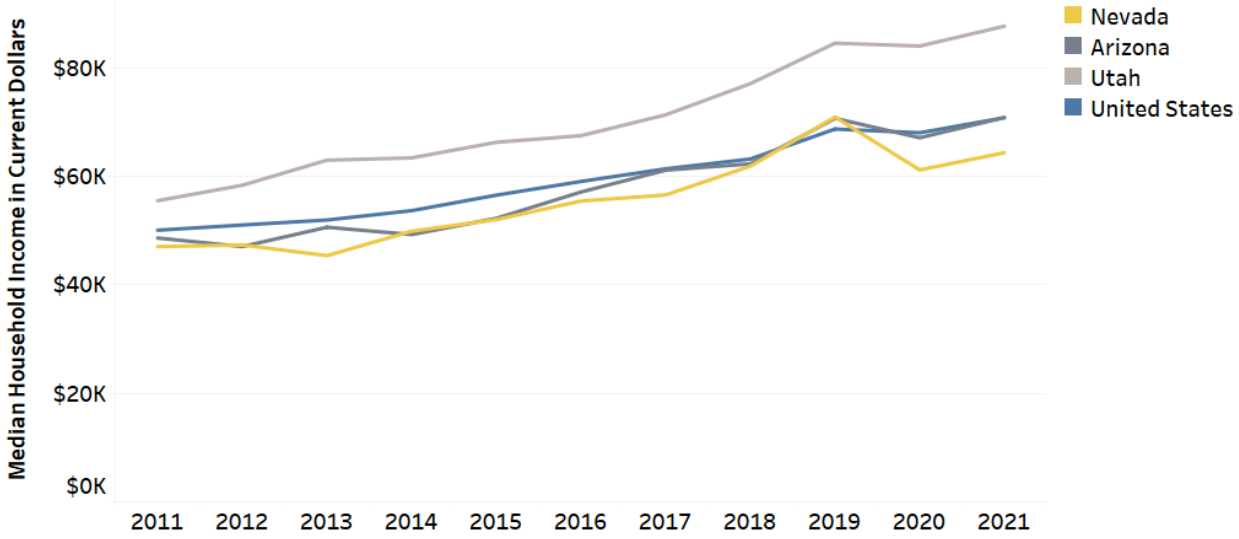
Faster labor force growth than population growth suggests a complex set of trends including an aging population, lower birth rates, and a strong influx of new talent coming to Nevada from outside the state. Annual net migration increased over 150% from just under 10,000 in 2012 to over 25,000 in 2020.[34] Most new residents over the past decade and more recently since the pandemic (Figure 2), have come from California, and specifically Los Angeles County. This trend reinforces Nevada's competitive position in the Pacific zone as a place ripe with employment opportunities in innovative industries, a high quality of life, and lower cost of living.

Figure 2: Nevada's inflow and outflow migration by top 50 counties, 2020. Source: Lightcast.



Incomes in Nevada lag peer state and the United States but are recovering.

Figure 3: Median household income for Nevada, peer states, and the United States, 2011–2021. Source: U.S. Census Bureau, Current Population Survey.

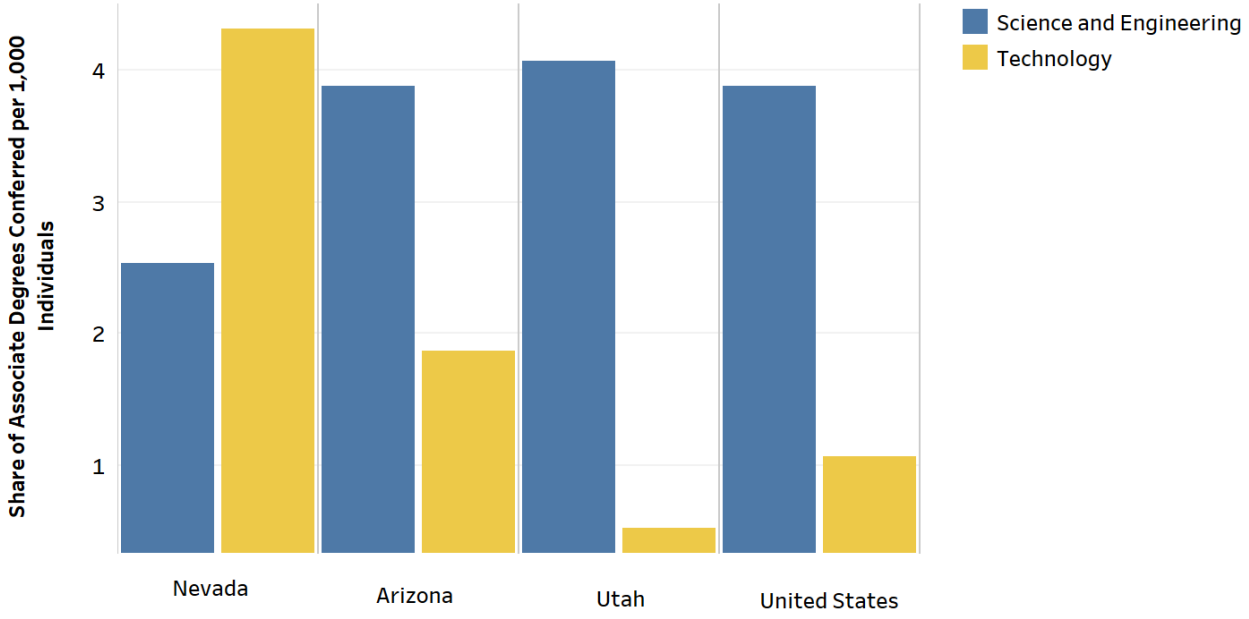


Income is one of the most common indicators of a state's standard of living and quality of life. Figure 3 demonstrates the change in median household income for Nevada, peer states, and the United States over the past decade. While incomes are lower in Nevada than the United States and peer states, the median household income in Nevada has steadily increased since 2011. With the onset of the pandemic, income dropped substantially, but has recovered at a pace like peer states and the United States overall. Given the more severe decline in Nevadans' employment, median household

income is still below pre-pandemic levels, despite consistent growth in hourly wages.[5] This trend is indicative, once again, of the severe impact of the pandemic on the hospitality and tourism industries.

Nevada has a relatively high share of tech degree holders, but lags in science and engineering.

Figure 4: Share of associate degrees in technology and science & engineering conferred per 1,000 individuals aged 18–24, 2021. Sources: National Center for Education Statistics, Integrated Postsecondary Education Data System (various years), data available as of September 2022; U.S. Census Bureau, data available as of September 2022.[6]



Education and skills attainment, particularly in STEM-related fields, is key to economic mobility and a diverse economy. While degree conferment overall is lower in Nevada (34% of Nevadans aged 25 and older have earned an associate degree or higher) than peers states of Utah (47%) and Arizona (39%) and the United States overall (46%),[7] in 2021 Nevada had a higher share of technology-related associate degree graduates than Arizona, Utah, and the United States average (Figure 4). Associate-level training in technology, science, and engineering fields provides the advanced skills and technical expertise needed for a competitive workforce to support innovation, productivity, and technological growth.[8] Other peer states, however, outpace Nevada's attainment of science and engineering associate degrees.

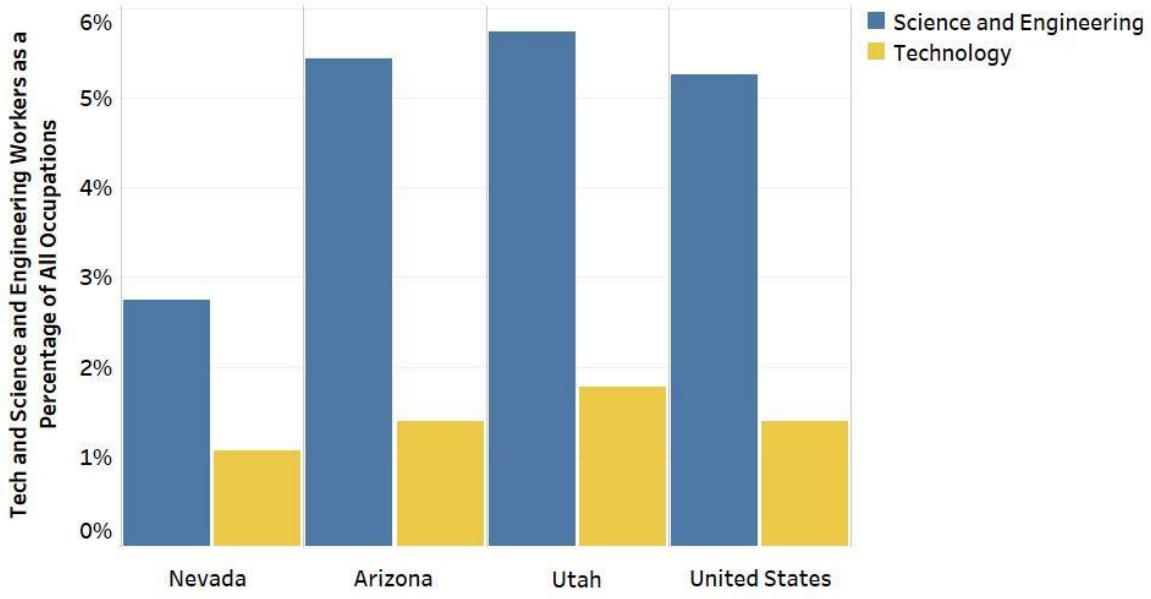
Diversification

Figure 5 presents the share of individuals in the workforce employed in technical and science and engineering (S&E) occupations, a key indicator for innovation-driven economic growth and competitiveness. These occupations include engineers, computer scientists, life scientists, physical scientists, social scientists, medical and service specialized technicians, manufacturing specialized technicians, and postsecondary teachers in these fields. Increasing and retaining the STEM-related

workforce in Nevada will be integral to diversifying the state's economy and innovative capacity.[1] Despite a recent increase in the number of technology-related associate degree graduates, Nevada has the third lowest share of workforce in STEM-related occupations of all U.S. states (only ahead of Louisiana and Mississippi).[9] Less than four percent of Nevada's workforce is engaged in STEM-related occupations, while Arizona and Utah are ahead of the national average. The STEM workforce brings the skills, creative ideas, and ability to advance basic scientific knowledge into tangible and useful products and services to grow the economy.

Nevada lags in STEM-related occupations driving the economy.

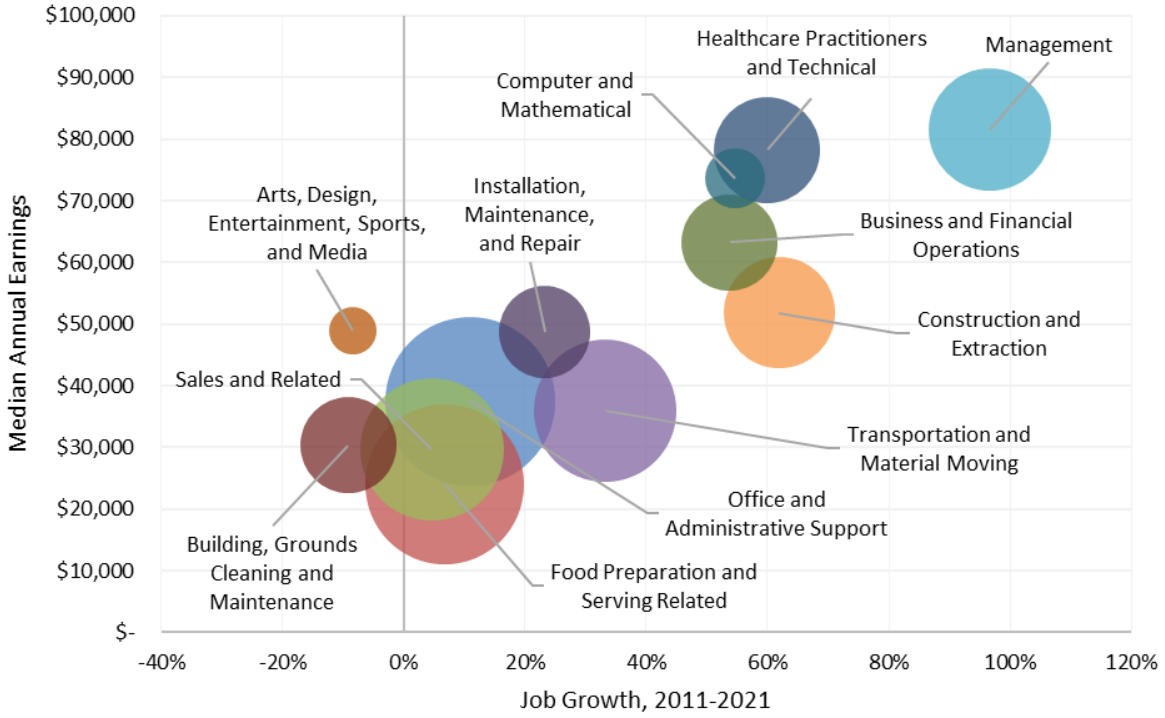
Figure 5: Individuals in tech and science and engineering occupations as a percentage of all occupations, 2020. Sources: National Science & Engineering State Indicators.



[1] S&E occupations are defined by SOC. They include engineers; computer, mathematical, life, physical, and social scientists; and postsecondary teachers in these fields. S&E managers, technicians, elementary and secondary schoolteachers, and medical personnel are not included.

Occupations growing most quickly in the state are also those offering the highest wages.

Figure 6: Growth, median annual earnings, and size of Nevada's largest OCCUPATIONS, 2011–2021. Sources: U.S. Census Bureau American Community Survey, Nevada Department of Employment, Training, and Rehabilitation.



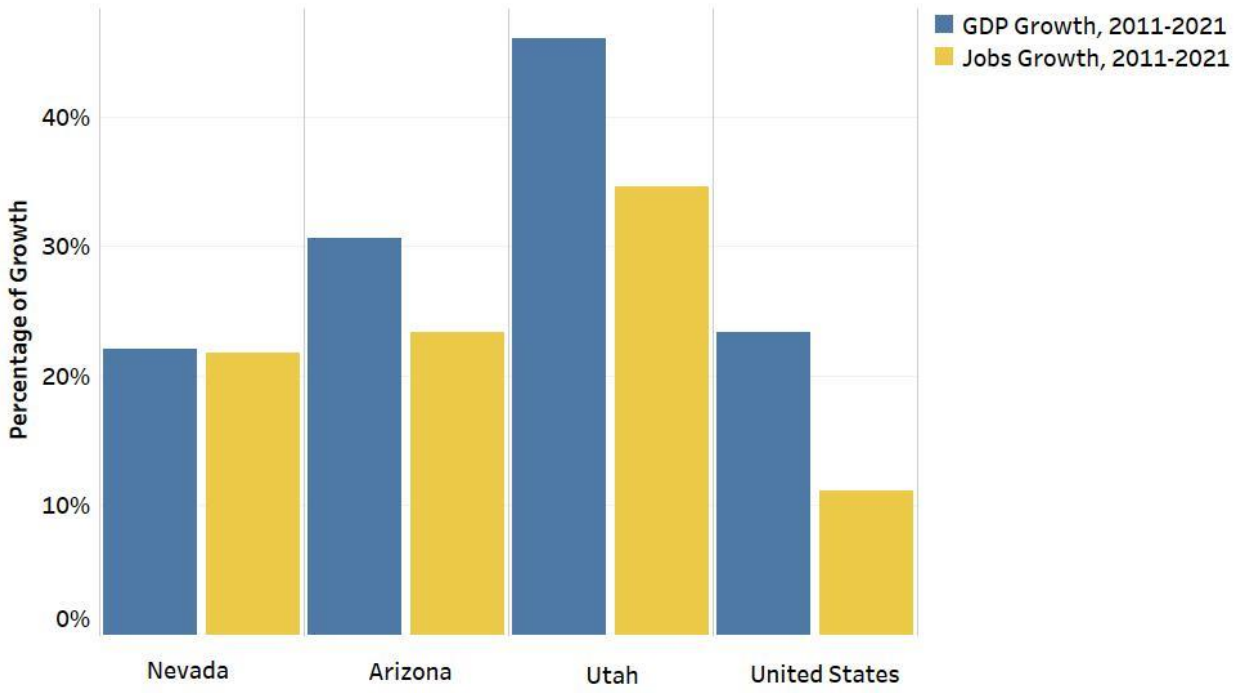
Size of bubble indicates relative employment size.

Despite the lower shares of STEM occupations, there is evidence of diversification within the economy toward higher wage, more technical fields. As indicated in Figure 6, those occupations growing most quickly in the state are also those offering the highest wages. Although they are not the largest occupations by size, management, healthcare, and construction and extraction have the fastest growth of all occupations. Computer and mathematical occupations and business and financial operations are also growing quickly. Some of those growing the slowest are also those with the lowest earnings and are hospitality-related, including building and grounds cleaning, sales, and food preparation. Again, this reflects the reality of the COVID-19 pandemic during which in-person venues, performances, and activities were severely disrupted, impacting the creative sectors. Also, with increased demand on the healthcare sector due to the pandemic, there is a corresponding increase in job opportunities.

Although they are not the largest occupations by size, management, healthcare, and construction and extraction have the fastest growth of all occupations

Job growth in Nevada outpaced the United States average, while GDP lagged Arizona and Utah.

Figure 7: Employment and GDP growth for Nevada, peer regions, and the United States, 2011–2021. Sources: U.S Census Bureau American Community Survey, Bureau of Economic Analysis.

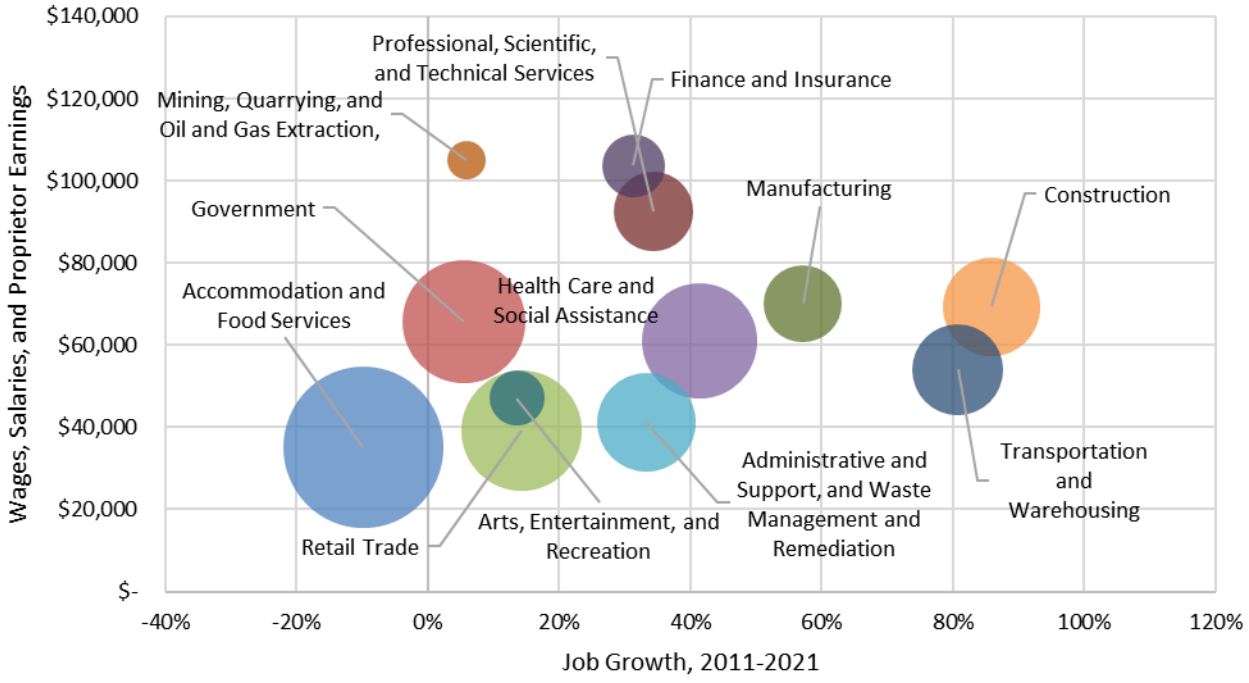


Over the past decade, Nevada's job growth surpassed United States national average (Figure 7). Nevada's Gross Domestic Product (GDP) grew at a similar pace to the United States but slower than Arizona and Utah. The industries most significantly driving Nevada's GDP are real estate (rental and leasing); accommodation and food services; state and local government; retail trade; construction; finance and insurance; and healthcare and social assistance.[2]

[2] According to the quarterly data provided by BEA. BEA, *Regional Data GDP and Personal Income:* https://www.bea.gov/itable/regional-gdp-and-personal-income

Higher wage sectors are growing more quickly in the state and contributing to diversification and future sustainability.

Figure 8: Growth, wages, salaries, proprietor earnings, and size of Nevada's largest INDUSTRIES, 2011–2021. Sources: Bureau of Labor Statistics, U.S. Census Bureau American Community Survey, Nevada Department of Employment, Training, and Rehabilitation, Bureau of Economic Analysis State and Local Personal Income Reports.



Size of bubble indicates relative employment size.

Nevada's economy is evolving with much of the state's recent growth driven by a diverse set of industries. Sectors such as construction, transportation and warehousing, manufacturing, and healthcare and social assistance have experienced significant employment growth over the past decade (Figure 8). This growth is reflective of Nevada's unique position in the Mountain West. Nevada is a gateway connecting California ports and businesses to the rest of the country through its existing transportation systems. The favorable tax and regulatory environment and low cost of operating businesses in Nevada has also kept it competitive.

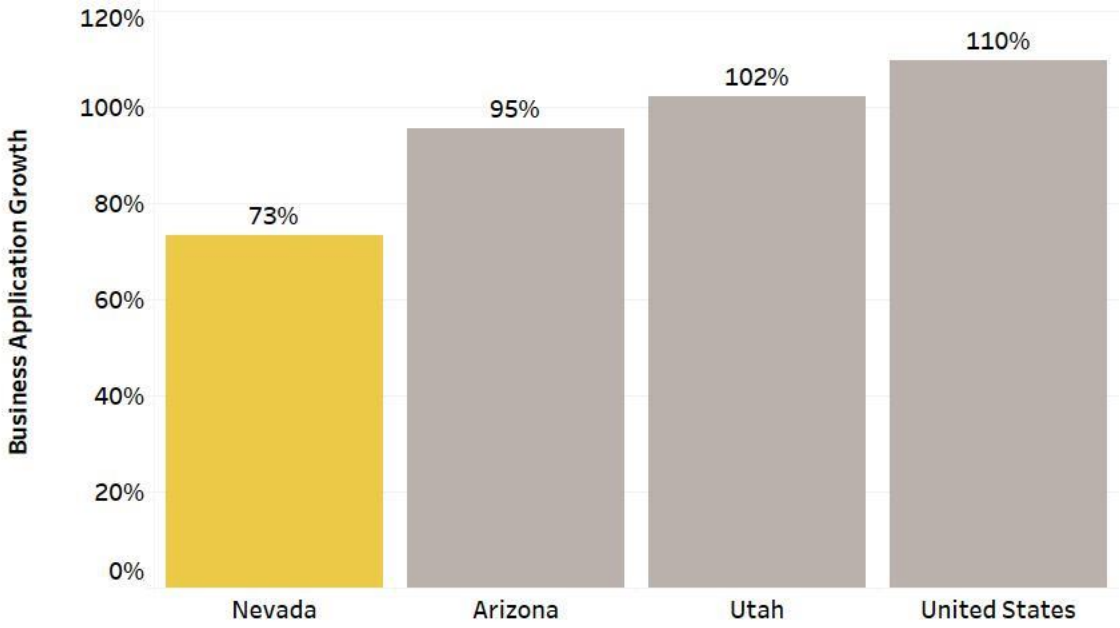
On the other hand, other sectors that employ significant numbers of workers have experienced modest, stagnant, or even negative growth. Accommodations and food services and arts, entertainment, and recreation have historically formed the bedrock of the Nevadan economy. The COVID-19 pandemic greatly impacted in-person shows, performances, and venues and this is reflected in the latter sector, in which jobs have grown only 1.35% since 2011. Healthcare and social assistance grew by 3.53% in the last 10 years; finance and insurance increased by 2.76%; and government decreased by 0.54%. It is worth noting that of all sectors shown in Figure 9, finance and insurance offer the highest average annual wages at $104,000. By contrast, the average annual wage in accommodations and food services is $35,000. Declines or stagnation in less advanced industries and growth in more advanced industries point to structural changes occurring in Nevada's economy and the need to prepare the workforce with reskilling and training opportunities.

Innovation

Entrepreneurship is at the heart of any dynamic economy. A key indicator of the health of entrepreneurship is the rate of formation of new businesses. Nevada lags national and Arizona and Utah's growth of business applications submitted over the past decade (Figure 9). According to the U.S. Census, Business Formation Statistics, industries with the largest shares of business applications include retail trade, professional services, construction, and transportation and warehousing.

Nevada lags peer states and the United States in new business growth over the past decade.

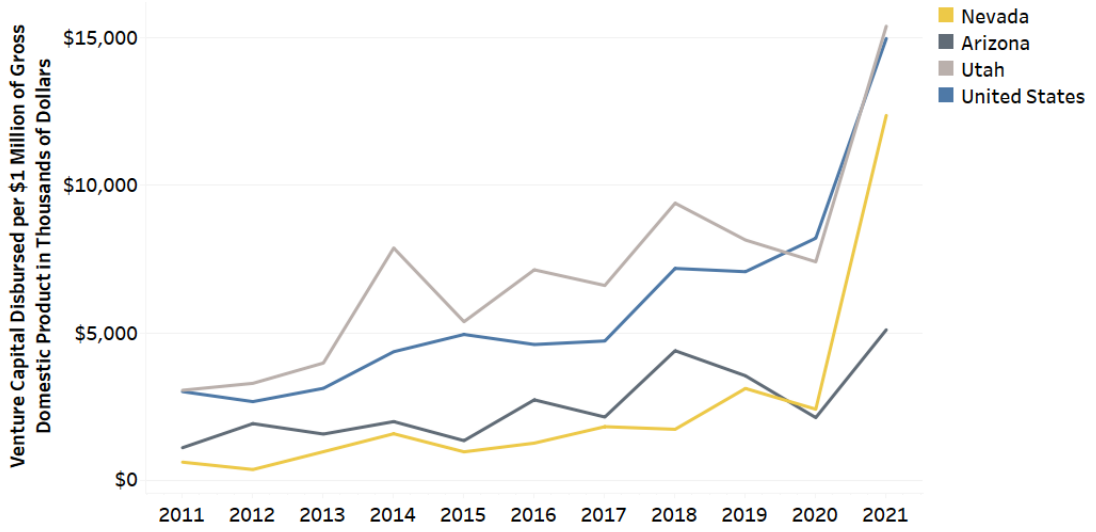
Figure 9: Business application growth in Nevada, peer regions, and the United States, 2011–2021. Sources: U.S. Census, Business Formation Statistics.



Currently, Nevada has two strong regional ecosystems, one in Reno and one in Las Vegas, however, the state lacks a unified innovation vision. Interviews with stakeholders indicated the lack of coordinated support for entrepreneurs and innovation within the state is a barrier for growth. Given Nevada's potential as a testbed for new technologies and its history and culture of individualism, risk-taking, and adventure, the state would be well served by coordinated action and new programs, initiatives, and funding to enhance state and regional innovation and entrepreneurial ecosystems.

Venture capital into the state is increasing at a steady pace.

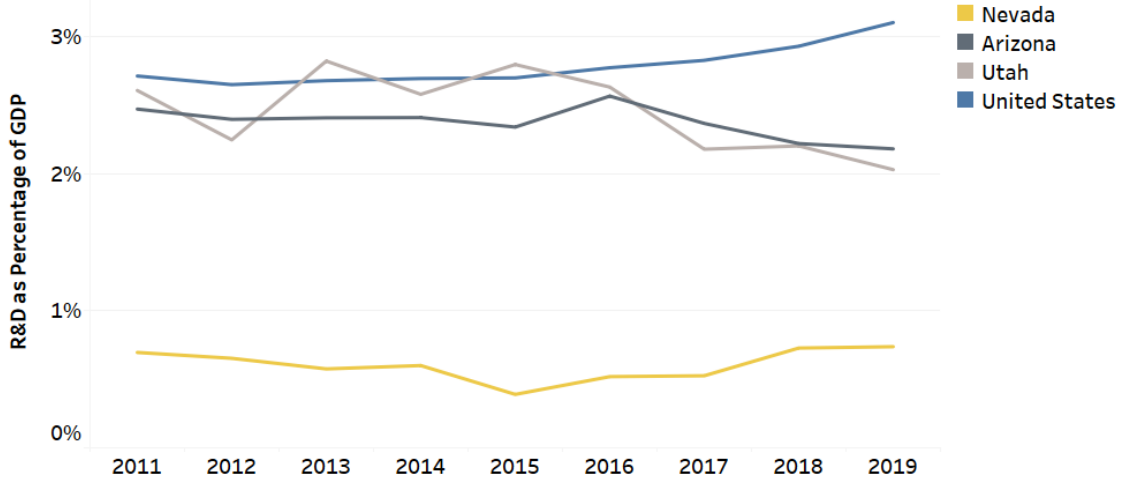
Figure 10: Venture capital disbursed per $1 million of GDP, 2011-2021. Source: National Center for Science and Engineering Statistics.



Venture capital is an important source of funding for startups and new businesses, and it is important for states to attract and secure funding for innovators. Over the last 10 years, companies in the United States have seen an increase of venture capital from $2,500 to $15,000 per $1 million of GDP (see Figure 10). While Nevada has historically lagged its peers and the national average for venture capital funding, in 2019, it surpassed Arizona and has grown steadily since (see Figure 10). Even during COVID-19, businesses in Nevada experienced a significant increase in venture capital funds. In the past two years, the largest shares of venture capital have gone to information technology (IT) ($3.0B), business-to-business (B2B) ($852.0M), business-to-consumer (B2C) ($679.1M), healthcare ($140.4M), energy ($61.2M), and financial services ($47.9M).[10]

Nevada substantially lags Arizona, Utah, and the United States in R&D as a share of GDP.

Figure 11: R&D as percentage of GDP, 2011–2019. Source: National Center for Science and Engineering Statistics.

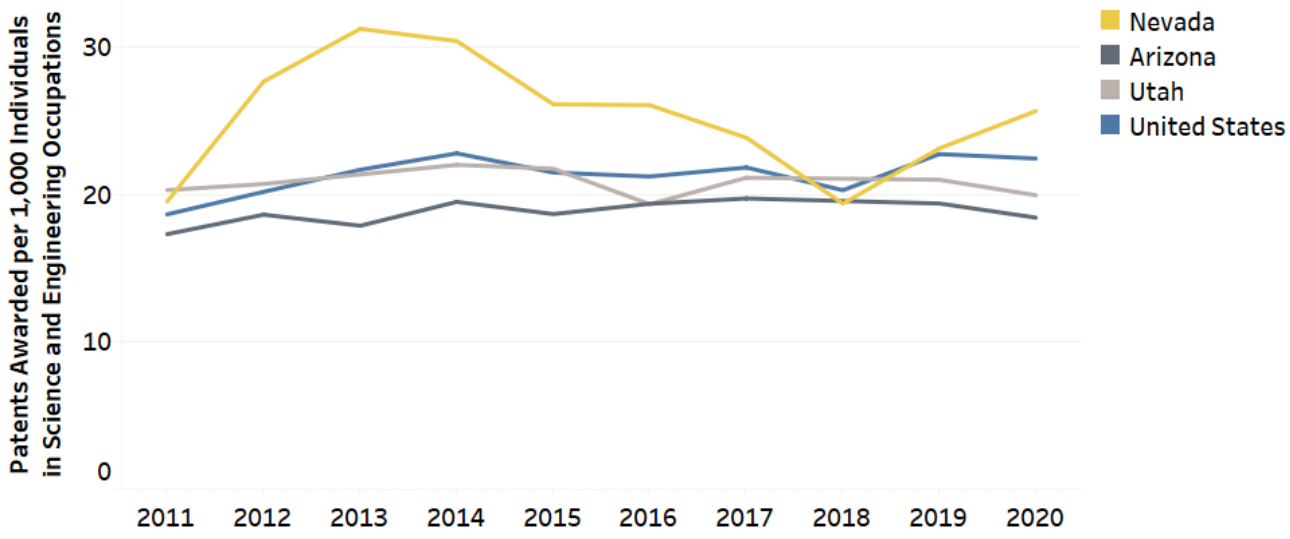


Strong levels of R&D activity conducted by federal and state agencies, businesses, universities, and has made great strides to increase its presence in R&D by achieving R1 classifications for University of Nevada Reno (UNR) and University of Nevada Las Vegas (UNLV) in 2018 (Figure 11). Peer states Arizona and Utah also have two R1 institutions each. However, Nevada substantially lags Arizona, Utah, and the United States in R&D as a share of GDP but has grown faster than its peers in recent years, setting it on a trajectory to close the gap.

Over the past decade, Nevada has almost always been above the national average and its peer states, in patents awarded per 1,000 in Science and Engineering Occupations.

Nevada leads peer states and the United States in patent awards relative to the size of the science and engineering workforce.

Figure 12: Patents awarded per 1,000 individuals in science and engineering occupations, 2011–2020. Source: National Center for Science and Engineering Statistics.



Infrastructure and Quality of Life

Infrastructure

To support population growth and Nevada's economic diversification and growth goals, the state will require significant new investments in its road, broadband, energy, water, and housing infrastructure.

Rail, Roads, and Highways: Most Nevada's railroads run East to West across the state. The northern railroads connect the Reno region to Salt Lake City, Denver, Sacramento, and San Francisco. The Southern railroads run through Las Vegas and connect it to the largest harbor, Los Angeles, as well as Salt Lake City. Unfortunately, the southern corridor is not connected to the north so there is no railroad to connect the Las Vegas and Reno regions. Regarding the road infrastructure, Nevada's road quality (86%) outpaces the U.S. average (81%) and its peer states, Arizona (78%) and Utah (80%).[11] Nevada's highway system ranks 20th in the U.S. in overall cost-effectiveness and condition, which is better than Arizona (29th) but worse than Utah (6th). Nevada also has the lowest percentage of structurally deficient bridges in the nation.[12] Nevada's road and highway systems allow for efficient and safe transportation.

Broadband: In Nevada, 86% of households have an internet subscription, but internet access and adoption vary significantly across the state, from 99% access in urban areas, 66% in rural areas, and even worse access on Tribal lands.[13, 14]

Energy: In 2021, renewable energy sources generated about one-third of total electricity in Nevada, and the state ranked sixth in the nation in total solar capacity and generation. Nevada is one of seven states that has utility-scale electricity generation from geothermal energy, and the state is second in the nation, after California, in geothermal power production. Nevada's Renewable Portfolio Standard (RPS) requires electric utilities to acquire at least 50% of the electricity they sell from renewable sources by 2030. [15] However, Nevada's electricity consumption often exceeds in-state generation (except for 2020), underscoring the need for investment in the grid.

In 2021, renewable energy sources generated about one-third of total electricity in Nevada, and the state ranked sixth in the nation in total solar capacity and generation.

Industrial Parks: Industrial Park development in Nevada has resulted in the diversification of the state's northern region with the maturation of the Tahoe Reno Industrial Center. Similar opportunities exist throughout the state with development potential in Southern Nevada in Jean and at APEX. Nevada's state agencies need to align planning functions in economic development, climate resiliency planning, land use planning, and infrastructure planning to address the complexities and realize the potential of large industrial park growth in Southern Nevada. Nevada policy makers should consider the state's competitive advantages in the greater Southwest and how strategic industrial park development will enhance the state's competitiveness.

Water: Due to the shortage conditions in the Colorado River, the federal government announced a tier 2 reduction for the seven states along the Colorado River. Nevada continues to dedicate itself to water conservation efforts, with Southern Nevada reducing its water consumption of Lake Mead over the last 20 years by 26%.[16] In response to long-term drought conditions in the Colorado River Basin, GOED in partnership with WaterStart launched the WaterWise Program. The program will expand water conservation, enable sustainable economic growth, and increase the availability of data pertaining to Southern Nevada's water cluster.

Housing: According to the 2021 Building Permits Survey, Nevada issued 23,406 building permits, which is less than its peer states, Arizona (65,334) and Utah (39,058). In 2020, Nevada issued 6.4 building permits per capita, which is less than its peer states, Utah (9.7) and Arizona (8.4).[17] While the supply is a challenge, since the COVID-19 pandemic, the increase in median home prices in Nevada has outpaced the rise in median household income; the increase in home value from 2019 ($317,800) to 2021 ($373,000) is a 17.4% increase, while the median household income has increased from $63,276 to $66,274, an increase of 4.7% for the same period.[18]

Quality of Life

Quality of life is indicated by a host of resources and amenities available to residents and businesses that allow them to thrive in the state. In this analysis, we assess Nevada's healthcare, K-12 education, recreational amenities, and business environment.

Healthcare: Nevada ranks 49th in the United States for public health dollars invested per capita ($76). In 2021 among Mountain West states (including Utah and Arizona), Nevada has the lowest rate of adults with a dedicated healthcare provider (66.8%), the lowest rate of adults attending regular dental visits (60.8%), the lowest rate of adults with a flu vaccination (38.1%), and highest rate of adults who avoided care due to costs (11.1%).[19] At least 2 million Nevadans live in an area lacking primary care providers, a particular challenge for rural areas, which tend to have higher poverty rates and are further from healthcare centers, clinics, and providers. Nevada would need to recruit more than 4,000 registered nurses to meet the national average.[20]

Among Mountain West states (including Utah and Arizona), Nevada has the lowest rate of adults with a dedicated healthcare provider.

K-12 Education: Quality of education can partially be captured through the Change for Success Index, which combines information from 13 indicators that encompass a person's early childhood to their career to better understand the role of education across an individual's lifetime. These indicators include parents' educational attainment, percentage of children enrolled in preschool, and high school graduation rates. Nevada ranks 50th in Chance for Success, 49th in school performance, and 50th overall.[21] Nevada K-12 schools underperform compared to the national average in ACT scores as well as English and math literacy.[22] Remediation rates (the rate of students who require additional education or training before enrolling in college-level courses) remain high.[23] The Nevada State Education Association estimates that there are more than 2,700 unfilled teaching positions in the state.[24]

Recreational Amenities: Nevada is home to 27 state parks, 3 national historic trails, and provides access to many national parks (e.g., Death Valley and Great Basin). Festivals, such as Burning Man and the Electric Daisy Carnival, capitalize on the outdoor scenery and creative economy within the state to provide weeks of music, dancing, and performances and contribute millions of dollars to the state's GDP. Nevada has three major league professional teams and several minor league teams for football, hockey, soccer, basketball, and baseball. In addition, Nevada still maintains its global brand for best-in-class shows, food, and gaming.

Business Environment: Nevada is a business-friendly state with a low cost of living (prices of goods and services are 2.5% less than the national average), a low-regulation environment, and an overall favorable tax environment for industry.[25] Nevada's proximity to the west coast markets makes it a prime spot geographically for shipping and freight transport. Nevada is one of only eight states without a personal income tax and corporate and property tax rates are among the lowest in the country, ranking 7th best state for taxes in the Tax Foundation's 2020 State Business Tax Climate Index. The state has several capital investment programs for business development (tax incentives, opportunity zones) and workforce development (WINN and LEAP).[26] Business Facilities' Annual Ranking Report has ranked Nevada as a top state for business based on quality and availability of business facilities and renewable energy.[27]

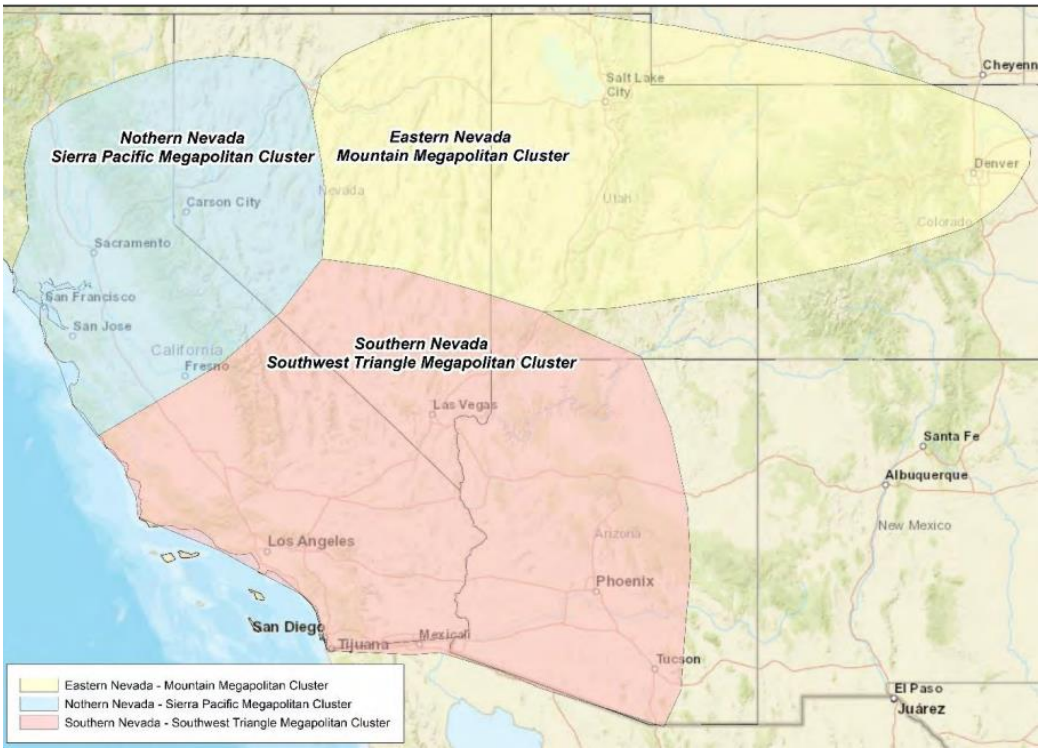
Nevada's New Economic Geography: The "Three Nevadas"

Nevada is geographically well-situated between three vibrant economic partners: California, Arizona, and Utah. Each of these states exchanges people, goods, and ideas with Nevada. Despite having a population of just over 3 million, Nevada sits at the center of a trade region that exceeds 53 million residents, a region that exceeds in both population and GDP of nations such as South Korea (pop. 51.8 million) and Spain (pop 47.3 million).

According to the U.S. Census Bureau, Nevada's two largest metropolitan areas—Las Vegas MSA (pop. 2,266,715) and Reno-Sparks MSA (pop. 475,642)—join in the two largest urban complexes (or "megapolitan areas") in the western half of the United States. Las Vegas is part of the "Southwest Triangle megapolitan cluster," which includes Southern California and Arizona's "Sun Corridor" megapolitan area (Phoenix and Tucson). Together these regions now contain about 34 million people and form the second most populous megapolitan cluster behind the "Northeast Megalopolis." Reno lies at the eastern edge of the Sierra-Pacific megapolitan area, which includes the Bay Area and Sacramento metros. The Sierra-Pacific region includes about 13 million residents.

Together these regions now contain about 34 million people and form the second most populous megapolitan cluster.

Figure 13: Each of Nevada's Regions Remains Well-Positioned within Megapolitan Areas Throughout the Western United States. Source: Nevada's Megapolitan Clusters. Robert E. Lang and Jaewon Lim, Brookings Mountain West--UNLV, 2020.



Nevada's most important economic opportunities lie in deepening its ties to these adjacent megapolitan areas. The state can induce both corporate relocation and skilled labor migration from the greater Southwest. Nevada maintains lower costs, less regulation, and less tax burden, especially when compared to California.

Target Industries

Nevada's target industries are those that have a foundation of assets in the state and will help the state move closer to its goals of a sustainable, innovative, and connected economy with high paying jobs for all Nevadans. While each target industry builds on the strengths of Nevada's economy, there are also challenges that the state will need to address to ensure future competitiveness. This section presents the target industries and their sectors (below), their opportunities for growth, and the headwinds they face.

Information Technology

Broadband
Data Hubs
Cyber Security
Technology-Manufacturing

Transportation & Logistics

Warehousing
Wholesaling
Trucking
Rail
Air
Multi-Modal Hubs

Natural Resources & Technologies

Agriculture
Mining
Recycling
Clean Water
Renewable Energy
Food Production
Energy Generation & Distribution

Hospitality, Tourism, Sports, & Creative Industries

Outdoor Recreation
Tourism
Sports
Gaming
Film Industry
Creative Industries

Advanced Manufacturing

E-Mobility
Clean Technologies
Aerospace & Defense
All Other Advanced Manufacturing

Key findings from the target industry assessment include:

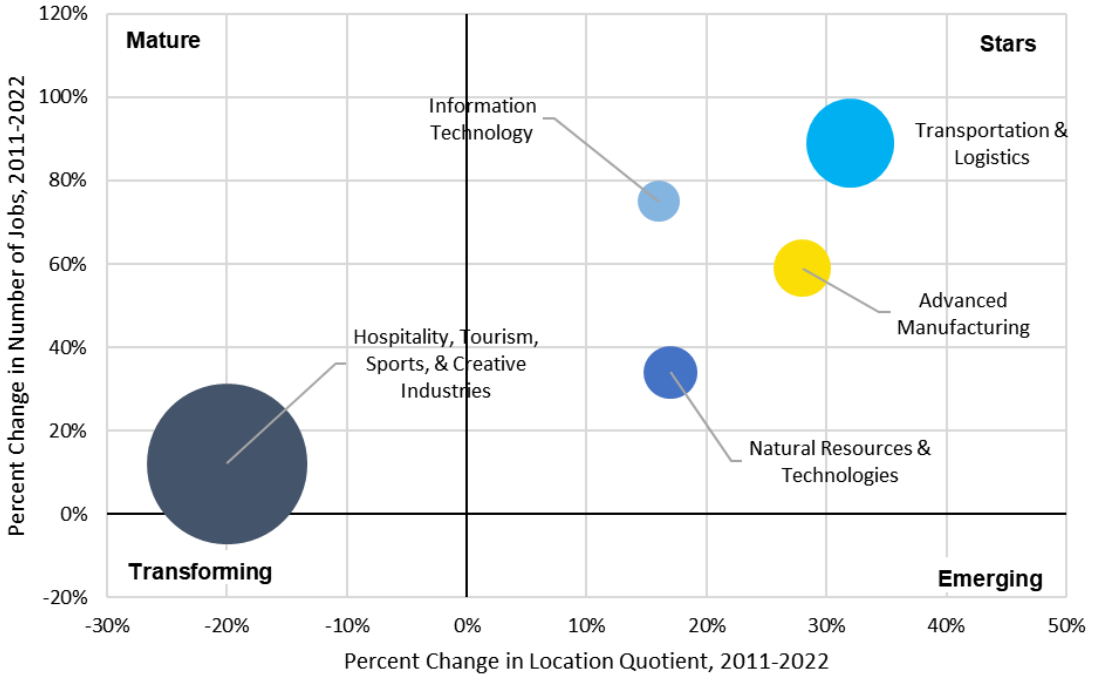
- Growth in employment and employment concentration of higher wage, innovation-based industries grew more quickly over the past decade than traditional state economic drivers, demonstrating the positive structural changes taking place in the economy.
- Since 2011, Data Hubs, the largest and highest paying **Information Technology** industry sector, was also the fastest growing, while Broadband declined.
- The pandemic exacerbated core challenges related to the **Transportation and Logistics** industry. While several sectors demonstrated strong growth in recent years, including Warehousing, Trucking, and Multi-Modal Hubs; Rail, Wholesaling, and Air sectors were not as resilient. These declining sectors are also some of the better paying.
- The **Natural Resources and Technologies** industry has gained employment and comparative advantage over the past decade, notably in the areas of clean energy. Nevada's natural assets, mining workforce, manufacturing capabilities, proximity to regional innovation hubs, and attraction of key employers have resulted in Nevada being one of a few locations,

maybe the only location, in the world with a complete lithium supply chain and an overall natural resources and technologies ecosystem ripe for further growth in the state.

- The higher-wage Sports and Creative Industries sectors in the **Hospitality, Tourism, Sports, and Creative Industries** grew faster over the past decade and experienced slower decline during COVID than gaming. This points to adaptation, innovation, structural change, and diversification within the hospitality and entertainment-related industry.
- The ongoing green transition has provided an opening for the state to develop its own **Advanced Manufacturing** hub by disrupting the traditional emission-based supply chain. While Aerospace and Defense continue to remain the largest manufacturing industry by volume, and E-Mobility have grown as industries, especially E-Mobility as battery storage manufacturers flock to the state.

Innovation-based sectors grew quickly over the past decade, demonstrating the positive structural changes taking place in the economy.

Figure 14: Change in employment and employment concentration (location quotient) of Nevada's target industries, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.

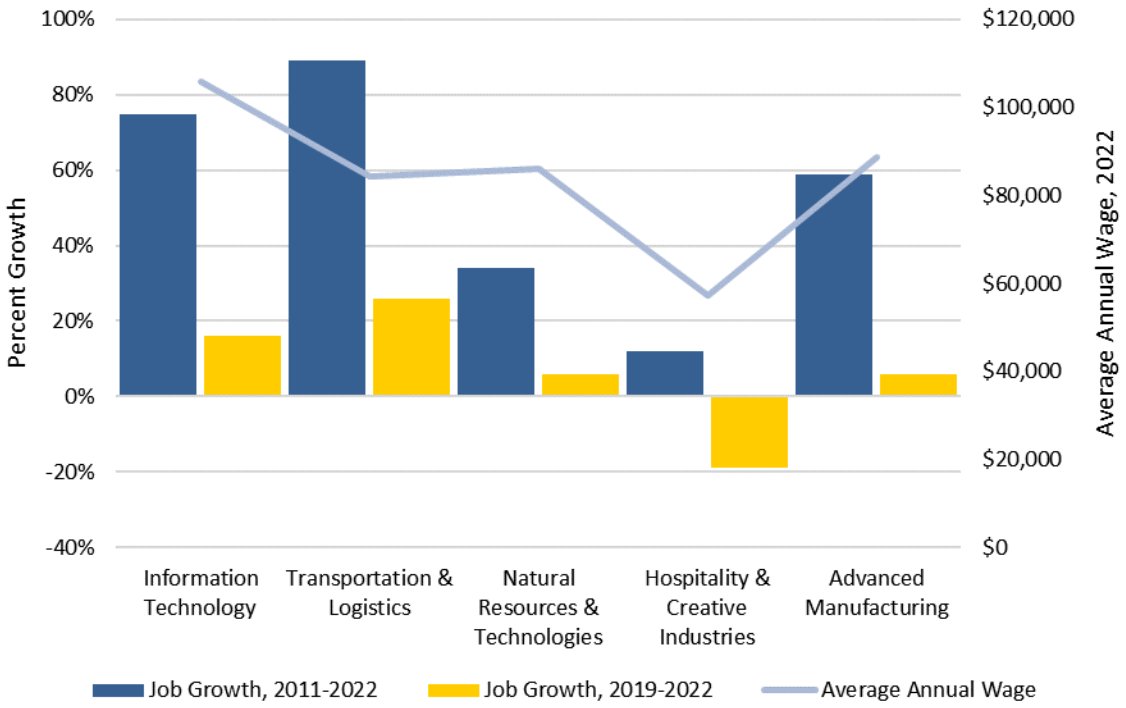


Size of bubble indicates number of jobs, 2022.

The COVID-19 pandemic reinforced and created an urgency around Nevada's need to diversify its economy away from pro-cyclical industries, namely hospitality, gaming, and entertainment. While these activities, comprising the largest share of employment in the state, will continue to remain important and to evolve, other innovation-based industries have grown in the number of jobs and the concentration of jobs relative to the nation over the past decade ("stars"). These trends demonstrate the positive structural changes taking place in Nevada's economy.

The industries that are growing are also those with more competitive wages.

Figure 15: Average annual wage and short- and long-term employment change by industry, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.



Since 2011, the number of jobs in the Information Technology industry cluster grew 75%, Transportation & Logistics grew 89%, Advanced Manufacturing grew 59%, and Natural Resources & Technologies grew 34% (Figure 12). The growing concentration of these sectors in Nevada relative to the rest of the United States (indicated by the location quotient) also indicates the competitive potential and diversification opportunities in these industries. Nevada's target industries are also resilient—except for Hospitality, Tourism, Sports, & Creative Industries—and have not only recovered from the pandemic but have experienced strong growth (Figure 13). The industries that are growing are also those with more competitive wages. These two trends together indicate that the state's economy is transitioning toward industries that are necessary to meet dynamic global demand of goods and services, positioning the state for future prosperity.

The sections below detail key industry developments in recent years, as well as longer-term growth, diversification, and resiliency trends of the specific sectors within Nevada's target industries.

Information Technology

The Information Technology (IT) industry is composed of sectors ranging from Broadband and Cyber Security to Technology Manufacturing and Data Hubs. The employment and specialization of the IT industry and its sectors have increased significantly over the past decade with a diverse mix of established businesses and startups. The development of the IT industry has spurred an innovation ecosystem and enabled other tech-forward industries, such as Renewable Energy and Advanced Manufacturing, to flourish in the state.

Industry Snapshot

In July 2019, Google officially broke ground on its first $600 million data center in Henderson, Nevada. A second $600 million data center in Storey County followed, reaching full operations in February 2021. In addition to these two data centers, since 2019, Google has awarded more than $1 million to Nevada nonprofits and has attracted a pool of talented data scientists to the area. As the Henderson and Storey County sites continue to attract new applicants, local businesses benefit from the expertise and qualified skillset that this new labor pool offers, allowing potential small businesses or startups to cultivate new knowledge bases, and giving the state a solid base for growing its IT ecosystem.[3] Additionally, proximity to California, with its many mature and well-connected IT hubs, presents opportunities for an expanded talent pool for Northern Nevada-based companies and opportunities for entrepreneurial networking.

While Nevada's business friendly environment and proximity to Silicon Valley have bolstered the IT industry in recent years, the state must address key workforce and infrastructure challenges and strengthen its innovation ecosystem for the industry to flourish. Recently relocated IT companies in the state have promised to further invest in K-12 education and internet accessibility for students, ensuring that students have opportunities to continue learning about IT-related fields and to apply the theoretical skills they learn in classrooms. Although there are new programs for software engineers and data scientists, few programs in the state target hardware engineers and technicians to develop physical IT infrastructure, creating a significant gap in the IT ecosystem.

Broadband remains a challenge for the state. Although broadband-related employment continued to decline over the last decade, the state government, along with important stakeholders, has recognized the critical value of broadband as an essential enabler to developments in healthcare, education, and public safety. Over the past few years, the state has issued a series of strategic plans and initiatives coupled with federal and state investments that aim to boost growth in the sector which, barring the interruption from the COVID-19 pandemic, should soon begin to bear fruit. Major initiatives include increasing the amount of federal broadband funding that local school districts receive by boosting applications, and connecting all rural hospitals, health clinics, and state correctional facilities to a broadband connection sufficient to provide telehealth services by 2025.[28]

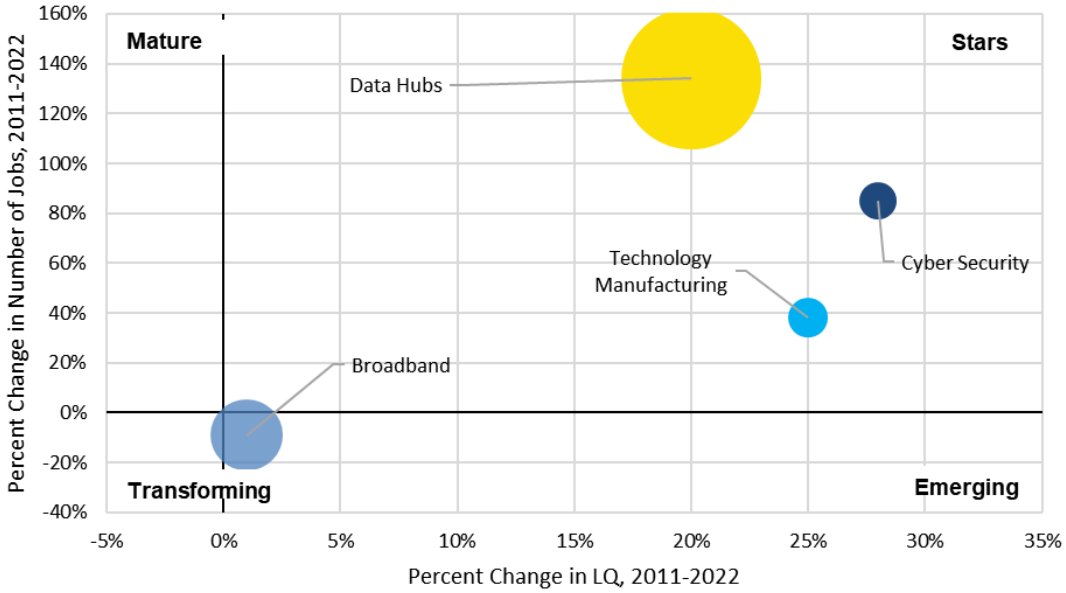
Growth, Diversification, & Resilience

While the Information Technology industry represents only about 2% of all jobs in Nevada, its sectors have grown dramatically over the past decade. Since 2011, Data Hubs, the largest IT employment sector and highest paying, grew quickly with a 134% increase, while Technology Manufacturing and Cyber Security grew at 38% and 85%, respectively. The concentration of these sectors relative to the rest of the United States also grew over the last 10 years, indicating significant potential for increasing competitiveness with targeted policies and investments (Figure 16). These fast-growing IT sectors are also those offering the highest wages within the industry. Since 2019, despite it being the largest employer within the industry, the Broadband sector continued a trend of decline.

[3] An ecosystem could be defined as networks of actors, relationships between actors, institutional conditions, and infrastructures dedicated to a purpose/vision that represents the values and motivations of local actors.

Nevada's concentration of IT grew over the last 10 years, indicating significant opportunity for future competitiveness.

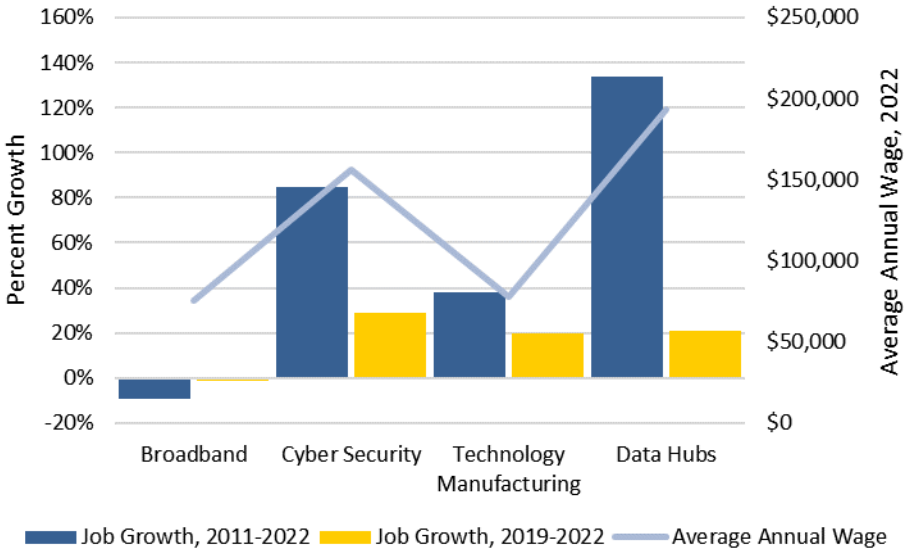
Figure 16: Change in employment and employment concentration (location quotient) in IT, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.



Size of bubble indicates number of jobs, 2022.

These fast-growing IT sectors are also those offering the highest wages within the industry.

Figure 17: Average annual wage and short- and long-term employment change in IT sector, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.



Transportation & Logistics

The Transportation & Logistics industry is one of the key elements of a successful, integrated supply chain that links consumers and producers through multiple modes of transportation, such as rail, air, and trucks. A strong Transportation and Logistics industry in Nevada and throughout the world is essential to the functioning of a strong economy, and specifically to the success of businesses and industries that rely on the transport and receipt of goods, notably Advanced Manufacturing sectors like electric vehicles (EVs).

Industry Snapshot

Nevada is equipped with a prime location, favorable tax structure and business environment, as well as well-established companies that can attract new businesses to the state and provide resources for development in the industry with positive spillover effects to other industries. Nevada has access to three major highways: Interstate 15, U.S Highway 95, and U.S Highway 93. Nevada's international and regional airports (Harry Reid International Airport, Reno-Tahoe International Airport, Elko Regional Airport, etc.) allow for goods to be received and shipped by air, increasing the modes used in the industry. Foreign Trade Zones (FTZs) in the state promote global engagement through exporting and importing. Nevada's proximity to the Port of Los Angeles provides a comparative advantage to other states with strong transportation and logistics sectors.

Foreign Trade Zones (FTZs) in the state promote global engagement through exporting and importing.

Nevada's tax structure is favorable to developing regional supply chains. Nevada does not have a tax for inventories that are held for sale within the state or for interstate transit, which incentivizes the acquisition, movement, production, manufacturing, and distribution of goods in Nevada.

As Nevada continues to grow new businesses, the state must ensure that its infrastructure is able to support that growth. Nevada has already begun to make headway in expanding its infrastructure capability as well as enhancing the existing infrastructure of the state's transportation sector, such as expanding road capacity around Harry Reid International Airport. Additional road and highway improvements throughout the state, along with investments in rail and air expansions will be critical to the future success of the industry and the economy overall.

Growth, Diversification, & Resilience

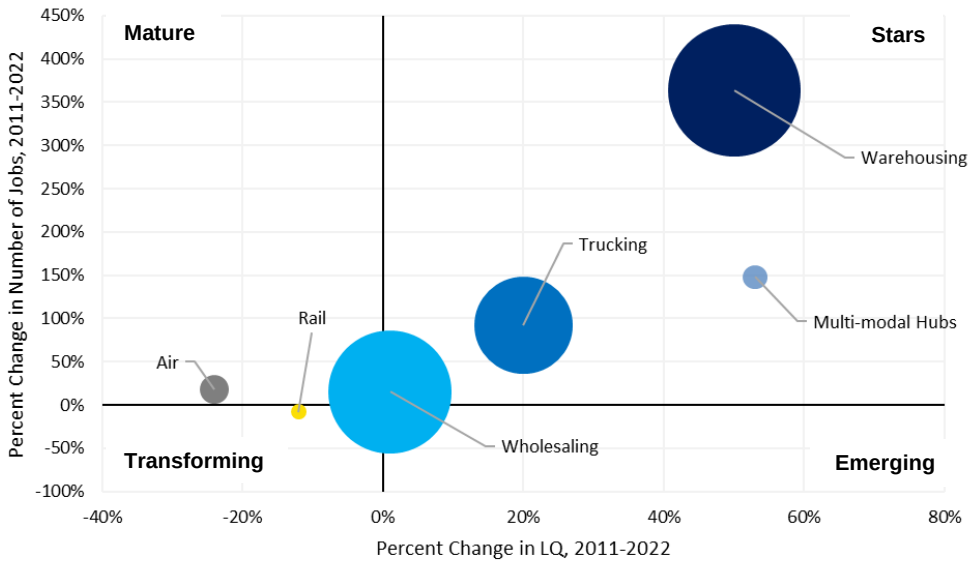
The Transportation & Logistics industry in Nevada can be categorized into six main sectors, Warehousing, Trucking, Rail, Multi-Modal Hubs, Wholesaling, and Air Transportation.[4] Combined, these sectors represent 7.2% of all jobs in Nevada. Warehousing and Wholesaling comprise an overwhelming majority of the industry. Warehousing, Multi-Modal Hubs and Trucking have all seen significant job growth over the last 10 years, while also increasing their concentration in Nevada relative to the United States (Figure 18). This indicates the capacity of the state to attract and grow businesses in these sectors. The concentration of the Wholesaling and Air sectors, however, has grown only modestly, with Rail declining.

While several sectors have demonstrated strong growth since the pandemic, including Warehousing, Trucking, and Multi-Modal Hubs; Rail, Wholesaling, and Air were not as resilient. These declining sectors are also some of the better paying (Figure 19). The pandemic exacerbated core challenges

[4] Water Transportation was originally included as a seventh main sector for peer state comparison, but since the sector has less than 100 jobs it was ultimately excluded from the analysis.

related to transportation and logistics that directly impact global supply chains, such as pilot shortages, material and equipment shortages, port closures, and insufficient infrastructure conditions and capacity. To relieve some of the burden of supply chain conditions and bottlenecks, and increase employment in these high-wage sectors, Nevada can increase the dependability of assets and industry conditions to promote growth and foster an environment that allows the transportation and logistics industry to grow and scale successfully and efficiently.

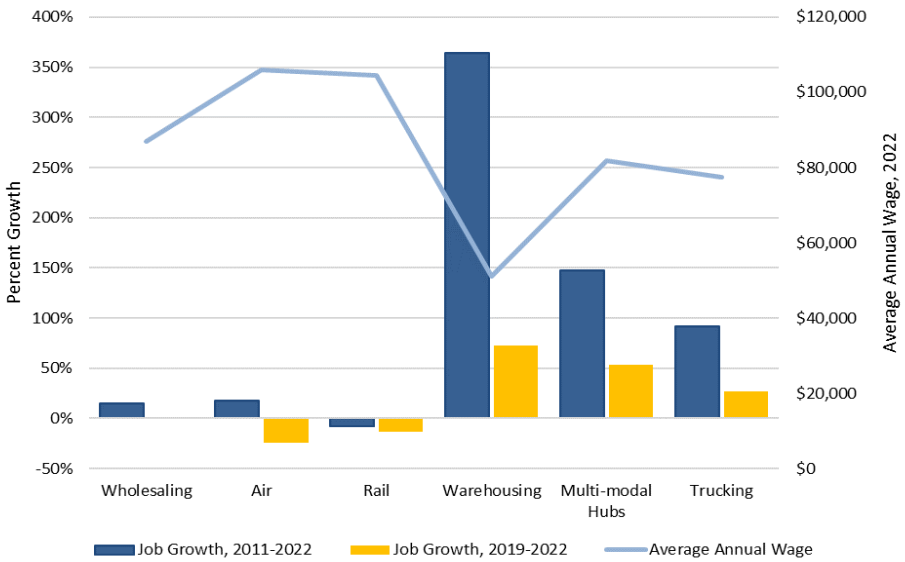
Figure 18: Change in employment and employment concentration (location quotient) in Transportation & Logistics, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.



Size of bubble indicates number of jobs, 2022

The pandemic exacerbated challenges related to transportation and logistics sectors, including Air and Rail, that directly impacted global supply chains and the performance of these sectors in Nevada.

Figure 19: Average annual wage and short- and long-term employment change in Transportation & Logistics sector, 2011-2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis



Natural Resources & Technologies

Natural Resources & Technologies, as an industry, has made its claim on the national stage as states begin to adopt clean energy initiatives and move toward climate-friendly processes and technologies. Nevada has emerged as a leader in clean energy technologies and resources because of the state's access to natural resources and production of related technologies and the expertise of its existing mining workforce.

Industry Snapshot

Nevada has diverse natural resources that can be useful in the development of clean technologies, notably lithium. Lithium is a key element used in the development of EV batteries. Mining the materials used in batteries presents a unique ability for Nevada to become a major player in the EV supply chain. The state has many businesses that are centered around the production of lithium or has products that require lithium: Tesla, Albemarle, Bonnie Clair Project, Clayton Valley Lithium Project, and Lithium Americas. The expansion of Redwoods Materials will fill further critical roles—refurbishment, recycling, refining, and remanufacturing of sustainable battery materials—making Nevada one of a few locations, maybe the only location, in the world with a complete lithium supply chain.

Moreover, Nevada's Agriculture sector contributes to the economy of rural communities and to the statewide economy. Nevada's Agriculture sector has historically been defined by livestock production, dairy, and food crops but as the industry is becoming more innovative, Nevada has attracted a wide breadth of companies that extend beyond the traditional Agriculture sectors historically seen in the state. The state's climate and soil conditions have led to new industries in cannabis and hemp production. The cannabis industry has grown significantly since legalization of recreational sales in 2016. In 2021 it brought in more than $1 billion in taxable sales[29] Nevada's hemp industry is still in its early stages, but it has great potential. [30] promotes and supports hemp industry through federal and state regulations. Another great example is West Coast Salmon. West Coast Salmon plans to establish a land-based salmon farm that uses recycled ground water to support the farm. In addition to West Coast Salmon, Urban Fresh Farms evolves agriculture to indoor innovations. Urban Fresh Farms, a hydroponic vegetable farm, provides a space that allows vegetables to be grown in an indoor setting eliminating the need for fertile soil. West Coast Salmon and Urban Fresh Farms provides an innovative twist to the agriculture industry in Nevada, and highlights Nevada's capability to support and encourage new and innovative changes to the agriculture industry.

Federal lands and water scarcity restrict the expansion of agriculture, access to clean water, and growth of the Renewable Energy sector. Nevada remains at the forefront of states that have the most land ownership by the federal government (almost 87%).[31] The current land ownership and regulation structure of Nevada require that localities and private entities work with land managers to develop and provide services and infrastructure upon which constituents rely. Southern Nevada has been faced with the dire challenge of access to water. As the southern climate is becoming more arid and experiencing longer periods of drought, the water reserve is decreasing. The increasing concern of access to water not only impacts constituents but also the types of businesses that Nevada can attract and support in the state's southern region.

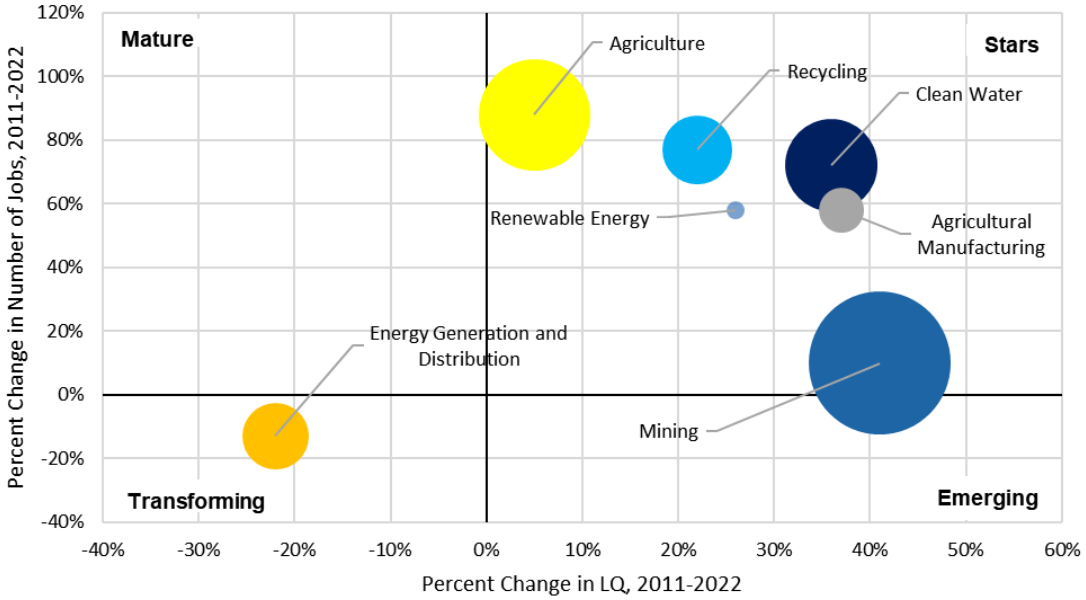
Growth, Diversification, & Resilience

The Natural Resources & Technologies industry in Nevada includes the following sectors: Agriculture, Mining, Recycling, Clean Water, Renewable Energy, Agricultural Manufacturing, and Energy Generation & Distribution. The Natural Resources & Technologies industry represents 2.6% of all jobs in Nevada. Mining is the dominant sector in the industry with over 15,000 jobs. The number of jobs in all sectors of the industry, except Energy Distribution and Generation, grew significantly over the past decade (Figure 18). Since 2011 the same sectors also became more concentrated in Nevada relative to the United States as natural assets along with manufacturing capabilities and proximity to regional innovation hubs have created a Natural Resources and Technologies ecosystem ripe for growth in the state.

Regarding Energy Generation & Distribution, declines in the sector are largely attributed to inefficiencies in the state's energy grid.[32] Since 2019, Agriculture, Mining, Recycling, Agricultural Manufacturing, and Renewable Energy have grown, while Clean Water and Energy Generation & Distribution have declined (Figure 19). Unlike other industries, wages in Natural Resources & Technology sectors demonstrate a countervailing trend with growth. Although Energy Generation & Distribution is shrinking, wages are nearly double the next highest paying sectors (Renewable Energy and Mining). With a greater focus on bolstering the grid, the state is likely to see future growth in Energy Generation & Distribution.

The number of jobs in all sectors of the industry, except Energy Distribution and Generation, grew significantly over the past decade.

Figure 20: Change in employment and employment concentration (location quotient) in Natural Resources & Technology sector, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.[5]

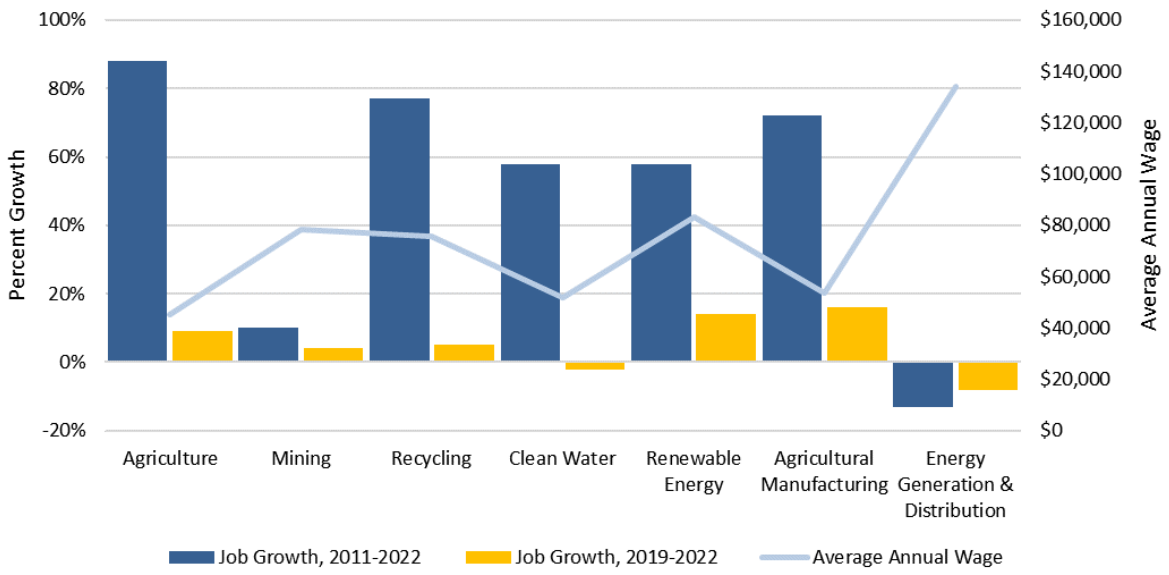


Size of bubble indicates number of jobs, 2022.

[5] Data for solar electric power generation (NAICS 221114) is included under the renewable energy bubble.

Unlike other industries, wages in Natural Resources & Technology sectors demonstrate a countervailing trend with growth.

Figure 21: Average annual wage and short- and long-term employment change in Natural Resources and Technologies sector, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.



Hospitality, Tourism, Sports & Creative Industries

The creative economy-related sectors have been grouped together under Hospitality, Sports, Tourism & Creative Industries. Within this broad grouping are six main sectors: Outdoor Recreation, Tourism, Sports, Gaming, Film, Entertainment and Creative Industries. The creative economy professions provide commercial and cultural value to Nevada. Unfortunately, the COVID-19 pandemic severely impacted creative sectors by limiting performances and use of venues as well as forcing companies to cope with a more limited workforce. In response, more companies and creative workers are utilizing digital entertainment, automation, and virtual engagement to provide their services. The virtual space is becoming more prominent for creative industries to conduct business and will continue to be a high-growth area. The creative economy has a strong presence in Southern Nevada and the cluster of creative talent and opportunities continues to pull newcomers into the region. While the state is a powerhouse in these sectors, attention should be given to supporting the workforce through training and compensation packages, diversifying entertainment and leisure activities into sports and other high value sectors, connecting organizations to existing networks and community resources, and leveraging Southern Nevada's proximity to Los Angeles.

Industry snapshot

Hospitality, tourism, sports, and creative industries are long established sectors in the state and are major contributors to the Nevadan economy. While the state is still linked to adult entertainment and the "Sin City" image, outdoor recreation and other forms of family entertainment are growing in the state. NASCAR races and Burning Man alone bring in over 150,000 people to the state annually, with a host of other special events and festivals that drive significant economic activity. Las Vegas has been selected to host the world-renowned Formula One Grand Prix in 2023. This event is expected to bring in over 100,000 official spectators into the state, and over 400 million TV viewers globally.[33] Las Vegas has also been selected to host the 2024 NFL Super Bowl LVIII and the Men's Final Four NCAA championship in 2028. Due to Las Vegas's image and brand as one of the top entertainment centers

in the world, there are major hospitality and tourism companies based in the region that employ large workforces and can accommodate high-value guests (e.g., celebrities, politicians). The food and restaurant scene are among the top in the United States for fine dining, celebrity chef offerings, and a highly diverse cuisine from various communities in the state.

Creative industries are significant contributors to the Nevadan economy.

Creative industries are significant contributors to the Nevadan economy, providing almost $8 billion to the state (5% of the state GDP). The state continues to draw in a high number of creative professionals, particularly in entertainment, performance arts, and hospitality. The creative economy continues to be a valuable sector in part due to its connections to other sectors and the high amount of crossover with other fields of employment. For example, the IT industry pairs with creative professionals to create technical innovations. Media, publishing, and broadcasting services assist in the diffusion of cultures, knowledge, and curated experiences.

Sports infrastructure has significantly improved with the completion of Allegiant Stadium for the Raiders football team. This project brought in construction jobs and capital that has spurred interest in furthering sports infrastructure developments. Sports are concentrated in the southern region of the state with professional teams in the NHL, WNBA, and NBA and is experiencing gradual growth despite the pandemic reducing spectator turnout. Las Vegas has been able to successfully recruit the Raiders football team from Oakland and is currently working with the MLB's Oakland Athletics to relocate to the city. Compared to the Bay Area, Las Vegas provides a lower cost of living, lower cost of operations, and a better commute for those employed within the Sports sector and for sports enthusiasts traveling for games.

A key challenge for the industry is automation, which is more likely to impact lower-skilled jobs that involve repetition. In Nevada, some occupations in hospitality, gaming, and food services fall into the category of "low skill" and face a high risk of being replaced by automated processes. Nearly half of Nevada's workforce faces risk of automation, with 96% of game dealers facing automation risk. Automation allows for higher efficiency, decreased contact, and consistency, but Nevada will need to retrain its current workforce to keep them employed.

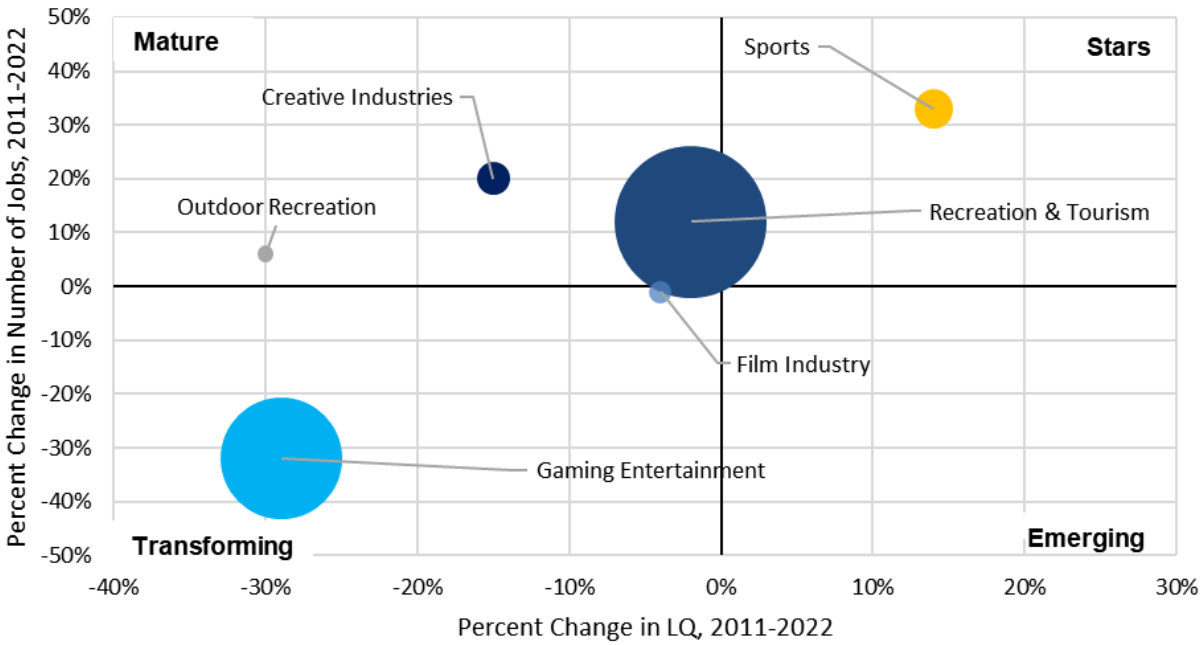
Growth, Diversification, & Resilience

The Hospitality, Tourism, Sports, & Creative Industries cluster represents 23.5% of all jobs in Nevada, with Recreation & Tourism making up most employment in this cluster. Over the last 10 years, the number of jobs in Outdoor Recreation grew 6% and Recreation & Tourism grew 12%, modest growth for both sectors (Figure 20). The number of jobs in Sports and Creative Industries both grew at higher rates, with Sports growing by 30% and Creative Industries growing by 20% since 2011. However, the number of jobs in both Gaming Entertainment and Film Industry saw a decline. Gaming Entertainment saw a drastic decrease in the number of jobs, decreasing 32% since 2011, while the number of jobs in Film Industry fell only 1%.

The concentration of jobs relative to the United States for Outdoor Recreation, Recreation & Tourism, Gaming Entertainment, Film Industry, and Creative Industries all shrunk since 2011. The location quotients for Outdoor Recreation and Gaming Entertainment fell the most, with Outdoor Recreation shrinking by 30% and Gaming Entertainment shrinking by 32%. Recreation & Tourism fell by 2%, Film Industry fell by 4%, and Creative Industries fell by 15%, a more modest decrease in the location quotients.

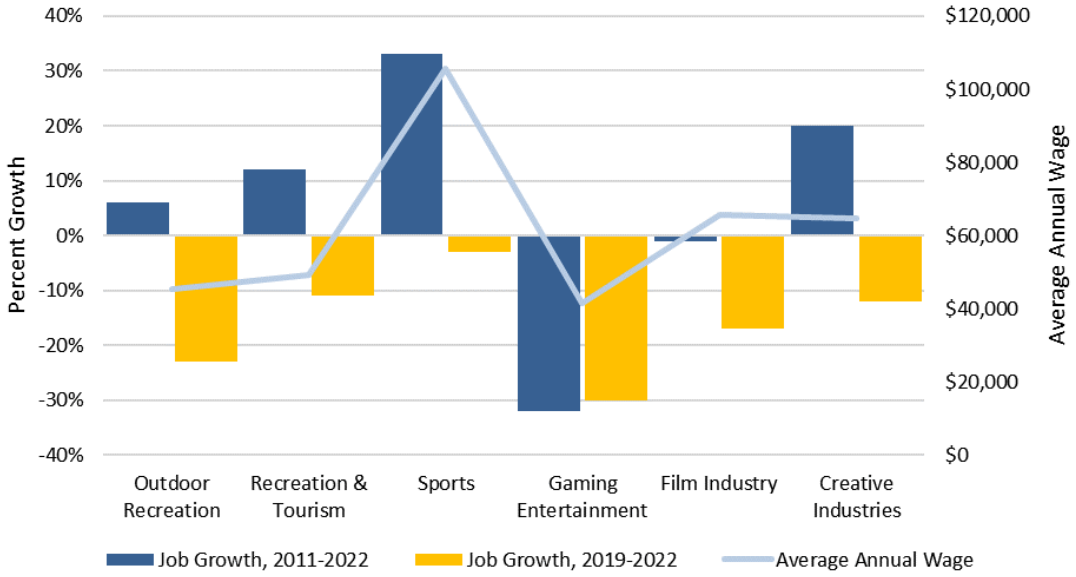
Higher-wage Sports and Creative Industries sectors grew faster over the past decade and experienced slower decline during COVID than gaming and other mature sectors in the industry.

Figure 22: Change in employment and employment concentration (location quotient) in Hospitality, Tourism, Sports, & Creative Industries, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.



Size of bubble indicates number of jobs, 2022.

Figure 23: Average annual wage and short- and long-term employment change in Hospitality, Tourism, Sports, & Creative Industries sector, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.



Post Covid, since 2019 no sector in the industry has experienced job growth (Figure 21). It is estimated that Nevada's creative economy lost around $1.3 billion in revenue and experienced 64% unemployment due to COVID.[34] Those sectors that have grown over the past decade and that experienced slower decline during COVID, Sports and Creative Industries, also offer higher wages than other sectors in this area. This points to the need for adaptation, structural changes, and diversification within the hospitality and entertainment-related industry.

Advanced Manufacturing

The Advanced Manufacturing industry includes four main sectors: Aerospace & Defense, Clean Technologies, E-Mobility, and All Other Advanced Manufacturing.[6] Over the last decade, Nevada's Advanced Manufacturing industry has made commendable strides to diversify and grow. Historically, Nevada has been positioned further upstream in the manufacturing supply chain, supplying raw materials. However, the ongoing green transition has provided an opening for the state to develop its own manufacturing hub by disrupting the traditional emission-based supply chain. While Aerospace & Defense continue to remain the largest manufacturing industry by volume, Clean Technologies and E-Mobility have grown as industries, especially E-Mobility as battery storage manufacturers flock to the state.

Nevada is in a competitive position to propel itself into a more mature Advanced Manufacturing industry, but it needs significant investment in its education system and workforce. The state has made substantial capital investments, but overall needs a comprehensive and targeted assessment and strategy to develop infrastructure to meet the demands of each segment of the supply chain.

Industry Snapshot

The arrival of large EV manufacturing companies to Nevada offers an excellent base for the state to develop its own industry. These EV manufacturing jobs are more secure than other prospective industries in that the long-term production forecast is stable and growing. For a generation at least, Nevadans can rely on these manufacturing jobs and the state should take this critical juncture to turn Nevada into a hub for EV manufacturing and innovation before the still-evolving EV supply chain begins to solidify and centralize in a few key areas. Moreover, EV manufacturing can be a key part of Nevada's greater push to diversify and expand its Advanced Manufacturing sector. The migration of new employees to the state seeking new EV-related jobs expands the pool of skilled workers in advanced manufacturing. This in turn attracts new companies looking to either relocate or set up shop near an area with a highly skilled workforce, thus creating a mutually reinforcing feedback loop if leveraged well.

For advanced manufacturing jobs that require green energy expertise, the state is relying on migrating workers and out-of-state universities to provide the necessary training for its own workforce.

Although the green transition is bringing jobs to Nevada, the state itself does not have the educational infrastructure to support emerging green technologies. Currently Nevada's university system only offers a few minor programs and certificates in green

[6] "All Other Advanced Manufacturing includes advanced manufacturing sectors that do not fall into Aerospace & Defense, Clean Technologies, and E-Mobility based on previous classification from SRI-Brookings report, *Nevada's Plan for Recovery & Resilience:* https://goed.nv.gov/wp-content/uploads/2021/01/Nevada-Recovery-and-Resiliency-Plan-FINAL.pdf. See also *America's Advanced Industries: What They Are, Where They Are, and Why They Matter:* https://www.brookings.edu/research/americas-advanced-industries-what-they-are-where-they-are-and-why-they-matter/ for further information.

technologies and almost none in the community college system. For advanced manufacturing jobs that require green energy expertise, the state is relying on migrating workers and out-of-state universities to provide the necessary training for its own workforce. This limits the state's ability to grow as a regional hub for green technologies and hampers its adaptability to new emerging technologies in the renewable energy field.

Advanced Manufacturing in Nevada is in its early stages, but the future looks promising. Proactively anticipating the energy needs of the future and recognizing the importance of decarbonization, the 12-year construction period of the Greenlink Nevada project (a new renewable energy and electrical infrastructure initiative that will make Nevada a leader in the clean energy economy) is expected to generate $690 million in economic activity and support more than 3,700 jobs that will pay more than $406 million in wages and salaries. The program will expand green technology in Nevada building the foundation for future development. However, there remains a significant gap in green engineering programs. Nevada's university and community college systems offer only a limited (if any) set of programs that can support this emerging sector.

The Nevada Center for Applied Research's (NCAR) push toward robotics and e-mobility offers a significant resource for developments in advanced manufacturing.

The Nevada Center for Applied Research's (NCAR) push toward robotics and e-mobility offers a significant resource for developments in advanced manufacturing. Already efforts are being made to establish a working relationship with Nevada Industry Excellence (NVIE), Nevada's NIST-funded Manufacturing Extension Partnership (MEP) program. NCAR plans to provide technical expertise to NVIE to expand its outreach to small- and medium-sized manufacturers. The UNR university's faculty, researchers, staff and graduate students, and the R&D infrastructure all provide an essential resource for Nevada's manufacturers. This, however, remains only a single program that cannot on its own facilitate the growth of an industry. Assessing the successes or failures of this program may provide guidance to future endeavors.

The College of Southern Nevada (CSN) has begun a new advanced manufacturing rapid response program on its Henderson campus. GOED spearheaded this expansion by offering nearly $2 million from the Workforce Innovations for the New Nevada (WINN) fund. The funding aims to support companies looking to expand or locate their business operations in Nevada, with training programs that will equip workers with the skills needed by employers. CSN's new program will enhance workforce development efforts by manufacturers such as Haas Automation, Inc., which is moving forward on a major operation in Henderson. The program will result in students being able to obtain Manufacturing Skills Standards Council (MSSC) and National Institute for Metalworking Skills (NIMS) industry-recognized certifications, including: the MSSC Certified Production Technician; MSSC Certified Logistics Technician; and the National Institute for Metal Working Skills (NIMS) Computer Numerical Control (CNC) Machining Operator certification, which provides a pathway to Mechatronics and Robotics degrees, creating a huge opportunity for workers in the area.

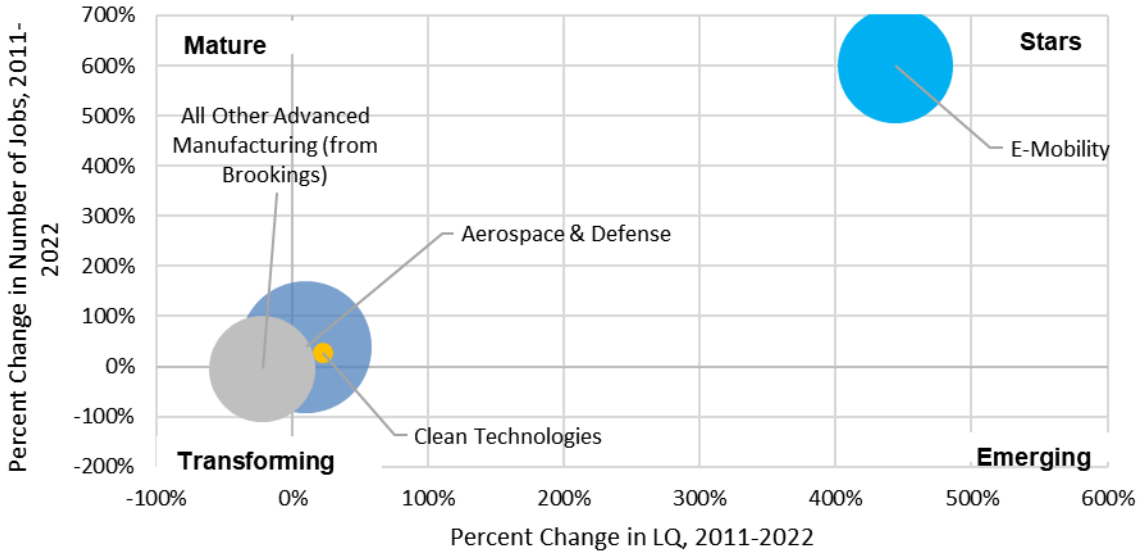
Growth, Diversification, & Resilience

The Advanced Manufacturing industry represents just 3% of all jobs in Nevada. Over the last 10 years the number of jobs in Aerospace & Defense grew 39%, and Clean Technologies grew 26%, both significant increases (Figure 24). E-Mobility grew massively, increasing the number of jobs by 599%. All Other Advanced Manufacturing saw a small decrease in the number of jobs of 5%. The concentration of jobs relative to the United States for Aerospace & Defense, Clean Technologies, and E-Mobility all increased, bolstering the competitive advantage of Nevada as a state attractive to advanced industries.

Post Covid, since 2019 the sectors Aerospace & Defense, and E-Mobility have seen job growth, while the number of jobs in Clean Technologies fell by 25% and All Other Advanced Manufacturing fell by 5% (Figure 25). Wages across the industry are high, but lowest in the fastest growing sector, E-Mobility.

The concentration of Advanced Manufacturing jobs within the state signals the state's increasing competitive advantage in the industry.

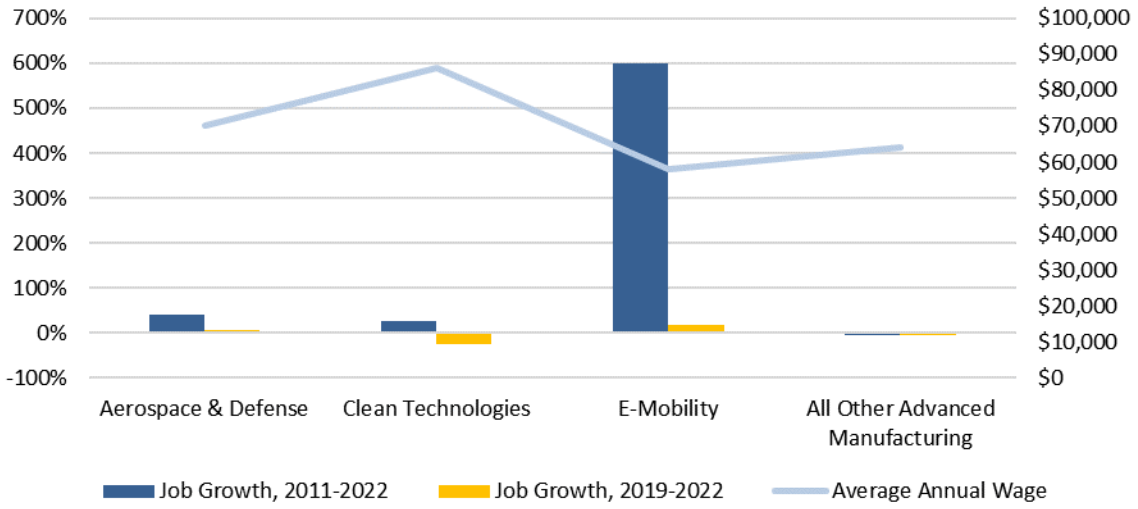
Figure 24: Change in employment and employment concentration (location quotient) in Advanced Manufacturing, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis



Size of bubble indicates number of jobs, 2022.

Wages across the industry are high, but lowest in the fastest growing sector, E-Mobility.

Figure 25: Average annual wage and short- and long-term employment change in Advanced Manufacturing sector, 2011–2022. Sources: U.S. Census Bureau, Bureau of Labor Statistics, Bureau of Economic Analysis.



Strategic Position: SWOT

Nevada has already begun to diversify its industrial base, including sectors within the hospitality industry, and is well positioned to be ground zero for the energy transition. The development of the IT industry has enabled other tech-based sectors and industries, such as renewable energy and advanced manufacturing, to flourish in the state. Nevada's access and production of natural resources sets the stage for wide expansion and growth in the Natural Resources and Technologies industry, which has made its claim on the national stage as states begin to adopt clean energy initiatives and begin to move toward climate-friendly processes and technologies.

While the state benefits from natural resources, rich culture, quality of life, and diverse business and work opportunities it still struggles to ensure high quality healthcare, education, and affordable housing for its residents. The public sector is heavily understaffed; therefore, it is slow to change and suffers from various coordination and regulatory issues. Ineffective coordination between local governments contributes to ongoing issues such as a lack of doctors and nurses leading to low-quality healthcare services, a lack of teachers leading to low K-12 performance, and a lack of builders leading to housing shortage.

While the state benefits from natural resources, rich culture, quality of life, and diverse business and work opportunities it still struggles to ensure high quality healthcare, education, and affordable housing for its residents.

This section details the strengths, weaknesses, opportunities, and threats (SWOT) to enable the state and leading organizations to assess current capabilities as the basis for their future economic competitiveness (Figure 24). The framework for this SWOT analysis is based on overall core conditions that the economy needs to thrive. These economic conditions include human capital enablers (education, healthcare, community services) infrastructure enablers (water, energy, air, housing, land) and institutional enablers (governance and business environment, innovation system, workforce development). The SWOT also considers industry-specific assets, gaps, opportunities, and impediments to growth facing Nevada's target industries.

The SWOT is based on data collection and analysis; direct engagement with leadership of Regional Development Authorities (RDAs); a review of RDA strategy documents to understand nuances facing target industries in diverse regions throughout the state; extensive interviews with stakeholders across sectors to gauge their experiences and gain insights into key challenges and capabilities; and a review of previous statewide economic reports to understand the evolution of target industries over time.

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
• Location: proximity to California • Natural resources • Low taxes • Diversification of industries • Quality of life • In-migration	• Public sector capacity/ fiscal structure • Workforce development • Healthcare system • K-12 performance • Infrastructure: housing, broadband • Federal, state, and local regulatory issues: regulatory boards, licensing and permitting • Institutional inefficiencies of public organizations • Lack of coordination between local governments • Federal lands • Water availability	• Testbed for new tech • Supply chain • Expansion of freight transportation, passenger rail, and airports • On-shoring • Clean energy ecosystem • WaterWise and WaterSmart technologies • Startup and entrepreneurship ecosystem • Remote/hybrid work	• Exposure to economic cycles • Competition from Mountain West states • Cost of living • Skilled labor • Climate change

Strengths

Nevada's business-friendly, low-regulation and favorable tax environment have contributed to steadily increasing economic diversification into industries with relatively high wages, including health and medical services, manufacturing and logistics, and natural resources technologies. Nevada's location also provides accessible connections to established innovation and logistics hubs on the West Coast. Businesses located in Reno-Sparks have easy access to the fifth largest economy in the world, California, while operating at a lower cost. Southern Nevada enjoys a strategic location and pathways for goods movement from the Port of Los Angeles to the rest of the country. Natural resources provide stable revenue streams for the state, and the recent discovery of lithium has poised Nevada to be a leader in the clean energy revolution. Nevada's population, remote workers, and tourism continue to grow with Nevada ranked 10th in the United States for net migration.[35] The attraction of Nevada as a place to live and work stems from its high quality of life, reasonable cost of living, year-round outdoor amenities such as state and national parks, and world-class entertainment such as gaming, sports, and performing arts.

Nevada's location provides accessible connections to established innovation and logistics hubs on the West Coast.

Assets within Nevada's target industries provide opportunities for future economic growth and development. The development of the IT industry has enabled other tech-based industries to flourish in the state. The Transportation & Logistics industry is a key component of an integrated supply chain that links consumers and producers through multiple modes of transportation. The existence of Foreign Trade Zones (FTZs) is also an attractive asset for companies that export and import goods beyond U.S borders. Nevada's access and production of natural resources sets the stage for wide expansion and growth in the Natural Resources & Technologies industry, which has made its claim on the national stage as states begin to adopt clean energy initiatives and move toward climate-friendly processes and technologies. Through this transition, Nevada has an opportunity to lead the clean energy technologies and resources transition as battery storage manufacturers flock to the state. The ongoing green transition has provided an opening for the state to develop its own manufacturing hub by disrupting the traditional emission-based supply chain. As a result, E-Mobility has a fair position to propel itself into a mature advanced manufacturing industry. Finally, Hospitality, Tourism, Sports, & Creative Industries add great commercial value to Nevada. The industry is also transforming through innovations and application of new technology such as e-sports, cutting-edge film and production technology, and specialized sports medicine.

Weaknesses

Nevada is the second lowest ranked state in the United States for K-12 educational performance. Poor performance has resulted in low high school graduation rates and limited transition to post-secondary education, including skills training and college. The challenges of K-12 are compounded by a lack of coordination between workforce development programs, community colleges, and other higher education institutions and a lack of alignment with industry needs. These trends are impeding the supply of a skilled workforce needed to grow target industries. Additionally, despite strong population growth, key community infrastructures have not kept pace, including hospitals, childcare, elderly care and community services, affordable and quality workforce housing, and access to and utilization of broadband. These issues are particularly prevalent in rural parts of the state. Hiring difficulties for nurses, teachers, and builders/contractors exacerbate state economic challenges. Additionally, hiring issues in the state and local government delay permitting and licensing procedures. Nevada's economic and community development is restricted by federal lands. In addition, the state government operates in silos with limited commitment and coordination by key agencies to common economic development goals or industry challenges. The state lacks an integrated planning process with policy being developed on an ad hoc basis. Engagement with small businesses is fragmented across multiple state agencies with no one single agency charged with providing a coordinated leadership. Companies that consider moving their operations to Nevada lack a "one-stop shop" service from the state.

Companies that consider moving their operations to Nevada lack a "one-stop shop" service from the state.

Hiring difficulties for nurses, teachers, and builders/contractors exacerbate state economic challenges.

Education, workforce, infrastructure, and innovation system weaknesses limit growth and development of target industries in the state. Only 25% of Nevadans 25 years and older hold a bachelor's degree, resulting in a limited supply of highly skilled workers, especially for technology-focused industries. In addition, Nevada lacks technical programs at colleges and universities aimed at supporting targeted industries. An insufficient educated workforce creates a problem for the transportation and logistics industry as well since many jobs require a bachelor's degree. The green transition brings new jobs to Nevada, but the state does not have the educational infrastructure to support emerging green technologies. For advanced manufacturing jobs that require green energy expertise, the state is relying on migrating workers and out-of-state universities to provide the necessary training for its own workforce. Such gaps in skilled workers limits the state's ability to grow as a regional hub for green technologies and hampers its adaptability to new emerging technologies in the renewable energy field. Lack of land and industrial space limit opportunities for growth in manufacturing-related sectors. Lack of a coordinated statewide innovation strategy results in weak connections between research institutions and industries, immature mentorship networks and gaps in funding of early state research and development, which slows growth of research-intensive industries.

Opportunities

Nevada's business-friendly environment, quality of life, and proximity to the Bay Area and Silicon Valley provides great relocation incentives for entrepreneurs, startups, and established companies from other states. The recent influx of technology-focused companies (Tesla, Panasonic, Switch, Apple, and Google), local entrepreneurship activity, and ongoing government efforts to establish infrastructure that supports business entry into the state have resulted in over 500 technology-related conferences in Las Vegas each year, the Consumer Electronics Show with 180,000 visitors each January, and Fortune 500 tech corporate and partner events.[36] This influx of technology-focused talent makes the state a perfect base for user research, especially for consumer facing technology platforms. Besides having a great environment to attract technology-focused entrepreneurs, the state also has an opportunity to position itself as a "remote worker" destination for mobile millennials and generation Z workers with high-paying jobs from other states where the cost of living is higher. Also, the state has a unique opportunity to involve elderly and retired professionals as mentors and investors (especially in the Tahoe region) to strengthen its mentorship and capital support to local entrepreneurs and startups. Many of these individuals have decades of professional experience, access to financial capital, and an interest in mentoring up-and-coming entrepreneurs. Regarding infrastructure improvements, Nevada can address supply-chain gaps by expanding rail and airports. An inter-state railway system would connect major metropolitan cities like Reno and Las Vegas, as well as allow ports in California and Washington to efficiently transport materials and goods to Nevada.

This influx of technology-focused talent makes the state a perfect base for user research, especially for consumer facing technology platforms.

Nevada has a unique opportunity to attract highly qualified professionals and innovative companies to enhance future growth and development of Nevada's technology-based sectors. The state needs to align workforce development priorities with economic development priorities. Investments by IT companies attracted a pool of talented data scientists to the area providing a solid base for growth of the IT ecosystem. Additionally, proximity to San Francisco, with many mature and well-connected IT hubs, presents opportunities for an expanded talent pool for Reno-based companies and opportunities for networking. The presence of the full lithium supply chain within the state is a unique feature and enormous competitive advantage in Nevada's goals to become a major player in the EV supply chain. The state can grow its clean and renewable energy industry by assessing and investing in key assets and infrastructure required for the continued growth and success of this supply chain including physical infrastructure and a prepared workforce.

Threats

While Nevada's economy is diversifying, reliance on hospitality and tourism will continue to expose the state to economic cycles. A constantly increasing cost of living and stagnant wages in these sectors pose a real threat for residents. Therefore, it is important to support growth and development of target industries and develop relevant and affordable education and workforce development programs aimed at reskilling and upskilling those who want to change careers. Additionally, although proximity to California is an economic benefit in many ways, it also creates significant competition for talent. Nevada must provide more opportunities for career change possibilities and better education, healthcare, and other community services to prevent people from moving to other states.

Climate change and Nevada's unique geographical location makes the state vulnerable to wildfires and water shortages. A combination of the state's weather conditions, terrain, and vegetation make it particularly susceptible to the ignition and spread of high-intensity rapid-moving fires in wilderness areas. The state also receives the lowest average annual precipitation in the nation, exacerbating fire conditions, and limiting economic expansion. Climate change in Nevada poses a real threat for many industries including agriculture, hospitality, entertainment, and mining. Water will continue to be a challenge especially in Southern Nevada. As groundwater supplies decline, farmers in rural Nevada are impacted as they have fewer essential resources to sustain their farms. When water sources are depleted for farmers, they are often forced to move due to the lack of other industries and jobs nearby. The Southern Nevada Water Authority notes that it has the equivalent of only eight years of water stored in reserve for future use. The persistence of decades-long drought conditions has resulted in significant water-level declines in major system reservoirs. The combined water storage in the Colorado River's two primary reservoirs (Lake Mead and Lake Powell) is at just 32% of capacity. Climate change is a threat to the metals and mining sectors. Mining is one of the most water-intensive industries. Although efforts have been made to increase the efficiency with which the industry uses water, more and worse droughts and greater competition for water resources are posing growing challenges. Overall demand for water will rise as Nevada plans to focus on batteries, renewable energy, and other green technologies, therefore, it is important to prioritize climate change-induced water shortages as they threaten the expansion of target industries.

Climate change in Nevada poses a real threat for many industries including agriculture, hospitality, entertainment, and mining. Water will continue to be a challenge especially in Southern Nevada.

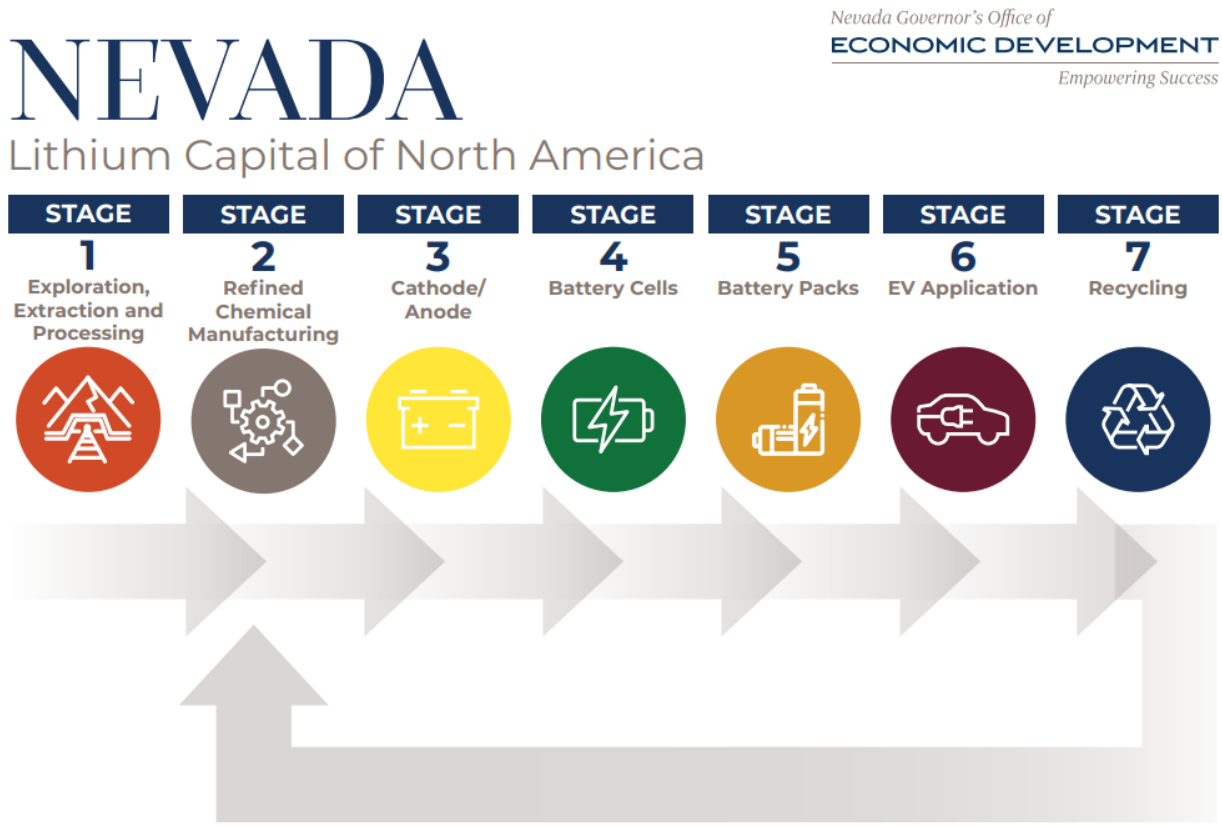
Strategy and Action Plan

This statewide economic development strategy for Nevada is a roadmap to help the state realize its vision for the future: a sustainable, innovative, and connected economy with high paying jobs for all Nevadans. Nevada's unique economic assets from its competitive business environment and nascent innovation ecosystem to natural resources and geographic location make it primed for explosive growth in the years ahead and a cornerstone of national security. Success, however, depends on the state's ability to not only capitalize on assets but address critical gaps and strengthen coordination and collaboration among stakeholders. This strategy and action plan details recommendations for the Governor's Office of Economic Development to advance this vision.

	Goal	Actions
Electric Nevada	Nevada will be a global leader in the development and utilization of clean energy innovations. It will capitalize on its strengths, strength national security and vulnerable supply chains, and export the innovative processes and products in mining and production of batteries and solar energy to new global markets supported by a robust, statewide EV and energy storage infrastructure. In short, Nevada will be ground zero for the energy transition.	Conduct value chain analysis of the vertical supply chain of the EV production system. Enact specific regulatory changes and seek federal funding partnerships for the development, testing, and commercialization of solar energy-related innovations. Facilitate the work of Regional Transmission Organization and Greenlink Nevada through wider stakeholder engagement to ensure completion of utility connectivity across the state. Mobilize federal and other resources for the expansion of statewide EV infrastructure.
Innovative Nevada	Nevada's economy will be supported by a thriving innovation ecosystem that builds on state assets, history, and culture; supports collaboration between academia, industry, and government; engages a workforce with technical skills at all levels; attracts a diverse portfolio of investments; and develops and commercializes world changing new ideas, products, and processes.	Create a unified vision for how innovation will be supported in the state. Close the gap between university startup funding and follow-on private investments in new companies and innovations. Strengthen university technology transfer throughout the state. Expand the STEM workforce pipeline to align with target industries. Grow Nevada's role as a global leader in the development of policy and innovative technologies to address water scarcity.
Connected Nevada	Nevada will have next generation infrastructure that connects industries and businesses within the state for new economic opportunities. The state will capitalize on its strengths and enhance its connectivity efforts by updating multi-modal inland ports and industrial parks, adding new rail links, and expanding broadband infrastructure. Nevada will make investments as necessary to convert its unique geographic locations in the north and the south into connected hubs for re-shored supply chains and digital networks.	Support development of multi-modal inland port. Develop tech-ready industrial parks. Identify growth opportunities for freight rail that attract private-sector business and investment community funding. Support statewide airport-related infrastructure developments. Support expansion of broadband and 5G infrastructure.

Electric Nevada

Given the development in Nevada's clean tech industry and its complete electric value chain, Nevada is positioned to be ground zero for the energy transition and to play a key role in securing the energy independence and security of the United States. The development of the IT and Advanced Manufacturing industries, Nevada's access to and production of natural resources such as lithium, and its proximity to innovation hubs and talent, has enabled clean energy to flourish in the state. The recent attraction of Redwood Materials has closed the electric value chain loop for electric batteries, the only state in the nation that can claim such a feature, giving Nevada a significant competitive advantage in the industry.



The state has also encouraged internal demand and development of renewable energy projects with renewable energy and incentive programs (e.g., SolarGenerations, HydroGenerations, Solar Thermal, Wind programs) for customers for installing wind, water, and solar power systems on residential properties and public buildings. Nevada's own company, Switch, also plays an important role in renewable energy and plans to build the largest solar project in the United States. The Gigawatt 1 project in Northern and Southern Nevada will produce low priced solar power and generate enough clean energy to power nearly one million homes.

An *Electric Nevada* will have an economy that leads in the development and utilization of clean energy innovations. An *Electric Nevada* will capitalize on its strengths and export innovative processes and products and production of batteries and solar energy to new global markets, while bolstering statewide EV and energy storage infrastructure. Below are four targeted actions to help Nevada realize this vision and place Nevada in the heart of the energy transition.

Action 1: Conduct value chain analysis of the vertical supply chain of the EV production

Owner/Supporters: GOED

Performance Metric: Comprehensive inventory of identified gaps in the vertical supply chain for component parts. Action plan to address them.

To increase capacity to deploy and export innovative processes and products related to mining and production of batteries, electric vehicles, and recycling to new global markets and to facilitate investments into rural counties and local government, GOED should commission supply chain studies of the component parts. These studies will identify bottlenecks (for example infrastructure, capital equipment or workforce skills) that need to be addressed to ensure full development. These constraints may be addressed by specific policy actions, for example refinements to tax abatements, the development of specialized workforce curricula, or specialized and enhance infrastructure.

Action 2: Enact specific regulatory changes and seek federal funding partnerships for the development, testing, and commercialization of solar energy-related innovations.

Owner/Supporters: GOED/ NSHE, GOE

Performance Metric: Number of new partnerships, programs, and investments targeting research, testing, and deployment of new solar energy technologies.

The state has a strong solar sector (87 solar companies of which 15 are manufacturers and 37 are installers/developers), but the sector needs greater support for development, testing, and commercialization of solar innovations to continue to grow. The state could partner with the Governor's Office of Energy (GOE) and Nevada System of Higher Education (NSHE) (research institutions and labs) for R&D projects and testing of solar-related innovative technologies. Industry experts note that from all renewable energy generation, solar photovoltaic (PV) is expected to grow the fastest from now until 2050.[37] Solar installations are integral parts of all electric grid interconnections all over the country. Therefore, Nevada should focus on development and commercialization of next-generation solar technologies such as solar skins and fabric, photovoltaic solar noise barriers and integrated

photovoltaics. GOED could introduce specific R&D and commercialization programs and funds through the Knowledge Fund and/or the Nevada Innovation Account aimed at new solar technologies.

Action 3: Facilitate the work of Regional Transmission Organization and Greenlink Nevada through wider stakeholder engagement to ensure completion of utility connectivity across the state.

Owner/Supporters: Public Utilities Commission (PUC), GOED, GOE

Performance Metric: Join a regional electricity market by 2030 and support implementation of Greenlink Nevada.

GOED has two key opportunities to support efforts to strengthen and ensure completion of utility connectivity, including the Regional Transmission Organization and Greenlink. A recent study for Advanced Energy Economy (AEE) by independent consulting firm Energy Strategies found that establishing a broad, Western US states organized electricity market known as a Regional Transmission Organization (RTO) would create 4,900–21,300 permanent, high-paying jobs (with an average salary of $65,000) in Nevada.[38] An RTO is a cooperation agreement that allows electric utilities across multiple states to share resources and leverage the cheapest, cleanest, and most efficient energy sources through an organized regional market. Currently, the West is one of the only regions in the United States without an RTO managing its power grid. The 11 states studied were Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. The analysis also found that a western RTO would diversify Nevada's economy and save ratepayers $32 million per year in energy costs. A western grid would also help homes and businesses keep the lights on. With a shared grid, Nevada could bring in energy from other states during seasons of extreme heat. In 2021, both Nevada and Colorado passed legislation directing utilities to join a regional market by 2030. A regional market could be a way of getting more low-cost energy that also helps Nevada meet its renewable energy goals.

Greenlink Nevada is a new renewable energy and electrical infrastructure initiative of NV Energy that will make Nevada a leader in the clean energy economy. The transmission initiative will be made up of Greenlink West (in service by December 2026) and Greenlink North (in service by December 2028).[39] Greenlink is essential to helping Nevada achieve its climate action and de-carbonization goals and increased renewable portfolio standard, moving Nevada closer to a future powered by 100% renewable energy, and reducing Nevada’s carbon footprint. It also creates a renewable energy highway that allows access to Nevada’s resource-rich renewable energy zones. It diversifies Nevada’s renewable portfolio by creating access to affordable wind and hydro energy across the western United States. It will improve NV Energy’s overall system reliability by providing a second critical statewide transmission connection. Greenlink will allow customers to enjoy more cost savings by sharing resources between Northern and Southern Nevada. Both RTO and Greenlink are essential for supporting current and future data hubs in Nevada.

Action 4: Mobilize federal and other resources for the expansion of statewide EV infrastructure.

Owner/Supporters: GOED, GOE, NDOT, PUC.

Performance Metric: Charging centers every 50 miles along state highways within the next five years. Percent/number increase in charging centers per year.

Nevada's public agencies and private sector are working together to develop a comprehensive statewide plan for installation of EV charging networks within the next five years. Transitioning vehicles from gas powered to electric will allow Nevada to boost the impact of benefits from its clean energy generation. Initially, Nevada's Strategic Planning Framework established the goal to complete the "Nevada Electric Highway" system serving the entire state by 2020, building on initial plans to install publicly available EV fast charging infrastructure along U.S. Highway 95 between Reno and Las Vegas. As a result, currently, Nevada has 485 public and private electric charging stations, more than 80 of which are direct current fast-charging stations. Furthermore, Nevada will receive $38 million in federal funding over the next five years to expand its grid of electric vehicle chargers, part of President Biden's bipartisan infrastructure law, with a goal to build a nationwide network of 500,000 charging stations. Nevada plans to prioritize a "full build-out" of charging centers every 50 miles along state highways, including both the 215 Beltway and Interstate 15 in Southern Nevada and Interstate 80 in the north. The next phase would address U.S. highways (U.S. 93 and U.S. 95) and other state routes. An efficient electric grid described in the previous action item will greatly enhance development of the EV infrastructure.

Innovative Nevada

Nevada's innovation ecosystem benefits from a strong entrepreneurial culture, dynamic economy, low cost of living, and easy access to West Coast markets. Furthermore, the state's Knowledge Fund acts as an instrument to recruit highly specialized science and research faculty, expand existing research areas, and assist applied research centers in supporting industry innovation in Nevada. Through the Knowledge Fund, GOED supports projects at the University of Nevada-Las Vegas (UNLV), the University of Nevada-Reno (UNR), and the Desert Research Institute (DRI). Most recently ABTC company (created through the Knowledge Fund initiative) was awarded $58 million as part of the Battery Material Processing and Component Manufacturing Act to develop next generation scientists and engineers and create 150 high-skilled jobs. University of Nevada-Reno's Center for Applied Research (NCAR) is a leading player in Nevada's innovation ecosystem due to its intellectual capital, infrastructure (such as Living Lab), laboratories, and critical equipment that support new innovative companies. Most recently, the Nevada Innovation Account was created in the State General Fund and will be used to fund innovation-related programs starting in July 2023. The state, however, has low levels of entrepreneurship and R&D, and no unified vision for advancing innovation as a core driver of economic growth.

An *Innovative Nevada* will have an economy that builds on its assets in new ways, for example, by developing an innovation district in the southern part of the state, expanding emerging healthcare sectors in sports medicine and cosmetic surgery, and globally exporting clean-tech innovations for large facilities. An *Innovative Nevada* will address key challenges that impede the acceleration of a cohesive ecosystem to spur industry growth and job opportunities across the skills spectrum. These needs include a shared vision, funding for early-stage companies and ideas, a coordinated commercialization system across research universities, and increased STEM skills in the workforce. Below are nine targeted actions to help Nevada realize this vision.

Action 1: Create a unified vision for how innovation will be supported in the state.

Owner/Supporters: GOED Office of Science, Innovation and Technology (OSIT), LVGEA, EDAWN

Performance Metric: Host a Governor's Innovation Summit.

Nevada has two strong regional ecosystems, one in Reno (coordinated by the Economic Development Authority of Western Nevada EDAWN[40]), and one in Las Vegas (coordinated by Las Vegas Global Economic Alliance LVGEA[41]). However, Nevada's innovation ecosystem lacks a unifying vision for innovation resulting in a lack of coordination and alignment among various actors and programs that support statewide R&D, innovation commercialization, and entrepreneurship initiatives. This lack of coordination results in information and funding gaps, leaving research universities, and innovative businesses unaware of various support programs and incentives. In recent years, the University of Nevada-Las Vegas (UNLV), the University of Nevada-Reno (UNR), and the Desert Research Institute (DRI) have all increased their level of engagement with entrepreneurs and regional innovation ecosystems. However, the level and quality of engagement is far short of what is required for truly vibrant innovation ecosystems. To overcome these challenges, the state will need to develop a unified vision for innovation and spur stronger government, industry, academia, and civic collaboration. A unifying vision for innovation within the state could be developed at annual meetings, such as the Governor's Innovation Summit, during which representatives from public and private organizations share their plans and goals and develop coordinated actions. Such an event would highlight the importance of a unifying innovation vision for the state and would encourage collaboration between government agencies, research universities, and industries.

An example of such an event is the One Utah Summit organized by the Governor's Office of Economic Opportunity. One Utah is held twice a year, as a collaborative way in which the governor, alongside stakeholders, discusses relevant trends and topics. Each year, the summit highlights overarching topics in the region that are critical for economic growth in the state. For example, the 2016 summit focused on the theme "Innovate Utah." Besides representatives from various government agencies, it attracted more than 1,200 business and community leaders, small business owners, entrepreneurs, and students. One Utah relies on the expertise and experiences of a diverse group of stakeholders to help guide discussions and provide insights on how to navigate an innovative economy, while providing a platform for governing officials and stakeholders to collaborate and coordinate on shared goals.[42]

Action 2: Close the gap between start-up funding and follow-on private investments in new companies and innovations.

Owner/Supporters: GOED/NSHE

Performance Metrics: Increase in number of startup and accelerator support programs, by year. Increase diversification of projects funded by the Knowledge Fund, by technical domain and year, particularly for early-stage development.

Insights from stakeholder interviews reveal that breakthroughs in research from the lab to the marketplace is constrained by the lack of available early-stage capital and development support in Nevada. This "gap" extends between the end of government funding of basic research to the point at which existing companies or investors are willing to accept the risk to commercialize or invest in the technology or startup. This lack of early-stage development capital is a serious threat to future innovation opportunities for the state. To address this challenge, the state could work with research institutions and industry partners to co-fund startup and accelerator support programs as a capital and innovation support mechanism. These programs should address critical elements of technology development and startup formation from research institutions.

GOED manages the Knowledge Fund, which acts as an instrument to recruit highly specialized science and research faculty, expand existing research areas, and assist applied research centers in the effort to support industry innovation in Nevada. Through the Knowledge Fund, GOED supports projects at the University of Nevada, Las Vegas (UNLV), the University of Nevada, Reno (UNR), and the Desert Research Institute (DRI). To obtain the funding, the Nevada System of Higher Education (NSHE) submits applications to GOED for projects that could benefit from Knowledge Fund support. However, findings from stakeholder interviews indicate that the existing investments are too small and too centered on university research. Therefore, GOED should expand funding and the purpose of the fund to accelerator programs, startups, and commercialization partnerships as well as increase funding to eliminate "gap" funding for universities at later stages of research.

Action 3: Strengthen university technology transfer throughout the state.

Owner/Supporters: GOED, NSHE

Performance Metric: Develop the design for a consolidated statewide tech transfer system at NCAR. Include an implementation plan with a timeline, milestones, and resources needed.

Although R&D plays a critical part in the innovation landscape, the adoption of the technology for commercialized use plays a key role in a state's potential for economic growth. The adoption of research ideas to be commercialized is known as a technology transfer. For technology transfers to be successful the resources must be available for protecting intellectual property (IP) and accessing market potential, whether it be through venture capital, licensing, or patenting a product to sell. Currently Nevada has three tech transfer offices at UNLV, UNR, and DRI. DRI has partnered with UNLV to enable faculty and students to leverage each other's talent and resources to foster new research collaborations and transform technologies and inventions into new products and services in Southern Nevada. The first successful product of the new partnership was a commercial licensing agreement for Cumulus Weather Solutions LLC, a DRI-born startup company that builds weather decision support systems for the wind and solar energy industries.[43]

However, NCAR is a very strong leader in supporting incubation and tech transfer processes for new innovative firms. It has worked with over 110 companies and organizations to attract over $20 million in venture capital investment as well as $23.6 million in grants and other contracts for the UNR university during the last four years. NCAR currently has 13 companies on campus. Most recently three technology companies (Bioelectronica, NexTech Batteries, and LactaLogics) have emerged after successful business incubation and relocated to a commercial space. Due to its ongoing success in matching industry needs with academic goals, NCAR should become a leading applied research and development technology center for the state. Having one tech transfer office would consolidate and enhance support and funding of the statewide tech transfer opportunities. For example, to support and coordinate these tech transfer opportunities, the Arizona Board of Regents provides a consolidated platform for the state's three public colleges to receive the resources to bridge the pipeline between research and the market. Important to NCAR's efforts will be to ensure support for innovation in both the northern and southern parts of the state.

Action 4: Expand the STEM workforce to align with target industries.

Owner/Supporters: GOED/NSHE, GOWINN, OSIT colleges and universities

Performance Metric: Number of new workforce-industry partnerships in target industries with education programs at local colleges and universities by year.

The state should align workforce development priorities to economic development priorities. One critical step would be to bring the Governor's Office of Workforce Innovation (GOWINN) back into the Governor's office and empower it to coordinate and align all education and workforce development efforts in the state. As mentioned in GOED's 2017 In-Demand Occupation analysis, Nevada's target industries and advancements in automation require high levels of STEM workers, particularly those with middle-skills (those with technical skills and knowledge but hold less than a bachelor's degree). To expand the STEM workforce, the state must understand and measure industry demand of skills at all levels and assess the readiness of universities, community colleges, and other workforce programs

within relevant labor markets in the state. The impact of the pandemic on the hospitality industry offers an opportunity to expand the STEM workforce by increasing funding for high-value curricula and training programs to support the transition of low-skill workers in non-advanced industries to STEM fields and higher-wage occupations.

Truckee Meadows Community College's (TMCC) successful partnership with Panasonic Energy North America (PENA) is one such model. The GOED board approved $1.6 million of funding to TMCC to fill a workforce gap at PENA. Through this partnership TMCC will establish a training center in Reno that supports PENA in filling 400 jobs.[44] The TMCC and PENA partnership highlights the importance of partnerships between community colleges and industry players in providing the resources needed to train and up-skill individuals, as well as creating a pipeline to supply industry with skilled talent.

HAAS Automation is another such instance that bridges the gap between community colleges, skilled workers, and industry. In 2019, HAAS worked with LVGEA to relocate and expand their practices to southern Nevada.[45] HAAS was set to provide 1,400 jobs at an average hourly wage of $24. In 2022, the Center of Excellence by HAAS broke ground in Henderson, Nevada. This center will be equipped with a manufacturing environment that ensures students can acquire the hands-on experience needed to be successful in their careers. In addition to the hands-on experience, HAAS plans on implementing employer-tailored curricula so that the needs of the employers are met through the targeted training of the students. Initiatives like HAAS allow for individuals to acquire and utilize desirable skills while providing industry players with access to a skilled workforce.

Nevada also has a unique opportunity to connect STEM related fields to creative industries since the state is home to many artists, performers, and creators. Indeed, its hospitality and entertainment industry is an important part of the economy and has a global brand but needs to diversify and transition to higher-tech integration to sustain itself into the future. Digital art fields (e.g., video animation, user interface, artwork, and film) are growing and they depend on innovative technology sectors like IT, engineering, and advanced manufacturing. For example, Nevada's film industry has a great potential to grow. Las Vegas and Reno-Tahoe compete well internationally as a production location due to the brand, tax incentives, and a large community of talented professionals. However, film production is heavily driven by incentives, and Nevada's tax incentive package is not as good as in California, New Mexico, or Georgia. Besides competing on tax incentives, Nevada should consider supporting development of innovative industries for next generation technologies (e.g., AI sound design and AI screenplays, autonomous drones, drone goggles, ultra-HD 3D technology, dual virtual reality camera, and smartphone filmmaking gear) that would support and move digital arts, film, and other related industries to the next level. Connecting creative professionals to businesses and innovators in technology-driven industries and providing funding opportunities should become one of the priorities for the state. Technologies for creative industries should become a part of education programs at local colleges and universities as well. GOED could introduce specific R&D focused programs and provide funds through the Knowledge Fund and/or the Nevada Innovation Account aimed at development and commercialization of new technologies for creative industries.

Action 5: Grow Nevada's role as a global leader in the development of policy and innovative technologies to address water scarcity.

Owner/Supporters: GOED/SNWA, DRI.

Performance Metrics: Number of new locations funded for Watersmart technology per year.

Water scarcity in Nevada has been an ongoing issue for all major industries as well as residents. Therefore, the Southern Nevada Water Authority (SNWA) has been aggressively moving to reduce consumptive uses of water in the communities as well as modernizing complex infrastructure networks and system controls. Southern Nevada has done an effective job responding to the drought through water conservation. However, the state must accelerate the development and application of new smart infrastructures and technologies to scale water conservation efforts. For example, the SNWA will be piloting Xylem's Water Network Optimization solution to help optimize water system operations, water quality, energy, and operating costs.[46] The SNWA is also working to implement smart irrigation controllers for homes and commercial properties that will adapt to weather conditions. Additionally, The City of North Las Vegas, the City of Henderson, and the Las Vegas Valley Water District (LVVWD) are all implementing advanced metering infrastructure in various phases—a smart meter gives SNWA real-time data on each residence's water usage, which they can then share with consumers. These innovations can be exported to further the state's economy and sustainability and situate Nevada as a global leader in water technology.

Innovative technologies can be exported to further the state's economy and sustainability and situate Nevada as a global leader in water technology.

The SNWA also passed a resolution supporting a moratorium on the installation and use of evaporative cooling mechanisms in new commercial and industrial buildings in the Las Vegas Valley. This restriction does not apply to single-family homes. Evaporative cooling mechanisms are highly water intensive and are Southern Nevada's second largest consumptive use of water, exhausting nearly 10% of Southern Nevada's Colorado River allocation annually. The Las Vegas Valley Water District approved the new conservation measure, ensuring that after September 1, 2023, no new permits in their service area will be approved for commercial and industrial buildings that plan to be evaporatively cooled. The other SNWA member agencies will also need to adopt and enact this measure into regulatory codes, ordinances, and policies before this moratorium can be enforced. Alternative cooling technologies are available that are less water intensive, and SNWA offers incentives to replace evaporative cooling. This policy serves as a framework for GOED to assess the types of assistance it offers to businesses based on tradeoffs between economic impact and water usage. These actions represent Nevada's leadership in bold policy development in a resource-scarce environment. As technologies related to water and other resources evolve in the state and as global challenges to natural resources persist, Nevada should continue to lead the world in innovative policies that address critical needs and advance the economy.

Most recently, a newly funded National Science Foundation (NSF) project based at the University of Nevada-Reno will bring together water suppliers, users, policymakers, and academics. The project, Nevada Water,[47] has a goal to structure and set goals for the Nevada Water network. The next step is to apply for a 5-year $15 million Track 1 grant through the NSF Sustainable Regional Systems Research Network program.

To address the water scarcity issue as well as to support growth of the water technologies sector, GOED could introduce specific water technology development programs together with SNWA and

help innovative companies and startups develop, test, and commercialize new water-smart related technologies.

Connected Nevada

To diversify the economy and grow target industries, Nevada needs a new generation of infrastructure. Availability of high-quality and high-speed broadband is essential for economic development since it enables institutions, business, and residents in Nevada's urban, rural, and remote areas to communicate and provide and receive critical services. Greater transportation connectivity is also needed to support a growing and diversifying population. Industrial land, industrial parks, and critical infrastructure at existing parks are essential for changing industry landscape of the state.

The state has been working on various infrastructure projects. Implementation of Nevada's Comprehensive Connectivity Strategy as well as the new High-Speed Nevada Initiative will be enhanced by $100 million from the Infrastructure Investment and Jobs Act (IIJA). Additionally, the Inter-Tribal Council of Nevada recently received an $18.9 million grant from the National Telecommunications and Information Administration to expand internet access to 11 Tribal communities in Nevada. The City of Las Vegas secured an agreement with Axios Nevada to develop a high-capacity transit line that would connect Downtown Las Vegas to the Medical District and Downton Summerlin.

A *Connected Nevada* will have next generation infrastructure that connects industries and businesses within the state for new economic opportunities. A *Connected Nevada* will capitalize on its strengths and enhance its connectivity efforts by updating multi-modal inland ports and industrial parks, adding new rail links, and expanding broadband infrastructure. The following targeted actions will help Nevada realize this vision.

Action 1: Support development of multi-modal inland port.

Owner/Supporters: GOED, RDAs.

Performance Metric: GOED to provide annual updates on implementation activities and progress for each proposed inland port.

Southern Nevada's population has been increasing rapidly, growing twice as fast as the average for U.S. metro areas since 2010. Therefore, greater transportation connectivity is needed to support a growing and diversifying population within the state. Global supply-chain disruption caused by the pandemic has also contributed to the renewed attention on inland ports. Inland ports are non-coastal, but have direct access to highway, railway, and air transport facilities. Inland ports are mentioned in the state's Plan for Recovery & Resilience, which highlighted better integration and connectivity between Southern and Northern Nevada as one of the priorities. As a result, the Northern Nevada Development Authority (NNDA) proposed the establishment of two inland ports in 2021 along the state's western front. One port would be in the Fernley area in Northern Nevada. The other port would be in Jean-Ivanpah Valley in Southern Nevada. Establishment of these two inland ports would be linked by North-South rail lines: Fernley and Innovation Park in Northern Nevada and Jean and Ivanpah Valley in Southern Nevada. These ports would connect through a 400-mile stretch of existing freight rail and trucking networks. As a result, this North-South linkage will foster economic diversification, growth and resiliency of the state, and connectivity to other states.

Most recently, Fernley's 'Victory Project' received a $25 million federal grant.[48] This grant is part of the Bipartisan Infrastructure Law and provides Fernley with the means to be an integral hub in the West for the distribution of goods. The grant will help complete a link between two major federal highways

by funding road, bridge, and rail improvements; creating an inland port designed for additional rail capacity; increasing the efficiency of the supply chain; and helping lower the cost of goods leaving

Action 2: Develop tech-ready industrial parks.

Fernley. The entire Northern Nevada area will benefit from better highway and railway connections, a more efficient supply chain, and expansion of logistics and manufacturing capacity.

Owner/Supporters: GOED/Apex Industrial Park, UNLV's Harry Reid Technology Park, BLM, SNWA, NV Energy.

Performance Metric: Create a $100 million Industrial Park Infrastructure Fund for grants to build out critical facilities to make Nevada's industrial parks competitive with Utah and Arizona. GOED to coordinate and report out kick-off meeting for key stakeholders.

The lack of industrial land, industrial parks, and critical infrastructure at existing parks is closing opportunities for Nevada just when major tech companies are seeking to make investments in data centers. Apex Industrial Park is the largest industrial park in Southern Nevada and is strategically located between major West Coast and Southwest hubs. There is an opportunity to bolster Apex's offerings by attracting more diverse businesses, including solar power plant developers and electric car manufacturers, and providing the necessary infrastructure these various businesses require. UNLV's Harry Reid Technology Park also has great opportunities to attract next generation technology-focused companies. It is expected to generate 25,000 new jobs and $2.6 billion in direct and indirect economic impact in Las Vegas. The state also plans to lease the Jean Prison property for private commercial use. The Jean location, with its proximity to California and the Pacific Rim ports, is ideal for a low-impact industrial park-based development. Initial economic impact during the construction phase of the property is estimated to bring in 8,387 total jobs. Total dollar economic impact per year to the region during the construction phase is expected to be $341.2 million. Due to these benefits, the state intends to lease the Jean Prison property, including the 471 acres under patent.

To make it more attractive to innovation and sustainability-focused companies, a tech-ready industrial park could focus on industrial symbiosis. Companies could gain a competitive advantage through the physical exchange of materials, energy, water, and by-products, thereby fostering inclusive and sustainable development. Such eco-industrial parks would promote resource efficiency and circular economy practices.[49] Such tech-ready parks could also be next to multi-modal hubs[50] that connect multiple modes of transport and increase the efficiency and speed of movement.

In the meantime, GOED will work with the Bureau of Land Management (BLM), NV Energy, SNWA, and Apex landowners on an infrastructure development plan for Apex Industrial Park. GOED will fund ($65M) the acceleration of the SNWA pipeline to Apex. GOED will work with UNLV to stablish a development plan for the remaining acreage in the Harry Reid Technology Park. The state should also support the Clark County Lands Bill[51] to swap federal public land for private development in the Las Vegas Valley.

Action 3: Identify growth opportunities for freight rail that attract private-sector business and investment community funding.

Owner/Supporters: NDOT/GOED

Performance Metric: Greater private investment for freight-rail infrastructure development.

Nevada has railroads at the heart of its development, with Reno, Sparks, Las Vegas, Caliente, Winnemucca, and many other towns founded with the arrival of rail. While railroads are hardly top of mind in the 21st century, they are key to Nevada's sustainable and successful future. The Nevada rail system has receded from its 1914 peak of 2,422 miles to its current 1,193 miles while the state's population and industrial activity continue to expand. *The Nevada State Rail Plan*[52] (NVSRP) supports Nevada's commitment to creating a balanced transportation system that moves goods and people sustainably.

Some of the goals of NVSRP are to integrate rail and truck transportation for logistics services that capitalize on the strategic location of the state and its businesses; integrate freight transportation with strategic land-use planning; develop options for the efficient transportation and distribution of minerals and bio-resources and their return logistics for recycling, reuse, and re-manufacturing; explore how the state can leverage private-sector passenger rail initiatives and expand Amtrak service; and establish a public/private funding mechanism for new rail infrastructure. The NVSRP has been organized to facilitate eight rail-development regions. Eighty rail expansion projects offering an investment opportunity of $7.8B are highlighted in *The State's Rail Service and Investment Program.* However, the NVSRP faces challenges to state rail plan implementation such as funding for rail infrastructure, organizational commitment, and regional marketplace dynamics that limit rail expansion. GOED could work with NDOT to identify and promote the most attractive opportunities for private investors since freight-rail development is essentially a private-sector activity.

Action 4: Support statewide airport-related infrastructure developments.

Owner/Supporters: Airport Authorities/GOED

Performance Metrics: Develop and post a single, statewide dashboard that reports project details and progress by airport by quarter.

As Nevada continues to grow and support new businesses, residents, and visitors the state must ensure that its infrastructure is able to support that growth. Nevada has already begun to make headway in expanding its infrastructure capability as well as enhancing the existing infrastructure of the state's airport sector. GOED should support the expansion of Harry Reid International Airport to increase capacity for growth in the state. Southwest Airlines just announced that it will build a 130,000-square-foot aircraft maintenance hangar at Harry Reid International Airport in the next five years.[53] During December of 2022, Harry Reid International Airport drew more than 5 million visitors in a single month,[54] leading airport officials to announce plans to upgrade the facility's often sold-out parking options. Other extension possibilities for the airport could be an intermodal infrastructure expansion such Amtrack integration with the airport. The U.S. Department of Transportation's Federal Aviation Administration will award an estimated $58.6 million to Nevada's 30 airports from funding made available by the Bipartisan Infrastructure Law[55] for airport-related projects as defined under the existing Airport Improvement Grant and Passenger Facility Charge criteria. This is the first of five annual rounds of funding Nevada airports will receive. The following commercial airports in Nevada

are estimated to receive funding during the first year of the Bipartisan Infrastructure Law: Boulder City Municipal in Boulder City: $1,954,538; Elko Regional in Elko: $1,012,955; McCarran International in Las Vegas: $43,982,805; and Reno/Tahoe International in Reno: $6,851,041. The money can be invested in runways, taxiways, safety, and sustainability projects, as well as terminal, airport-transit connections, and roadway projects.

Action 5: Support expansion of broadband and 5G infrastructure.

Owner/Supporters: GEOD, legislature, RDAs, OSIT, rural counties and cities, internet service providers.

Performance Metrics: % increase in connectivity, download speeds, and reliability by provider by year. Increased diversification of providers by region.

Broadband access is still a big issue in rural and urban areas of Nevada. It impacts schools, libraries, hospitals, and other public and private organizations even more with post-pandemic remote learning and working circumstances. Broadband is essential for economic development since it enables institutions, business, and people in Nevada's rural and remote areas to communicate and provide critical services particularly in rural areas. The number of public and private internet users in rural areas continues to increase. However, some businesses simply cannot operate without reliable, affordable high-quality, high-speed broadband and internet services. Therefore, it is important to solve this problem to attract more businesses, institutions, and residents and boost economic development of rural areas. Currently, broadband in rural areas is characterized by a lack of choice of providers and is vulnerable to disruption in supply due to a lack of quality. Main obstacles to a better supply and quality of broadband include federal regulations, resource limitations, and a lack of coordination between private and public entities.

To address these obstacles, Nevada's Governor's Office of Science and Technology (OSIT) developed the Nevada Comprehensive Connectivity Strategy with five long-term goals: (1) access to affordable adequate broadband service at home, school, and work for every Nevadan and community anchor institutions such libraries, schools, universities, colleges, 2-year colleges, and healthcare providers by 2029, (2) every student has access to a connected device (laptop, tablet, or Chromebook) and a broadband connection at school and at home capable of supporting virtual learning, (3) development and implementation of a plan that provides broadband infrastructure access to all hospitals, clinics, Tribal clinics, and prison systems in the state by 2025; (4) access to broadband infrastructure and access to a workforce skilled in broadband infrastructure construction should be an economic development competitive advantage for Nevada; (5) by 2023, a statewide coordinated effort exists to expand the reach of digital equity and inclusion programming.

Implementation of Nevada's Comprehensive Connectivity Strategy as well as new the High-Speed Nevada Initiative will be supported by funds from the Infrastructure Investment and Jobs Act (IIJA). Nevada will receive a minimum allocation of $100 million to help provide high-speed internet across the state, including providing access to at least 123,822 Nevadans who currently lack it. Governor Sisolak recently launched the High-Speed Nevada Initiative, funded in part with IIJA funds, to close the digital divide in unserved and underserved communities. Additionally, the Inter-Tribal Council of Nevada recently received an $18.9 million grant from the National Telecommunications and Information Administration to expand internet access to 11 Tribal communities in Nevada. The IIJA also helps low-income families afford internet access through the Affordability Connectivity Benefit program. Approximately 26% of people in Nevada are eligible for this program.

Performance and Evaluation Plan

The performance and evaluation plan provides a framework for GOED to track progress of its strategies. The framework tool provides tracking information for each action item, including:

- Goal
- Action item
- Performance Metric
- Owner & Supporter
- Relevant Program & Funding
- Timeline
- Status

The performance measures presented allow GOED and its stakeholders to first measure the progress of its strategies and then to adapt and improve its work. Performance measures include some program activities (largely conducted by GOED) in support of community and economic development but are primarily outcomes for the state. These include a mix of outcomes that enhance Nevada's capabilities and longer-term outcomes such as job and wage growth.

ELECTRIC NEVADA					
Action Item	**Performance Metrics**	**Owner & Supporter**	***Relevant Program & Funding****	***Timeline****	***Status****
1: Conduct analyses of the vertical supply chain of the EV production system.	Comprehensive inventory of identified gaps in the vertical supply chain for component parts. Action plan to address them.	GOED			
2: Enact specific regulatory changes and seek federal funding partnerships for the development, testing, and commercialization of solar energy-related innovations.	Number of new partnerships, programs, and investments targeting research, testing and deployment of new solar energy technologies.	GOED, NSHE, GOE			

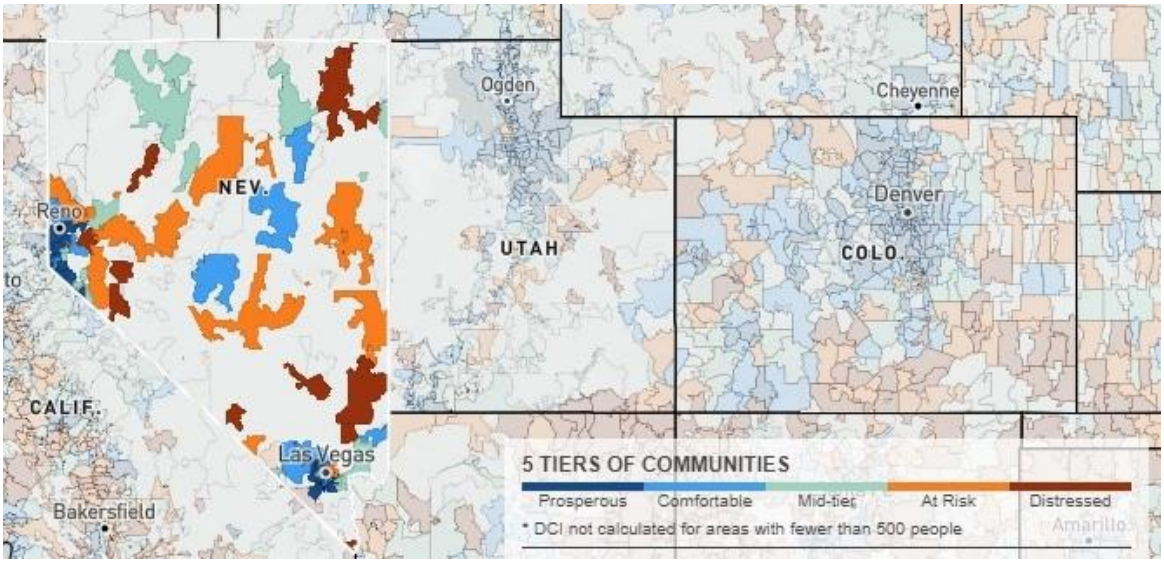
3: Support Regional Transmission Organization and Greenlink Nevada to ensure completion of utility connectivity across the state.	Join a regional electricity market by 2030 and support implementation of Greenlink Nevada.	PUC, GOED, GOE			
4: Support the build out of statewide EV infrastructure.	Charging centers every 50 miles along state highways within the next five years. Percent/number increase in charging centers per year.	GOED, GOE			
INNOVATIVE NEVADA					
Action Item	**Performance Metrics**	**Owner & Supporter**	***Relevant Program & Funding****	***Timeline****	***Status****
1: Create a unified vision for how innovation will be supported in the state.	Host a Governors Innovation Summit.	GOED, OSIT, LVGEA, EDAWIN			
2: Close the gap between university startup funding and follow-on private investments in new companies and innovations.	Increase in number of start-up and accelerator support programs, by year. Increase diversification of projects funded by the Knowledge Fund, by technical domain and year, particularly for early-stage development.	GOED, NSHE, GOE			
3: Strengthen university technology transfer throughout the state.	Develop the design for a consolidated statewide tech transfer system at NCAR. Include an implementation plan with a timeline, milestones, and resources needed.	GOED, NSHE			
4: Expand the STEM workforce to align with target industries.	Number of new workforce-industry partnerships in target industries with education programs at local colleges and universities by year.	GOED, NSHE, colleges and universities			
5: Grow Nevada's role as a global leader in the development of policy and innovative technologies to address water scarcity.	Number of new locations funded for Watersmart technology per year.	GOED, SNWA			
CONNECTED NEVADA					
Action Item	**Performance Metrics**	**Owner & Supporter**	***Relevant Program & Funding****	***Timeline****	***Status****
1: Support development of multimodal inland port.	GOED to provide annual updates on implementation activities and progress for each proposed inland port.	GOED, NNDA			

2: Develop tech-ready industrial parks.	Create a $100 million Industrial Park Infrastructure Fund for grants to build out critical facilities to make Nevada's industrial parks competitive with Utah and Arizona. GOED to coordinate and report out kick-off meeting for key stakeholders.	GOED, Apex Industrial Park, UNLV's Harry Reid Technology Park, BLM, SNWA, NV Energy.			
3: Identify growth opportunities for freight rail that attract private-sector business and investment community funding.	Greater private investments for freight-rail infrastructure development.	NDOT, GOED			
4: Support statewide airport-related infrastructure developments.	Develop and post a single, statewide dashboard that reports project details and progress by airport.	Airport Authority, GOED			
5: Support expansion of broadband and 5G infrastructure.	% increase in download speed, reliability, and choice of providers.	GEOD, legislature, RDAs, OSIT, rural counties and cities, internet service providers			

For GOED to add as the action items are being implemented.

Leadership Plan for Inclusive Growth

Nearly 13% of Nevada's population lives in distressed communities located throughout the state.[56] GOED and its partners can complement strategies to accelerate the growth of target industries with strategies to address economic disparities among Nevada's diverse communities and prioritize collaboration with community leaders, such as the Southern Nevada Enterprise Community (SNEC), to understand the challenges these communities face and specific programmatic interventions necessary to mitigate them. This section summarizes economic and community conditions in the state's most distressed zip codes and offers leadership recommendations to support inclusive growth. The strategies presented in this section underscore GOED's goal to develop communities that are diverse, skilled, equitable, healthy, and creative and that provide residents with important public services.



Economic and Community Conditions

To assess economic and community conditions in Nevada's distressed communities, this analysis applies the Distressed Communities Index (DCI) developed by the Economic Innovation Group (EIG). DCI is a tool for measuring the comparative economic wellbeing of U.S. communities and illuminating ground-level disparities across the country.[57] DCI includes measures across seven key indicators, including share of population with no high school diploma, poverty rate, share of adults not working, housing vacancy rate, median household income, change in employment, and change in establishments (number of businesses within the physical location).

Nevada's share of residents living in distressed communities is on par with the U.S. (14.8%) and peer state Arizona (13%), and greater than Utah (.9%), which has very little distress. Distressed communities within Nevada are concentrated in three regions: Northeast, Northwest, and Las Vegas.

Distress Indicators for Regions within Nevada, Source: Economic Innovation Group, Distressed Communities Index.[7]

Indicators, 2016-2020	Elko (89801)	Reno (89501)	Las Vegas (89101)
No HS Diploma	14.9%	6.6%	34.3%
Poverty Rate	11.1%	25.9%	31.8%
Adults not Working	19.7%	24.2%	42.0%
Housing Vacancy Rate	7.5%	9.3%	12.3%
Median Household Income	$78,400	$44,400	$28,100
Change in Employment	4.5%	-1.0%	9.0%
Change in Establishments	-0.4%	11.8%	-0.8%

Northeast Region (Elko)

Distressed communities in the Northeast region include Wells (89835) and Jackpot (89825) communities, located in the northeast. These communities are primarily comprised of small towns and ranching communities. The poverty rates in Wells and Jackpot are above the national average (12.8%)[58] with 30.7% and 24.8%, respectively. Residents in Wells have fared better than their peer community, Jackpot. Wells has seen a notable increase in employment opportunities, a 20.5% increase in businesses moving to the area, and a median household income of $48,000. Most residents in the area are employed in retail sales. Jackpot has experienced harsher economic realities with a 3.1% decrease in employment opportunities, a 16% decrease in businesses moving out of the, and a median household income of $25,500.

[7] See Appendix B for more detailed data based on zip code.

Northwest Region (Reno)

Distressed communities in the Northwest region include Schurz (89427), Hawthorne (89415), Silver Springs (89429), and Lovelock (89419). Since these distressed communities are located around Reno, their economies are primarily supported by manual labor (e.g., mining, oil extraction, agriculture, construction) and service jobs (healthcare, social services, food service) which support Reno's booming outdoor and recreation economy. Compared to the national average, these communities are experiencing a high level of unemployment and lack of job opportunities. Lovelock is primarily supported through mining, quarrying, and oil extraction operations. While mining is a booming industry in Nevada, 63.7% of Lovelock's adult population is not working, which is more than twice the national average of 21.4%. Schurz is primarily supported with construction jobs, and 44% of adults are not working in the community. Silver Springs houses Silver Springs Airport, which was recently renovated in 2016. Most of the residents commute out of the area for work and primarily work in retail, healthcare, and construction. Silver Springs has experienced more than a 10% decrease from 2016 to 2020 in the percentage of adults that work in the community, as well as a 13% decrease in the number of businesses located in the community.

Las Vegas Region

Distressed communities in the Las Vegas region include Caliente (89008), Whitney (89122), Alamo (89001), Beatty (89003), North Las Vegas (89030), Las Vegas (89106, 89102, 89101), Sunrise Manor (89104), Winchester (89109), Paradise (89169, 89121), Indian Springs (89018), Laughlin (89029), and Moapa Town (89025). Most of the communities surrounding Las Vegas are primarily supported through accommodations and food services sectors. Due to the proximity of Las Vegas, communities like Sunrise Manor and North Las Vegas have seen positive increases in job opportunities and businesses moving to those communities. However, Sunrise Manor and North Las Vegas also continue to experience high poverty rates (28.2% and 29.4%, respectively), which are more than twice the national average (12.8%), and high shares of adults not working.

Strategy and action plan

The success of Nevada's economy rest on a solid foundation of educated, healthy, and connected communities with capable public services and access to quality jobs. The goal of the leadership plan is to ensure that residents throughout the state, regardless of background or zip code, can contribute to and benefit from economic growth. As the state's primary economic development organization, GOED will work alongside key stakeholders to support Nevada's communities in building capacity and providing opportunities to capitalize on growth and development of target industries for future statewide prosperity.

	Goal	Action
Effective Government	Improve government services and capacity in high need communities	Set a goal for annual reduction in public sector vacancies and review obstacles to workforce retention and expansion. Simplify state's occupational licensing and renewals processes by implementing reciprocal license practices.
Aligned Workforce	Increase job access	Promote stronger target industry engagement in K-12 to bolster the future talent pipeline. Support a coordinated statewide strategy to align K-12 performance with target industry needs.
High-Quality and Accessible Healthcare	Prioritize health and well-being of residents and strengthen the state's healthcare industry	Support innovative medicine efforts to bolster healthcare quality. Develop model collaboration agreement for NSHE institutions and hospitals to expand healthcare practitioner training programs. Review key obstacles to achieving a long-term comprehensive strategy for statewide healthcare system improvements. Improve access to healthcare in rural areas.
High-Quality Community	Ensure resource availability and access	Establish a "one-stop shop" website to address the needs of communities and to communicate funding and other services available to all distressed communities.
Efficient Land Use	Expand opportunities for business activities while respecting natural resources	Review permitting on federal lands

Effective Government

Action 1: Set a goal for annual reduction in public sector vacancies and review obstacles to workforce retention and expansion.

Owner/Supporters: Department of Administration/GOED

Performance Metrics: Reduce public sector vacancies by 5% each year for the next five years.

Nevada's public sector currently has a vacancy rate of 25%[59] in staff positions, which places a huge burden on current staff and the overall performance of public institutions. Public sector inefficiencies have been highlighted as barriers to institutional change/modernization, process optimization, and better coordination amongst government agencies. During a few interviews stakeholders noted that public sector salaries are too low to attract the best talent and to fill vacant positions. This is echoed by GOED's 2017 In-Demand Occupational Analysis. Public sector roles such as teaching are facing shortages and low wages. Therefore, the Nevada's Department of Administration should establish a goal to reduce statewide public sector vacancies by 5% every year during the next five years. The department should evaluate and upgrade the proposed salaries and benefits to a national public sector average to attract highly qualified candidates. It should also offer relocation benefits to highly qualified candidates from other states.

Action 2: Simplify state's occupational licensing and renewals processes by implementing reciprocal license practices.

Owner/Supporters: Secretary of State/GOED

Performance Metrics: Develop a statewide reciprocal law for all licensing boards within the next five years.

Current occupational licensing restrictions are impeding Nevada's economic development and restricting the growth of the healthcare and construction sectors. Nevada has been working toward reciprocity opportunities for all licensing boards. Currently, Nevada has limited reciprocal agreements with California, Arizona, and Utah that recognize qualifications for certain trades and may eliminate the requirement for a trade examination. However, the lack of overall expedited service or reciprocity opportunities results in prolonged shortages of specialists, particularly in the healthcare (nurses), education (teachers), and construction (builders) industries. Reciprocal licensing makes it easier to attract specialists who are licensed in other states with mutual agreements to license people with the same or similar qualifications to those required in Nevada. Currently, 14 licensing boards provide reciprocity opportunities in Nevada. However, 16 still do not (for athletic trainers, physicians, cosmetologists, environmental health specialists, nurses,[60] occupational and physical therapists, optometrists, and podiatrists), which makes hiring processes longer and more difficult especially for the healthcare sector.[61]

For example, Nevada is not a part of the Nursing Licensure Compact (NLC) which restricts possibilities for hospitals and clinics to attract nurses from other states quickly. The NLC would be beneficial for Nevada nurses since it would allow them to consult patients remotely in other states as well. The NCL would also enhance nursing education possibilities for nurses that want to teach and mentor students in other states. Such possibility would open more out of state collaboration opportunities for teaching hospitals, universities and would contribute to the overall development of the healthcare sector. The Nevada State Board of Nursing has been trying for at least 10 years to get the nursing compact passed. Last year, NLC was introduced in the Nevada Legislature as Assembly Bill 142 but didn't pass.

In addition, Nevada suffers from a housing shortage and, consequently, housing affordability. However, the state has not been able to attract builders from other states. Builders and contractors must obtain a Nevada contractor's license[62] to conduct business in Nevada. For example, Florida, Louisiana, Colorado, Connecticut, Kansas, Indiana, Missouri, New Hampshire, New York, Ohio, Pennsylvania, and Wyoming do not require a specific state license for contractors.

Nevada should aim for a statewide reciprocal license law for all licensing boards to strengthen the healthcare, education, and construction industries to provide better services to communities.

Aligned Workforce

Action 1: Promote stronger target industry engagement in K-12 to bolster the future talent pipeline.

Owner/Supporters: GOED/Department of Education, K-12 schools, businesses

Performance Metrics: Increase STEM initiatives at high schools.

Nevada's ambitious economic development goals are centered on emerging technologies. These industries and technologies require a set of skills that are new but attainable for middle-skilled workers. Currently, Nevada's economy is dominated by a large pool of workers with either no formal educational credentials, or little to no higher education beyond high school. Low K-12 performance hinders future possibilities for residents to seek higher education and high-paying jobs. It also leads to skilled workforce pipeline issues for target industries since students leave high school without a relevant education base needed to pursue STEM credentials and, later, jobs in STEM fields. To address these issues, GOED could work with new and existing companies to establish and fund/co-fund various innovation and technology focused clubs (e.g., robotics, STEM, engineering, and life sciences) for high school students to encourage their interest in science and further their academic pursuits in the field. An example of such an initiative is the Nepris for Nevada program.[63] Another example is LifeWorks, the initiative funded through the New Skills for Youth grant that was awarded to the Nevada Department of Education by JPMorgan Chase & Co in 2017. The educational programs offered through LifeWorks expanded career pathways for students by providing technical education and experience. Companies operating within Nevada's target industries as well as high school students would benefit from developing partnerships within such programs and bolstering the future talent pipeline.

Action 2: Support a coordinated statewide strategy to align K-12 performance with target industry needs.

Owner/Supporters: NDE / GOED, K-12 schools.

Performance Metrics: Meet and exceed annual K-12 performance goals.

K-12 education performance in Nevada has historically been below the national average. According to the Guinn Center for Policy Priorities, Nevada ranks 50th in chance for success, 49th in school performance, and 50th overall. Nevada K-12 schools underperform compared to the national average in ACT scores as well as English and math literacy. For example, math proficiency is only 21.2%, and English language proficiency is 45.7% in high schools based on 2021–2022 results.[64] Remediation rates (the rate of students who require additional education or training before enrolling in college-level courses) also remain high. Low K-12 performance hinders future possibilities for graduates to seek higher education and high-paying jobs. Math- and science-related capabilities are especially important for students seeking education and jobs in technology-related sectors, and particularly fast-growing STEM fields, such as nursing and engineering, that require post-secondary education. GOED's *In-*

Demand Occupational report shows that Nevada is below the national average for open jobs in nursing and engineering and both fields are having a challenging time recruiting fast enough to satisfy future needs (ongoing analyses from GOED about the current economic and workforce environment provides additional information to help target needs). Therefore, it is essential for high schools to prepare enough students for future jobs in growing target industries. The low performance could be improved by engaging industry in pipeline development and mentorship programs in high schools, ensuring curriculum that sets students up for success, and develop performance goals and leadership accountability practices at Nevada's high schools. GOED should work with the Education Department to establish long-term performance goals and incentive systems for high schools related to performance results.

High-Quality and Accessible Healthcare

Action 1: Support innovative medicine efforts to bolster healthcare quality.

Owner/Supporters: NSHE/GOED

Performance metrics: Expand medical research and infrastructure funding programs at university hospitals.

Innovations in medical treatment is a core driver of healthcare quality and generates substantial regional economic impact. Innovative medicine depends on public and private research spending at hospitals and universities. For example, National Institutes of Health (NIH) estimate that one research dollar received by an institution generates $1.86 in additional regional economic impact. According to the NIH, every $1 in investment in research stimulates an additional $2.35 of industry R&D investment after three years and $8.38 in industry R&D investment after eight years. Unfortunately, newer medical schools, especially those at universities with less developed research infrastructures, receive very little public R&D funding from the NIH. Therefore, it's important to have new research infrastructure as well as residency programs to ensure development of innovative medicine within the state of Nevada.

GOED and its partners can consider scaling innovative medicine efforts like The Kirk Kerkorian School of Medicine at UNLV. Its recent addition, the Medical Education Building, accommodates a class size of up to 120, doubling the school's prior capacity.[65] New features include training spaces for clinical skills, simulation, anatomy etc. Most of the project was funded by private donations (more than $150 million), including contributions from the Estate of Kirk Kerkorian, Engelstad Foundation, philanthropist Mary Kaye Cashman, and the Boyd Family Foundation. The state of Nevada contributed $25 million to the project and the largest corporate donation ($1 million) came from Bank of America. This project will expand possibilities for stronger medical and health science education and research programs. It will also lead to higher quality healthcare system in Southern Nevada.

Action 2: Develop model collaboration agreement for NSHE institutions and hospitals to expand healthcare practitioner training programs.

Owner/Supporters: GOED, NSHE, NHA

Performance Metrics: Protocol designed and accepted by NSHE and NHA.

A constraint on the workforce pipeline for nurses is the availability of experienced nursing instructors It's important to expand opportunities for experienced nurses to gain the necessary academic credentials for them to be able to teach at NSHE and other educational institutions. A significant barrier to widening the teaching pipeline is not just gathering the experienced nursing workforce, but also giving them the opportunity to gain the academic credentials that the higher education institutions require for them to be 'qualified' to teach, no matter how much clinical experience they have. This can be done at the community college level as well as the university level for the matriculation of the advanced nurse practitioners. Another solution is for community colleges and other programs for preparing nurses to decide for classes to be held on-site in participating hospitals. There, qualified practitioners can easily teach classes while continuing to discharge their professional responsibilities. Such an arrangement is a win-win for all involved. Senior practitioners get to share their knowledge and experience even as they continue to pursue their profession. Students have the experience of instruction in a hospital setting. Hospitals are supporting the professional development of nurses and other health practitioners that they need and can show off their workplace to students to facilitate recruitment. However, such arrangements can be complicated and involve legal, financial, and other administrative challenges. A solution is for NSHE and the Nevada Hospital Association (NHA) to develop a model protocol that provides any hospital and any workforce institution (community college, technical program, etc.) that wants to participate with a settled set of rules, agreements, and practices that can make the activity work smoothly.

Action 3: Review key obstacles to achieving a long-term comprehensive strategy for statewide healthcare system improvements.

Owner/Supporters: NSHE/ GOED

Performance metrics: Expand health services education programs at all levels of the education sector.

Nevada continues to have the highest share of one-star acute-care low-ranking hospitals nationally as indicated by the Centers for Medicare & Medicaid Services in July of 2022.[66] Six of the 14 major acute-care hospitals in the Las Vegas metro area were given a single star[67] in the annual ratings published by the federal agency. The highest rating for a Las Vegas metro hospital was three stars, given to four hospitals out of the area's 14. State leadership argues that Nevada has remained near the bottom of many healthcare rankings partly because of population growth. Despite the healthcare sector's growth in recent years, the most current data show that Nevada is an underserved healthcare state. Per capita, Nevada ranks 48th in the nation in physicians and 50th in primary care physicians.[68] Most stakeholders point to the role of education in strengthening the state's healthcare workforce. It is essential to expand health services education programs at all levels and to keep medical students in Nevada for their residencies. However, opportunities for residencies and more spaces in universities for additional students is an ongoing problem.

Action 4: Improve access to healthcare in rural areas.

Owner/Supporters: OSIT/GOED

Performance Metrics: Expand telehealth options in rural areas.

Telehealth is an important healthcare service especially for residents living in rural areas. It helps reduce barriers to care for those who live far away from healthcare services and specialists, who have time or access restrictions, or who have transportation or mobility issues. Telehealth is emerging as a critical component of the healthcare crisis solution in Nevada. It increases access to healthcare and reduces healthcare costs, and it improves health outcomes and support for patients and families. Telehealth also assists in addressing shortages and misdistribution of healthcare providers; nurses and specialists can serve more patients using telehealth technologies. Telehealth also supports clinical education programs especially for rural clinicians, improves overall organizational productivity, and reduces environmental impact by decreasing the related carbon footprint. Currently, there are 23 telehealth services available in Nevada,[69] however, there is still a lot of room for further expansion. Existing initiatives include the Rural Healthcare (RHC) Program[70] that provides support to eligible rural healthcare providers with reduced rates in telecommunications and broadband services; the Healthcare Connect Fund (HCF) Program that provides a 65% discount on eligible expenses related to broadband connectivity to both individual rural healthcare providers (HCPs) and consortia; the Telecommunications Program that provides reduced rates to rural HCPs for telecommunications services related to the use of telemedicine and telehealth.

High-Quality Community

Action 1: Establish a "one-stop shop" website to address the needs of communities and to communicate funding and other services available to all distressed communities.

Owner/Supporters: GOED

Performance Metrics: Online portal with resources for distressed communities, their residents, and their businesses.

During the interviews, representatives from distressed communities highlighted that the state should provide incentives for businesses to hire residents of distressed communities; support for minority-owned businesses; workforce training/reskilling opportunities; connections to businesses, industries, and regional Chambers of Commerce; and collaborations to solve the challenges of homelessness, access to healthcare, and mental healthcare. However, the state already provides some of these services,[71] but it fails to communicate all relevant information to local leaders of all communities. Some of the current initiatives include Rural Community & Economic Development programs,[72] the Emerging Small Business (ESB) program,[73] Procurement Technical Assistance Center (PTAC),[74] and Rural Relief Small Business Grants.[75] Therefore, GOED should facilitate all communication and collaboration with distressed communities about existing funding and other support opportunities.

Efficient Land Use

Action 1: Review permitting on federal lands.

Owner/Supporters: GOED/BLM

Performance Metrics: Negotiate longer (5-10 year) permitting periods for federal lands.

A high percentage (almost 87%[76]) of Nevada's land is owned by the federal government, which limits its use and excludes it from the tax base.[77] Private companies can apply for leases from the U.S. Bureau of Land Management (BLM) and explore various economic activities. Companies can apply for oil and gas permits to explore and produce energy on federal land, as well as permits for grazing animals on federal lands. However, the leases offered are usually short-term (two years), which makes them less attractive to private companies. Therefore, the state's leadership must continue to work with the federal delegation to establish longer permitting periods for federal lands to expand opportunities for various business activities. Reviewing, improving, and accelerating BLM 's procedures for releasing federal land for auction is also critical. Additionally, the agency's appraisal guidelines and rules should be revisited to attract a broader range of buyers. Finally, BLM should work with the local jurisdictions in designating parcels for residential and non-residential uses to protect and enhance the regions jobs-housing balance.

Performance and Evaluation Plan

EFFECTIVE GOVERNMENT					
Action Item	**Performance Metrics**	**Owner & Supporter**	**Relevant Program & Funding***	**Timeline***	**Status***
Set a goal for annual reduction in public sector vacancies and review obstacles to workforce retention and expansion.	Reduce public sector vacancies by 5% each year for the next five years.	Department of Administration for the State, GOED			
Simplify state's occupational licensing and renewals processes by implementing reciprocal license practices.	Develop statewide reciprocal law for all licensing boards within the next 5 years.	Secretary of State, GOED			
ALIGNED WORKFORCE					
Promote a stronger target industry engagement in K-12 to bolster the future talent pipeline.	Increase number of initiatives at various high schools.	GOED, Department of Education, K-12 schools, businesses.			
Support a coordinated statewide strategy on aligning K-12 performance with target industry needs.	Meet and exceed annual K-12 performance goals.	NDE, GOED, K-12 schools.			
HIGH-QUALITY AND ACCESSIBLE HEALTHCARE					
Support innovative medicine efforts to bolster healthcare quality.	Expand medical research and infrastructure funding programs at university hospitals.	NSHE, GOED			
Develop model collaboration agreement for NSHE institutions and hospitals to expand healthcare practitioner training programs.	Protocol agreed by designed and accepted by NSHE & NHA.	GOED, NSHE, NHA			
Review key obstacles to achieving a long-term comprehensive strategy for statewide healthcare system improvements.	Expand health services education programs at all levels of the education sector.	NSHE, GOED			
Improve access to healthcare in rural areas.	Expand telehealth options in rural areas.	OSIT, GOED			
HIGH-QUALITY COMMUNITIES					

Establish a “one stop shop” website to address needs of communities and to communicate funding and other services available to all distressed communities.	Online portal with resources for distressed communities, their residents, and their businesses.	GOED			
EFFICIENT LAND USE					
Review permitting on federal lands.	Negotiate longer (5-10 year) permitting periods for federal lands.	Secretary of State, GOED			

For GOED to add as the action items are being implemented.

Appendix A

Table 1: Data for employment and employment concentration (location quotient) for all target industries, 2011-2022. Sources: US Census, Bureau of Labor Statistics, Bureau of Economic Analysis.

Target Industry	2011-2022 Job Growth	2019-2022 Job Growth	2011-2022 LQ Growth	2022 Employment	Average Annual Wage
Information Technology	75%	16%	16%	24,656	$105,787
Transportation & Logistics	89%	26%	32%	111,046	$84,169
Natural Resources & Technologies	34%	6%	17%	40,240	$86,095
Hospitality & Creative Industries	12%	-19%	-20%	362,655	$57,319
Advanced Manufacturing	59%	6%	28%	45,869	$88,810

Table 2: Data for employment and employment concentration (location quotient) for Information Technology, 2011-2022. Sources: US Census, Bureau of Labor Statistics, Bureau of Economic Analysis.

Information Technology	2011-2022 Job Growth	2019-2022 Job Growth	2011-2022 LQ Growth	2022 Employment	Average Annual Wage
Broadband	-9%	-1%	1%	4,605	$75,172
Cyber Security	85%	29%	28%	1,230	$156,404
Technology Manufacturing	38%	20%	25%	1,238	$78,155
Data Hubs	134%	21%	20%	17,587	$193,474

Table 3: Data for employment and employment concentration (location quotient) for Transportation & Logistics, 2011-2022. Sources: US Census, Bureau of Labor Statistics, Bureau of Economic Analysis.

Transportation & Logistics	2011-2022 Job Growth	2019-2022 Job Growth	2011-2022 LQ Growth	2022 Employment	Average Annual Wage
Water	-55%	6%	-60%	45	$50,243
Wholesaling	15%	-1%	1%	38,544	$86,947
Air	18%	-24%	-24%	2,181	$105,967
Rail	-8%	-13%	-12%	647	$104,523
Warehousing	364%	73%	50%	44,100	$50,987
Multi-Modal Hubs	148%	53%	53%	1,502	$81,731
Trucking	92%	27%	92%	24,028	$77,413

Table 4: Data for employment and employment concentration (location quotient) for Natural Resources and Technologies, 2011-2022. Sources: US Census, Bureau of Labor Statistics, Bureau of Economic Analysis.

Natural Resources & Technologies	2011-2022 Job Growth	2019-2022 Job Growth	2011-2022 LQ Growth	2022 Employment	Average Annual Wage
Agriculture	88%	9%	5%	9,462	$45,027
Mining	10%	4%	41%	15,436	$78,462
Recycling	77%	5%	22%	3,679	$75,693
Clean Water	58%	-2%	26%	239	$51,867
Renewable Energy	58%	14%	37%	1,530	$83,295
Agricultural Manufacturing	72%	16%	36%	6,519	$53,521
Energy Generation & Distribution	-13%	-8%	-22%	3,377	$134,276

Table 5: Data for employment and employment concentration (location quotient) for all Hospitality, Tourism, Sports, & Creative Industries, 2011-2022. Sources: US Census, Bureau of Labor Statistics, Bureau of Economic Analysis.

Hospitality, Tourism, Sports, & Creative Industries	2011-2022 Job Growth	2019-2022 Job Growth	2011-2022 LQ Growth	2022 Employment	Average Annual Wage
Outdoor Recreation	6%	-23%	-30%	2,446	$45,265
Recreation & Tourism	12%	-11%	-2%	204,053	$49,334
Sports	33%	-3%	14%	13,094	$105,610
Gaming Entertainment	-32%	-30%	-29%	128,955	$41,492
Film Industry	-1%	-17%	-4%	4,412	$65,498
Creative Industry	20%	-12%	-15%	9,695	$64,597

Table 6: Data for employment and employment concentration (location quotient) for all Advanced Manufacturing, 2011-2022. Sources: US Census, Bureau of Labor Statistics, Bureau of Economic Analysis.

Advanced Manufacturing	2011-2022 Job Growth	2019-2022 Job Growth	2011-2022 LQ Growth	2022 Employment	Average Annual Wage
Aerospace & Defense	39%	7%	10%	18,840	$70,251
Clean Technologies	26%	-25%	22%	456	$86,248
E-Mobility	599%	17%	444%	14,338	$58,164
All Other Advanced Manufacturing	-5%	-5%	-22%	12,234	$64,055

Appendix B

Distressed Community Index Data for Selected Nevada Counties, 2016-2020

Indicators/ Zip Codes	No HS Diploma	Poverty Rate	Adults not Working	Housing Vacancy Rate	Median Household Income	Change in Employment	Change in Establishments
89835- Wells, NV	18.1%	30.7%	31.0%	20.7%	$48,800	2.2%	20.5%
89008- Caliente, NV	11.4%	17.9%	32.9%	10.5%	$24,200	-20.1%	-6.9%
89122- Whitney, NV	17.5%	17.1%	24.4%	9.7%	$48,000	-11.4%	0.7%
89001- Alamo, NV	12.1%	0.4%	35.2%	19.7%	$56,100	-9.3%	-23.5%
89427- Schurz, NV	10.9%	38.7%	44.0%	12.5%	$23,800	16.3%	1.7%
89415- Hawthorne, NV	9.8%	15.5%	30.3%	28.6%	$32,900	15.7%	-1.8%
89003 – Beatty, NV	34.5%	21.0%	39.2%	14.0%	$19,700	2.5%	-4.0%
89429- Silver Springs, NV	16.1%	15.0%	40.4%	14.1%	$46,500	-10.5%	-13.0%

Indicators/ Zip Codes	No HS Diploma	Poverty Rate	Adults not Working	Housing Vacancy Rate	Median Household Income	Change in Employment	Change in Establishments
89030- North Las Vegas, NV	42.8%	29.4%	33.5%	9.5%	$37,000	16.8%	3.3%
89106- Las Vegas, NV	31.1%	29.6%	32.0%	12.3%	$31,000	5.4%	3.6%
89102- Las Vegas, NV	23.9%	26.7%	27.3%	8.1%	$38,100	-0.5%	-2.3%
89101- Las Vegas, NV	34.3%	31.8%	42.0%	12.3%	$28,100	9.0%	-0.8%
89104- Sunrise Manor, NV	27.0%	22.7%	30.4%	9.7%	$38,900	15.0%	2.1%

89109-Winchester, NV	11.0%	23.1%	30.9%	53.4%	$44,900	-0.2%	-5.0%
89169-Paradise, NV	22.4%	28.8%	29.1%	20.3%	$32,100	15.6%	11.1%
89121-Paradise, NV	20.2%	19.4%	24.9%	13.2%	$43,200	-2.9%	2.9%

Indicators/ Zip Codes	No HS Diploma	Poverty Rate	Adults not Working	Housing Vacancy Rate	Median Household Income	Change in Employment	Change in Establishments
89419-Lovelock, NV	20.1%	10.4%	63.7%	13.3%	$56,000	24.4%	-14.1%
89018-Indian Springs, NV	24.7%	17.2%	92.8%	19.3%	$45,900	18.7%	-21.4%
89029-Laughlin, NV	13.6%	18.9%	42.8%	7.9%	$37,400	-4.0%	-11.5%
89025-Moapa Town, NV	13.6%	19.8%	32.3%	25.1%	$49,300	-5.3%	-11.1%
89825-Jackpot, NV	23.8%	24.8%	7.8%	36.8%	$25,500	-3.1%	-16.7%

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