State of Nevada

Comprehensive Climate Analysis for Nevada (CCAN)

Prepared for
Nevada Department
of Environmental Protection

Prepared by
Sustainability
Solutions Group

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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

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NEVADA GOVERNOR'S OFFICE OF ENERGY

Table of Contents

Tables

Figures

Acronyms and Abbreviations

BAP	Business-as-Planned
BAU	Business-as-Usual
CAP	Criteria Air Pollutant
CCAN	Comprehensive Climate Analysis for Nevada
CD	Community Driven (Scenario)
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide equivalent
COP	Conference of the Parties (United Nations meeting on climate change)
CPRG	Climate Pollution Reduction Grant
EPA	Environmental Protection Agency
EUI	Energy Use Intensity
EV	Electric Vehicle
GDP	Gross Domestic Product
GHG	Greenhouse gas
GOE	(Nevada) Governor's Office of Energy
HAP	Hazardous Air Pollutant
IAP2	International Association for Public Participation
IPCC	Intergovernmental Panel on Climate Change
IRA	Inflation Reduction Act
LC	Low Carbon (Scenario)
MF	Mixed Fuel (Scenario)
MMBtu	Metric Million British Thermal Unit
$MMTCO_2e$	Million Metric Tons of Carbon Dioxide Equivalent
NOx	Nitrogen Oxides
NDC	Nationally determined contribution

NDEP	Nevada Division of Environmental Protection
PCAP	Priority Climate Action Plan
PM2.5	Particulate Matter smaller than 2.5 micrometers
PUCN	Public Utilities Commission of Nevada
UNFCCC	United Nations Framework Convention on Climate Change
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
ZEV	Zero Emissions Vehicles

How to Read This Document

Funded by the U.S. Environmental Protection Agency's (EPA) Climate Pollution Reduction Grant (CPRG) Program, the Comprehensive Climate Analysis for Nevada (CCAN) assesses current sources of greenhouse gas (GHG) emissions and evaluates possible pathways to reduce emissions.

Why This Analysis Matters

This analysis is part of a nationwide effort to reduce pollution and improve quality of life. It is built on local data, shaped by feedback from interested and affected parties, and intended to outline potential pathways where the benefits of climate measures are widely shared — including in communities that face higher environmental and economic challenges (referred to here as low-income and at-risk communities).

What You Will Find in This Document

- **Engagement Findings (Section 2):** How residents, organizations and partners helped shape the analysis.
- **Greenhouse Gas Inventory (Section 3):** A summary of where emissions come from (such as vehicles, buildings and industry).
- **Reference Scenarios (Section 4):** What emissions could look like under the "business-as-usual" and "business-as-planned" scenario, where no additional climate actions are undertaken.
- **Targets (Section 5)**: Emissions reduction goals for Nevada in 2030 and 2050.
- **Reduction Measures and Emission Projections (Section 6)**: Overview of the proposed scenarios and specific measures to cut emissions — such as expanding public transit or investing in clean energy systems.
- **Implementation Strategies (Section 7):** How measures move from vision to reality with specific entities, funding sources, and timelines defined.
- **Co-Benefits (Section 8)**: An overview of impacts like cleaner air, cost savings and job creation, including expected benefits in low income and at-risk communities.
- **Workforce Planning (Section 9)**: A look at the jobs and training needed to carry out the proposed measures.

How to Use This Document

- Start with the Executive Summary for a quick overview of the key points of analysis.
- Use the tables, figures and maps to help make the technical data easier to understand.
- Each section builds on the last — read in order for full context or skip to topics that interest you most.
- Search the glossary and appendices for more detail if needed.

Who This Analysis Is For

This analysis is intended for everyone — residents, governments, businesses, utilities and other partners — and describes the potential roles of interested and affected parties if they were to implement the emission reduction pathways evaluated in this analysis. It also outlines how climate measures could generate co-benefits such as improved air quality and public health outcomes alongside increased economic development and recognizes that coordinated action across sectors would be necessary to implement these pathways.

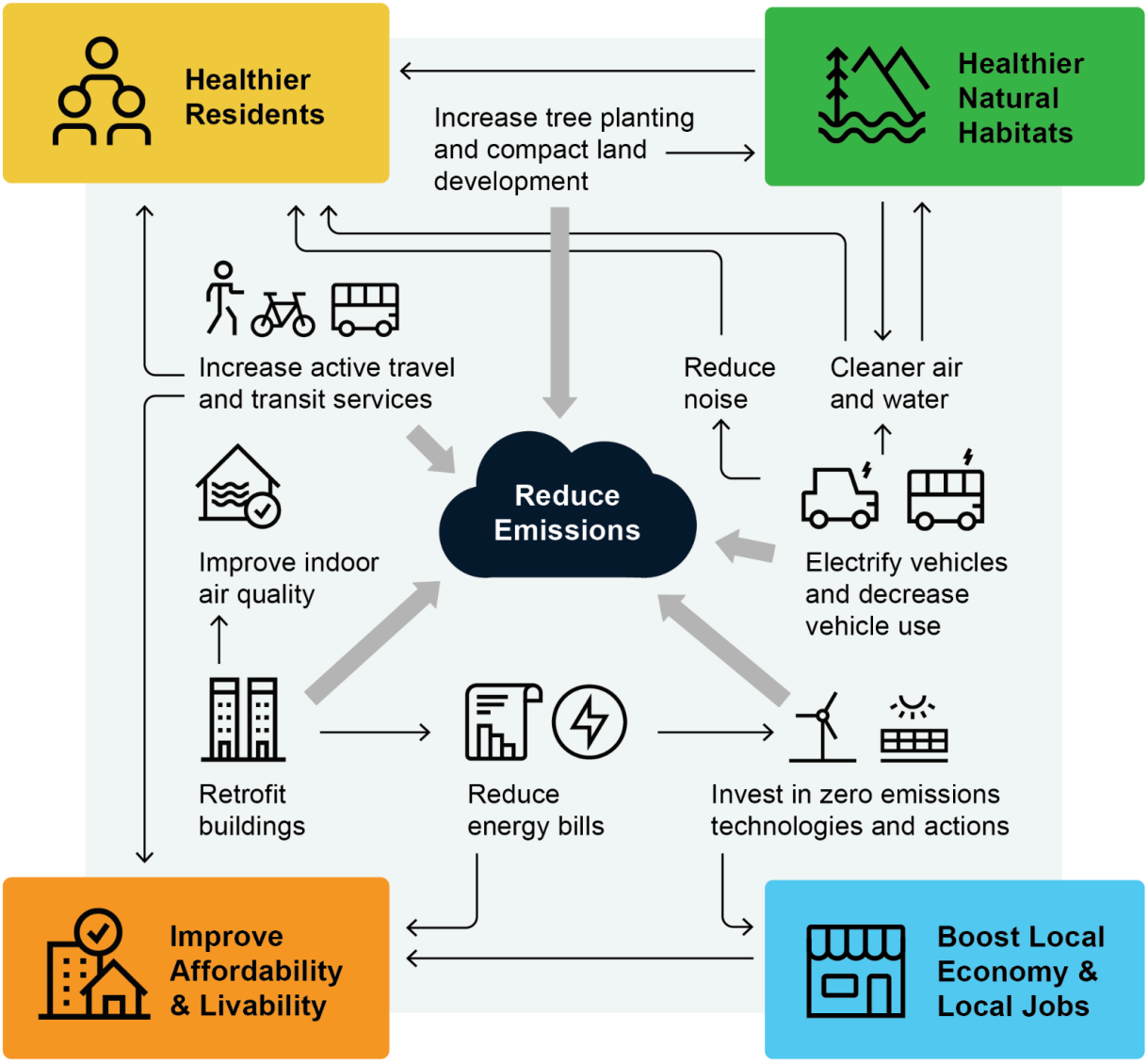
8 | Benefits Analysis

8.1 Introduction

Policies and measures that reduce GHG emissions can have positive (co-benefits) or negative (co-harms) impact; together, these are referred to as ancillary effects. Co-benefit and co-harm impacts are not equal and are often difficult to clearly determine and assess, as their relevance encompasses different areas of concern, such as technology, income distribution, economic market, energy, health, environment, climate adaptation and resilience.

The following section draws on research about the broader societal impacts of GHG mitigation measures in the Comprehensive Climate Analysis for Nevada (CCAN) scenarios - LC Scenario, MF Scenario and CD Scenario - as well as their ancillary effects on the residents of Nevada.

Figure 8.1. Measures that can reduce emissions can also support healthier residents and natural habitats, boost local economies, create local jobs and improve affordability and livability.



8.2 Overview of Co-Benefits and Co-Harms

8.2.1 What Are Co-Benefits and Co-Harms?

The Intergovernmental Panel on Climate Change (IPCC) defines co-benefits as "the positive effects that a policy or measure aimed at one objective might have on other objectives, irrespective of the net effect on overall social welfare." [32] The term co-benefits and its corollary, co-harms, have a variety of synonyms, including "ancillary effects" and "ancillary benefits and costs," and an equal variety of definitions. In this analysis, co-benefits are assumed to be any potential or anticipated benefits of the measure in addition to its impact on GHG emissions.

While many GHG reduction measures have positive effects, there is also potential for co-harms and the creation of negative feedback cycles. For example, compact urban development can help lower a community's overall emissions by reducing the total distance people need to drive. However, if not carefully planned, it may lead to more traffic congestion, which can raise local pollution levels and increase residents' exposure to air pollutants, especially for those who choose to walk or bike to work.The positive, or negative, effects are often unintentional and specific to local contexts, but measures that reduce emissions can be intentionally implemented in ways that increase positive co-benefits and mitigate or avoid negative ones. This can be achieved through careful policy design that considers and prioritizes GHG emissions alongside other impacts.

8.2.2 Not All Co-Benefits or Co-Harms Are Equal

Not all co-benefits or co-harms are equal. It is helpful to identify and prioritize criteria for evaluating ancillary effects, such as:[33]

- **Synergies:** Many low-carbon measures have multiple socio-economic ancillary benefits, including improving transit, energy efficiency and compact urban design.
- **Realization Time:** Some low-carbon measures, such as promoting compact communities that require less car use, require time to have a significant cumulative ancillary effect, whereas measures like building retrofits may result in more direct benefits. Time for the realization of these measures and related ancillary benefits must be carefully considered in relation to measures already taken, lock-in effects,[34] irreversible outcomes or deferred costs.

[32] IPCC, *Annex II: Glossary*, in *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, eds. V.R. Barros, C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, et al. (Cambridge: Cambridge University Press, 2014), 1757–1776, quoted on 1762

[33] Adapted from Marianne Fay, Stéphane Hallegatte, Adrien Vogt-Schilb, Julie Rozenberg, and Ulf Narloch, *Decarbonizing Development: Three Steps to a Zero-Carbon Future* (Washington, DC: World Bank, 2015)

[34] Lock-in effect refers to implementation of a strategy or measure that improves performance of an object or activity in the short term but is prohibitive to future change. Lock-in effect can refer to building upgrades or land use for example. As an example. where quick building retrofits are undertaken, no additional improvements in the equipment installed can be expected over the course of its lifetime without considerable additional expense. In this way, lower levels of energy reductions can be locked in for a long period.

- **Costs:** These are the costs associated with the measures and the ancillary benefits. Consideration should be given to the expected change in cost over time and the potential opportunity to take early actions to avoid higher costs in the future.
- **Longevity:** Decisions related to long-lasting infrastructure can lock-in investments which can be difficult to undo despite negative outcomes.[35]
- **Distribution effects:** Low-carbon measures have different impacts on different subsets of the population, including different income groups, generations (including future generations), neighborhood residents, and marginalized populations.

8.2.3 Low-Income and At-Risk Communities

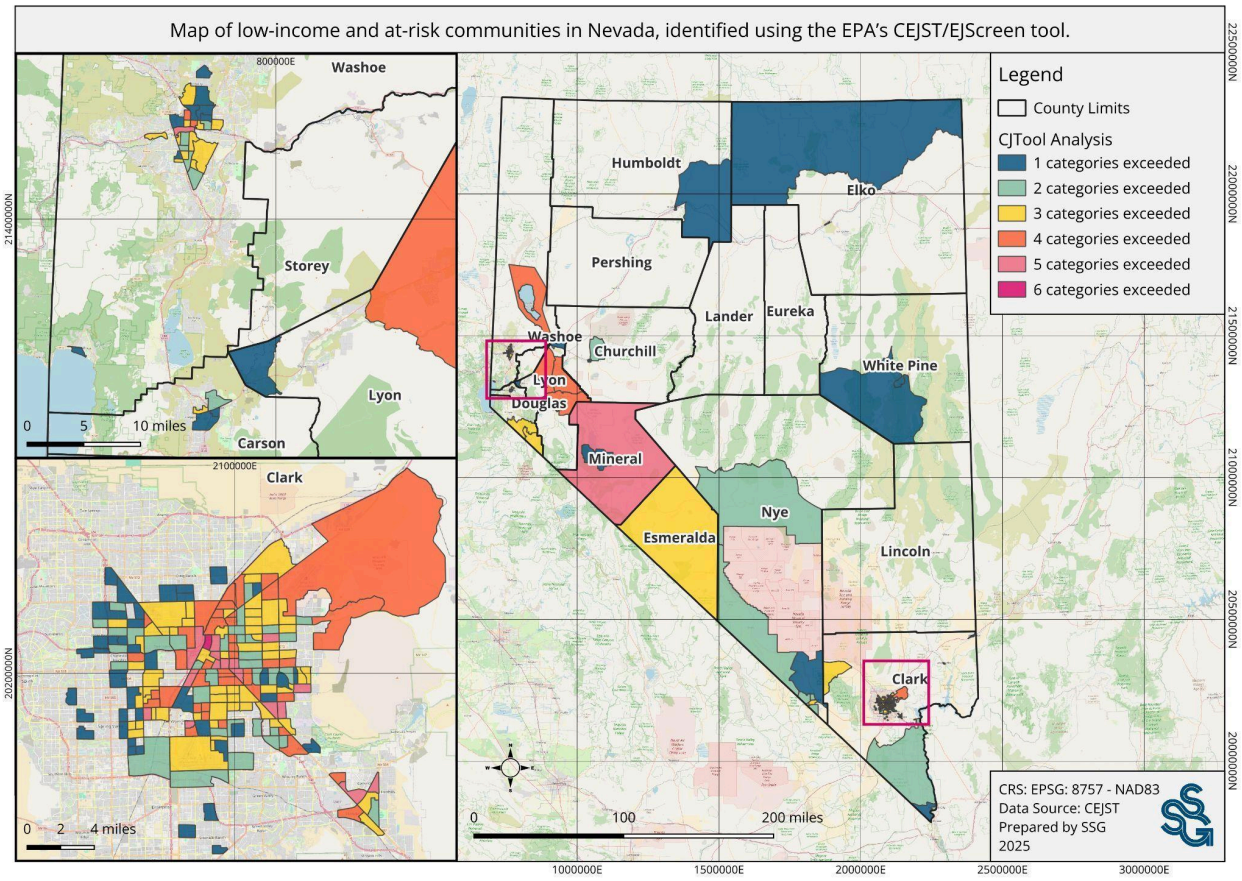
This section identifies the low-income and at-risk communities within the State of Nevada. These communities were identified by reviewing information about census tracts within the State of Nevada using the same EPA tools as were used for the PCAP.

The tool was used to identify census tracts associated with burdens[36] in the eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The following figure refers to a low-income and at-risk community as one that meets the low-income threshold—65th percentile of low-income—and exceeds one of the burdens within eight categories (Figure 8.2). Many of these communities are located within Las Vegas and Reno, the most urban parts of Nevada.

[35] Seto, Karen C., Steven J. Davis, Ronald B. Mitchell, Eleanor C. Stokes, Gregory Unruh, and Diana Ürge-Vorsatz. "Carbon lock-in: types, causes, and policy implications." Annual review of environment and resources 41, no. 1 (2016): 425-452.

[36] Census tracts that exceeded multiple categories and thresholds according to the Climate and Economic Justice Screening Tool (CEJST).

Figure 8.2 Map of the low-income and at-risk communities, and the number of categories exceeded per census tract in the State of Nevada.



8.2.4 Demographics and Population Distribution in Nevada

Nevada is home to approximately 3.2 million people according to 2023 Census data, but the vast majority live in just three urban counties: Clark County, Washoe County, and Carson City, the independent, capital city of Nevada. As of 2023, the state's demographic profile is approximately 48.5% White (non-Hispanic), 31% Hispanic, 10.2% Asian or Pacific Islander (non-Hispanic), 9.2% Black (non-Hispanic) and 1.1% American Indian or Alaskan Native (non-Hispanic).[37] Clark County alone, home to Las Vegas, accounts for nearly 73% (almost ¾) of the state's population. In contrast, rural counties such as Esmeralda, Eureka, and Mineral make up less than 0.1% of the state population, respectively.[38]

[37] Nevada Department of Health and Human Services, Office of Analytics, *2024 Nevada Epidemiologic Profile* (Carson City: Nevada Department of Health and Human Services, January 2025), https://dhhs.nv.gov/uploadedFiles/dhhsnvgov/content/Programs/Office_of_Analytics/2024%20Nevada%20Epidemiologic%20Profile%20-%20FINAL(6).pdf.
[38] Nevada Department of Health and Human Services, Office of Analytics, *2024 Nevada Epidemiologic Profile* (Carson City: Nevada Department of Health and Human Services, January 2025)

8.2.5 Co-Benefits and Co-Harms in the Nevada CCAN

Co-benefits and co-harms were quantified or assessed qualitatively for the LC Scenario, MF Scenario and CD Scenario. Co-benefits and co-harms for low-income and at-risk communities are woven throughout the assessment. A summary of the assessment and analytical method used is described in Table 8.1 and in Appendix B: Data, Methods and Assumptions Manual (DMA). This table represents a list of co-benefits and co-harms resulting from the measures in the CCAN.

Table 8.1 Overview of categories assessed, specific impacts and indicators and the analytical method used.

Category	Impact Overview	Indicators
Economic Prosperity		
Household expenditures	Changes in household energy and transportation costs due to energy efficiency	• Household energy and travel expenditures by scenario
Employment opportunities	Changes in employment opportunities	• Jobs created/lost by opportunity areas
Health		
Outdoor air quality	Changes in outdoor air quality	• Changes in air pollutants from fuel combustion per scenario
Indoor air quality	Changes in air quality inside homes and businesses	• Fuel type used in residential and commercial buildings per scenario
Physical and emotional well-being	Changes in physical activity, changes in mental well-being	• Mode share of a one-person trip by scenario
Climate Adaptation and Resilience		
Reduction of the urban heat island effect	Changes in urban microclimates	• Number of trees planted by scenario per county

https://dhhs.nv.gov/uploadedFiles/dhhsnvgov/content/Programs/Office_of_Analytics/2024%20Nevada%20Epidemiologic%20Profile%20-%20FINAL(6).pdf.

8.3 Economic Prosperity

8.3.1 Household Energy Expenditures

Technologies and energy sources can increase or decrease household energy expenditures, which particularly impacts households with a high energy burden. A household faces a high energy burden when it spends more than 6% of its income on energy and a severe energy burden when it spends more than 10% of its income on energy, as defined by the U.S. Department of Energy.[39]

Many low carbon measures, such as those proposed in the CCAN, increase energy efficiency in households, which can result in financial benefits by helping reduce overall energy use.

According to the U.S. Department of Energy, cost-effective energy efficiency measures, such as improving insulation and installing more efficient appliances, have the potential to reduce energy use by 13 - 31%.[40] Low-income households tend to have high energy cost burdens, in part because their homes tend to be draftier, older, and have poorer insulation than those of wealthier households, making them less energy efficient. Transit-oriented urban development can additionally reduce per capita use of automobiles by 50%, reducing household transport expenditures by 20%.[41] The overall result is more disposable income for households.

Low carbon measures in the buildings, energy, and transportation sectors, as seen in Table 8.2, may help reduce energy poverty while also reducing GHG emissions. These measures include, but are not limited to, transitioning to clean energy, building net zero new buildings, retrofitting existing buildings, electrifying vehicles, and encouraging active transportation.

[39] U.S. Department of Energy. *How High Are Household Energy Burdens?* Washington, D.C.: Office of Energy Efficiency and Renewable Energy, October 2022. https://www.energy.gov/sites/default/files/2022-10/16.%20How%20high%20are%20household%20energy%20burdens_ds_0.pdf.

[40] U.S. Department of Energy, *Low-Income Household Energy Burden Varies Among States* (Washington, D.C.: Office of Weatherization and Intergovernmental Programs, January 2019), 2, https://www.energy.gov/sites/prod/files/2019/01/f58/WIP-Energy-Burden_final.pdf.

[41] Arrington, G.,Cervero, R. (2008). TCRP Report 128: Effects of TOD on Housing, Parking, and Travel. Transportation Research Board of the National Academies. Washington, DC. 3.

Table 8.2 GHG reduction measures that contribute to reducing energy poverty, by scenario.

Sector	Opportunity Area [42]	Measures	LC	MF	CD
Energy Systems	Power Nevada with Clean Energy	Incentivize a Clean, Reliable, and Resilient Grid for Nevada	✓	✓	✓
		Expand Residential Solar Access and Affordability with Financing and Technical Support Programs	✓	✓	✓
		Adopt Initiatives Supporting Community Solar and Renewable Co-ops			✓
Buildings	Build Net Zero New Buildings	Strengthen Building Energy Conservation Codes	✓	✓	
		Adopt Net-Zero Ready Standards for All New Buildings	✓	✓	✓
		Invest in Zero-Emission Affordable Housing Options			✓
	Transform Existing Buildings	Establish Building Performance Standards for Existing Large Buildings	✓	✓	✓
		Retrofit Nevada - Modernize Homes Initiative	✓	✓	✓
		Retrofit Nevada - Modernize Businesses Initiative	✓	✓	✓
		Incentivize and Require Heat Pumps for Heating and Cooling in Residential Buildings	✓	✓	✓
Transportation	Move with Active and Public Transit	Build Public Transit and Active Transportation Networks for Everyone	✓	✓	✓
	Accelerate Zero Emission Vehicles for All	Launch EV for NV, an initiative to increase personal use EVs	✓	✓	✓
		Establish Lead the Charge, an Electrifying Public Fleets Assistance Program	✓	✓	✓
		Deploy Community-Based Electric Carsharing Programs			✓

[42] Opportunity Area: The CCAN scenarios identify eleven strategic "Opportunity Areas" that collectively address the key sources of emissions and define the structural changes needed to decarbonize Nevada. Each Opportunity Area represents a suite of measures to accelerate decarbonization while delivering economic, health, and co-benefits.

Table 8.3 compares household energy and travel costs in 2021, 2035, and 2050 across the three scenarios. In the three scenarios, household costs associated with energy and travel are expected to decrease by approximately 67% - 74% between 2021 and 2050. This translates into a reduction from an average of $6,814 in annual household expenses to $1,792 in the LC scenario, $2,222 in the MF Scenario and $1,750 in the CD scenario.

These cost reductions are the result of energy efficiency gains and more efficient technologies, which can have compounding effects. As an example, a building retrofit reduces a home's energy consumption by 50% through improved insulation and air sealing. A heat pump uses ⅓ the energy of a natural gas furnace for heating. The combination of a building retrofit and a heat pump reduces the heating load by 1/2 * ⅓ = ⅙. Similarly an electric vehicle uses ¼ the energy as an internal combustion engine to travel the same distance, as much of the energy used by internal combustion engines is lost to heat.[43]

Heat pumps, in particular, are an affordable solution for Nevadan homes. According to the Southwest Energy Efficiency Project, heat pumps implemented in Nevada's climate zone can reduce heating costs by 17 - 30% and cooling costs by 30 - 43% relative to gas furnaces and air conditioning.[44] Additionally, analysis done by RMI shows that replacing today a gas furnace with a heat pump in Nevada would reduce carbon pollution by 82% in 15 years, as well as replacing a gas water heater with a heat pump water heater would reduce carbon pollution by 76% over the next 15 years.[45]

Building all-electric new homes will provide Nevadans with lower operating costs. According to a study by RMI, a typical all-electric, single-family home constructed in Las Vegas would save a household $280 per year on utility bills (which is 12% less than the annual utility bills for a Las Vegas new home with gas).[46] By making all new housing construction electric, the State of Nevada would be providing a solution that not only reduces GHG emissions, but provides housing and energy affordability to its residents.

[43] US Department of Energy, n.d. Where the Energy Goes: Electric Cars. https://www.fueleconomy.gov/feg/atv-ev.shtml
[44] Southwest Energy Efficiency Project, "New Tool Calculates Heat Pump Energy Costs and Greenhouse Gas Benefits," Southwest Energy Efficiency Project, May 1, 2025,https://www.swenergy.org/heat-pump-calculator/.https://www.swenergy.org/heat-pump-calculator/
[45] https://rmi.org/now-is-the-time-to-go-all-in-on-heat-pumps/
[46] https://rmi.org/insight/the-economics-of-electrifying-buildings-residential-new-construction/

Table 8.3 Comparison of household energy and travel expenditures in 2050 across the scenarios in the CCAN. Source: SSG analysis.

	BAP	LC	MF	CD
Energy costs ($/household)				
Average Annual Expenditures on Stationary Energy (2021)	$2,446	$2,446	$2,446	$2,446
Average Annual Expenditures on Stationary Energy (2030)	$2,064	$1,638	$1,923	$1,881
Average Annual Expenditures on Stationary Energy (2050)	$2,178	$450	$692	$341
Travel costs ($/household)				
Average Annual Expenditures on Energy for Travel (2021)	$4,368	$4,368	$4,368	$4,368
Average Annual Expenditures on Energy for Travel (2030)	$2,153	$1,978	$2,041	$1,967
Average Annual Expenditures on Energy for Travel (2050)	$1,624	$1,253	$1,404	$1,240
Total travel and energy costs ($/household)				
Total Household Expenditures on Energy (2021)	$6,814	$6,814	$6,814	$6,814
Total Household Expenditures on Energy (2030)	$4,218	$3,616	$3,964	$3,848
Total Household Expenditures on Energy (2050)	$3,802	$1,702	$2,096	$1,581

Figure 8.3 Average annual household expenditure on energy in the BAP, LC, MF and CD Scenarios, 2021 - 2050.

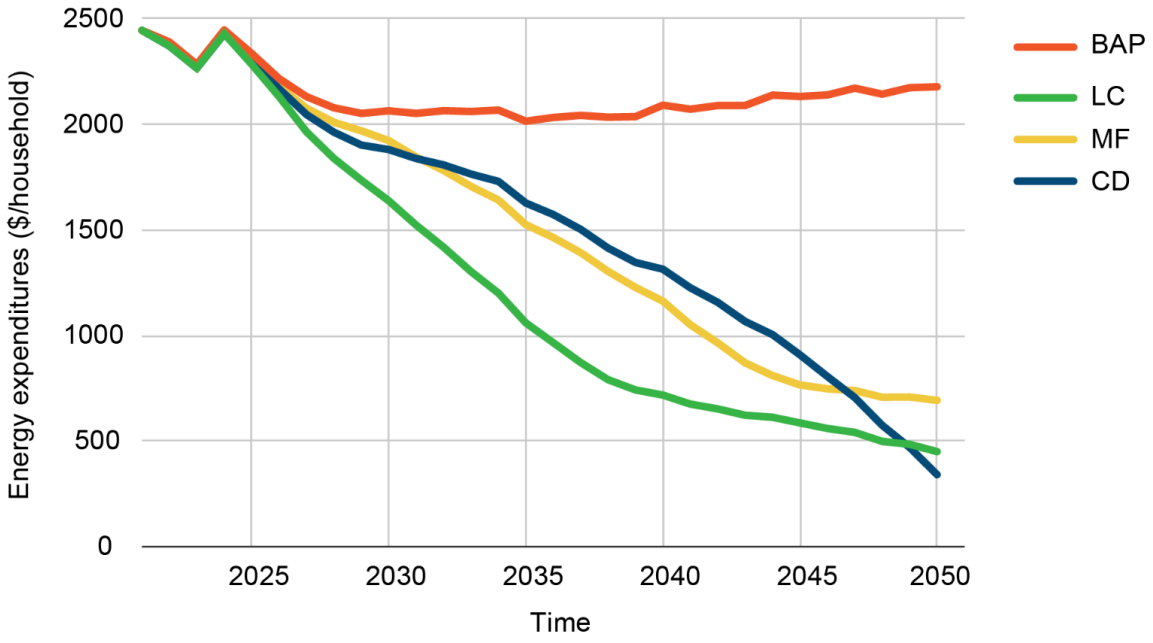
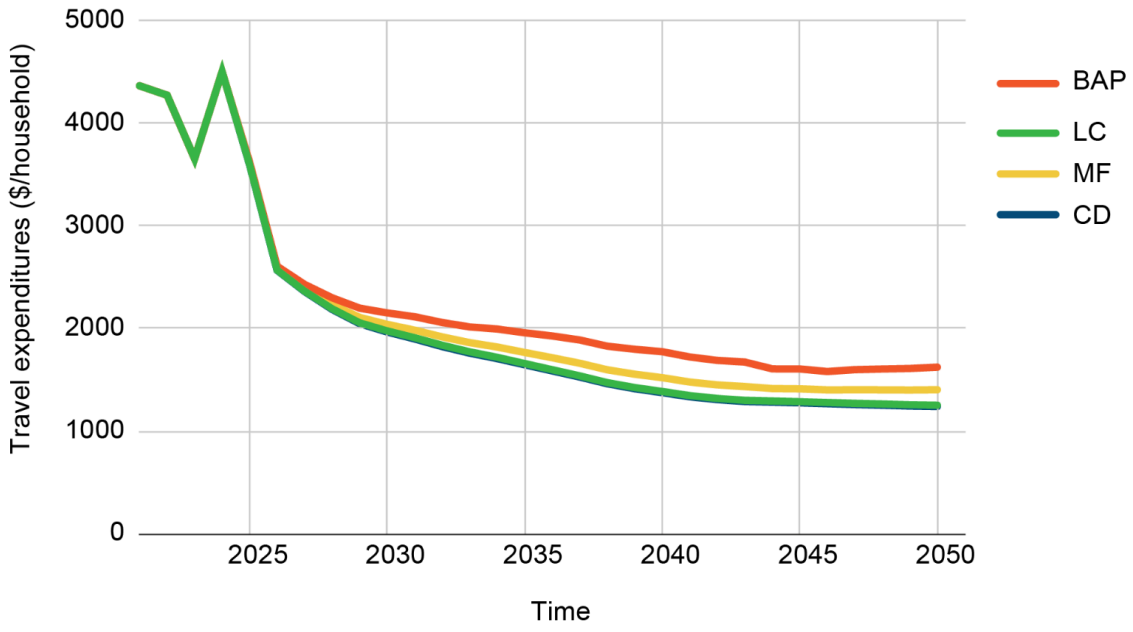


Figure 8.4 Average annual household expenditure on travel in the BAP, LC, MF and CD Scenarios, 2021 - 2050.



Without careful policy design, these measures could create unintended co-harms. Households with high energy burdens or limited access to financial support may struggle to afford the upfront costs of building retrofits or electric vehicles. Such expenses could cause short-term financial strain, reduce participation in efficiency and technology upgrades, and prevent some households from realizing the intended long-term cost savings.

8.3.2 Employment Opportunities

Based on the Nevada Governor's Office of Economic Development's (GOED) Economic Overview report, Nevada's population has grown by 6.9% between 2017 and 2022, adding 205,180 residents, and it is projected to grow by 4.5% from 2022 to 2027, adding another 141,577 people. Similarly, the state's economy has seen job growth of 10% over the past five years, outpacing the national average, and an additional 163,575 jobs are projected to be created by 2027.

The industries growing most quickly are transportation and warehousing; healthcare and social assistance; construction; manufacturing; and professional, scientific, and technical services. [47] Investments in these sectors can support the transition toward a low-carbon economy. Measures such as the deployment of clean energy technologies, retrofitting and construction of energy-efficient buildings, and electrification of industrial processes, can directly stimulate these industries. Additional information on employment sectors in Nevada can be found in the Workforce Analysis section of this report.

In general, the transition to a low-carbon economy is expected to have three categories of impacts on labor markets:

- Additional jobs will be created in emerging sectors, such as electric vehicles and energy management systems (EMS)[48].
- Some employment will be shifted, for example, from fossil fuel production and distribution to renewables.
- Certain jobs will no longer be relevant or necessary, such as vehicle mechanics who specialize in gasoline engines. Many existing jobs will be transformed and redefined, with some employment opportunities emerging that are not yet possible to anticipate.[49]

[47] Lightcast. *Nevada Economy Overview Report*. Accessed May 2025. https://nevadadashboard.com/dev/public/pdf/Nevada.pdf.
[48] Energy management systems (EMS) include systems or technologies designed to optimize energy use, such as building automotation systems (BAS), and smart building technologies, examples include smart thermostats and automated lighting controls.
[49] Martinez-Fernandez, C., Hinojosa, C., & Miranda, G. (2010). Green jobs and skills: the local labour market implications of addressing climate change. *Working Document, OECD.* Retrieved from http://www.oecd.org/regional/leed/44683169.pdf

Analyses of recently passed state and federal legislation demonstrate the economic opportunities enabled by decarbonization. Climate and energy investments integrated into the recently passed Inflation Reduction Act could create more than 9 million person-years of employment across the U.S. over the next decade, with more than half of those jobs being created in the electricity, transportation and building sectors.[50]

Policy and implementation design can maximize the benefits of new job creation during the low-carbon transition, while also mitigating the negative effects of job losses in certain sectors. As industries that are gradually phased out leave some workers vulnerable, tools and resources can be provided to help with the transition into high-quality jobs. This support could take the form of financial assistance, targeted workforce training, and economic development initiatives to foster resilience.

Table 8.4 GHG reduction measures that increase employment.

Sector	Opportunity Area	Measures	LC	MF	CD
Energy Systems	Power Nevada with Clean Energy	Incentivize a Clean, Reliable, and Resilient Grid for Nevada	✓	✓	✓
		Expand Residential Solar Access and Affordability with Financing and Technical Support Programs	✓	✓	✓
		Adopt Initiatives Supporting Community Solar and Renewable Co-ops	✓	✓	✓
		Scale Up Solar Installation in Commercial Sector with Financing and Technical Support Programs	✓	✓	✓
Buildings	Build Net Zero New Buildings	Strengthen Building Energy Conservation Codes	✓	✓	✓
		Adopt Net-Zero Ready Standards for All New Buildings	✓	✓	✓
		Invest in Zero-Emission Affordable Housing Options			✓
	Transform Existing Buildings	Establish Building Performance Standards for Existing Large Buildings	✓	✓	✓
		Retrofit Nevada - Modernize Homes Initiative	✓	✓	✓

[50] Robert Pollin, Chirag Lala, and Shouvik Chakraborty, "Job Creation Estimates through Proposed Inflation Reduction Act" (University of Massachusetts Amherst: Political Economy Research Institute (PERI), August 2022).

Sector	Opportunity Area	Measures	LC	MF	CD
		Retrofit Nevada - Modernize Businesses Initiative	✓	✓	✓
		Incentivize and Require Heat Pumps for Heating and Cooling in Residential Buildings	✓	✓	✓
		Incentivize and Require Heat Pumps for Heating and Cooling in Commercial Buildings	✓	✓	✓
Transportation	Move with Active and Public Transit	Build Public Transit and Active Transportation Networks for Everyone	✓	✓	✓
	Accelerate Zero Emission Vehicles for All	Launch EV for NV, an initiative to increase personal use EVs	✓	✓	✓
		Establish Lead the Charge, an Electrifying Public Fleets Assistance Program	✓	✓	✓
		Deploy Community-Based Electric Carsharing Programs			✓
	Drive Sustainable Transport	Incentivize and Require the Clean Commercial Fleet Transition	✓	✓	✓
		Adopt Power Up Clean Worksites, an initiative to transition Off-Road Equipment to ZEVs	✓	✓	✓
		Fuel Sustainable Skies Program	✓	✓	✓
		Propel Marine Vessels to use Low- and Zero-Emission Fuels	✓	✓	✓
Industry	Decarbonize Industry	Maximize Industrial Energy Efficiency	✓	✓	✓
		Accelerate Deployment of Green Hydrogen for Industrial Decarbonization	✓	✓	✓
		Electrify Industrial Processes and Integrate On-Site Renewables	✓	✓	✓
		Support Industrial Carbon Capture, Utilization, and Storage (CCUS) Solutions	✓	✓	✓

Sector	Opportunity Area	Measures	LC	MF	CD
Waste	Divert and Reuse Waste	Expand recycling, composting, and sustainable materials management programs	✓	✓	✓
	Harness Landfill Gas	Develop and Fund Landfill Gas Capture and Utilization Systems	✓	✓	✓
Agriculture	Make Farming more Sustainable	Grow Regenerative Agriculture Practices in Nevada	✓	✓	✓
		Improve Grazing Management and Rangeland Resilience	✓	✓	✓
Natural and Working Lands	Grow Nature-Based Solutions	Expand Urban and Community Tree Canopy Coverage Across Nevada	✓	✓	✓
		Protect and Restore Natural Lands Initiative	✓	✓	✓

Investments in the measures represent opportunities for existing and new businesses in Nevada. These include businesses directly implementing elements of the measures, such as contractors, HVAC suppliers, construction companies, appliance manufacturers, renewable energy developers, car dealerships,[51] arborists and bike shops, as well as businesses supporting them, such as banks and credit unions, engineering firms, architects and designers, and insurance companies.

The following table demonstrates the change in employment opportunities for each scenario of the CCAN, by Opportunity Area. The most notable Opportunity Area employment opportunity comes from Transforming Existing Buildings and Decarbonizing Industry. These numbers are derived by taking the capital investment and multiplying it by jobs per $1,000,000 in final demand as per the Economic Policy Institute.[52]

[51] Car dealerships may benefit from increased EV sales, but may lose revenue due to decreased maintenance needs of EVs.
[52] Josh Bivens, *Updated Employment Multipliers for the U.S. Economy*, Economic Policy Institute, January 23, 2019, https://www.epi.org/publication/updated-employment-multipliers-for-the-u-s-economy/.

Table 8.5. Average Annual Person - Years of Employment in LC, MF and CD Scenarios from 2026-2050, relative to the BAP Scenario, by Opportunity Area.

Big Move	Low-Carbon Scenario	Mixed Fuel Scenario	Community Driven Scenario
Power Nevada with Clean Energy	11,765	11,950	12,173
Build Net Zero New Buildings	1,476	1,088	1,258
Transform Existing Buildings	982	965	2,215
Move with Active and Public Transit	-799	-227	1,136
Accelerate Zero Emission Vehicles for All	-4	54	-2,670
Drive Sustainable Transport	8	5	8
Decarbonize Industry	4,335	3,795	2,101
Grow Nature-Based Solutions	1	1	1
Make Farming more Sustainable	163	98	163

These policies could have potential co-harms including short- to medium-term job losses in sectors tied to fossil fuel production, distribution, and maintenance, as well as in industries dependent on older technologies. Workers may require additional training to operate newer technologies. However, well-designed policies, such as targeted retraining, financial assistance, and local economic diversification, can mitigate these challenges to help create a smooth transition to the additional jobs presented above.

8.4 Health

8.4.1 Outdoor Air Quality

One of the primary co-benefits of reducing GHG emissions is improved air quality. Cleaner air reduces the risk of adverse health effects, such as aggravated asthma, decreased lung function, heart attacks, an increase in neurological disorders and premature death.[53] [54]

Climate change will increase the likelihood of conditions that exacerbate poor air quality.[55] Conditions that can decrease air quality include wildfire smoke from more frequent and longer wildfires, as well as airborne allergens from earlier and longer springs and summers.

Burning fossil fuels such as gasoline, diesel and natural gas additionally releases air pollutants as well as greenhouse gases. These pollutants, including particulate matter ($PM_{2.5}$), carbon monoxide (CO), hydrocarbons (HC), sulfur dioxide (SO_2), nitrogen oxides (NO_x), mercury (Hg), and volatile organic compounds (VOCs), have adverse impacts on human health.

One of the key indicators of air pollution is $PM_{2.5}$, which is fine particulate matter of 2.5 micrometres or less. This particulate matter is dangerous because it can enter the blood system by penetrating the lung barrier and having the potential to create many health issues. [56] Air pollution can cause harm to human health from prenatal development through old age.[57]

Air pollution does not impact everyone equally. According to the PLACES: Local Data for Better Health dataset, as of 2022, approximately 10.9% of Nevada residents report currently having asthma, making them more sensitive to poor air quality.[58] Outdoor workers and farmworkers are particularly at risk of exposure to air pollutants from transportation and industrial activities, in addition to environmental wildfire smoke and ozone.

According to the Nevada Department of Health and Human Services' 2025 Community Health Profiles, approximately 7% of Nevada residents are affected by Chronic Obstructive Pulmonary Disease (COPD).[59] Rates are also notably high in several regions, with Carson

[53] Buonocore, J. J., Reka, S., Y., D., Chang, C., Roy, A., Thompson, T., ... & Arunachalam, S. (2023). Air pollution and health impacts of oil & gas production in the United States. Environmental Research: Health, 1(2), 021006.

[54] **National Institute of Environmental Health Sciences**, *Air Pollution and Your Health*, accessed June 20, 2025, https://www.niehs.nih.gov/health/topics/agents/air-pollution

[55] U.S. Environmental Protection Agency. *Climate Change Impacts on Air Quality*. Last modified June 6, 2023. https://www.epa.gov/climateimpacts/climate-change-impacts-air-quality

[56] **Shilpa S. Shetty, Deepthi D, Harshitha S, Shipra Sonkusare, Prashanth B. Naik, Suchetha Kumari N, and Harishkumar Madhyastha**, "Environmental Pollutants and Their Effects on Human Health," *Heliyon* 9, no. 9 (August 25, 2023): e19496, https://doi.org/10.1016/j.heliyon.2023.e19496

[57] **World Health Organization**, *Types of Pollutants and Their Health Impacts*, accessed June 20, 2025, https://www.who.int/teams/environment-climate-change-and-health/air-quality-and-health/health-impacts/types-of-pollutants

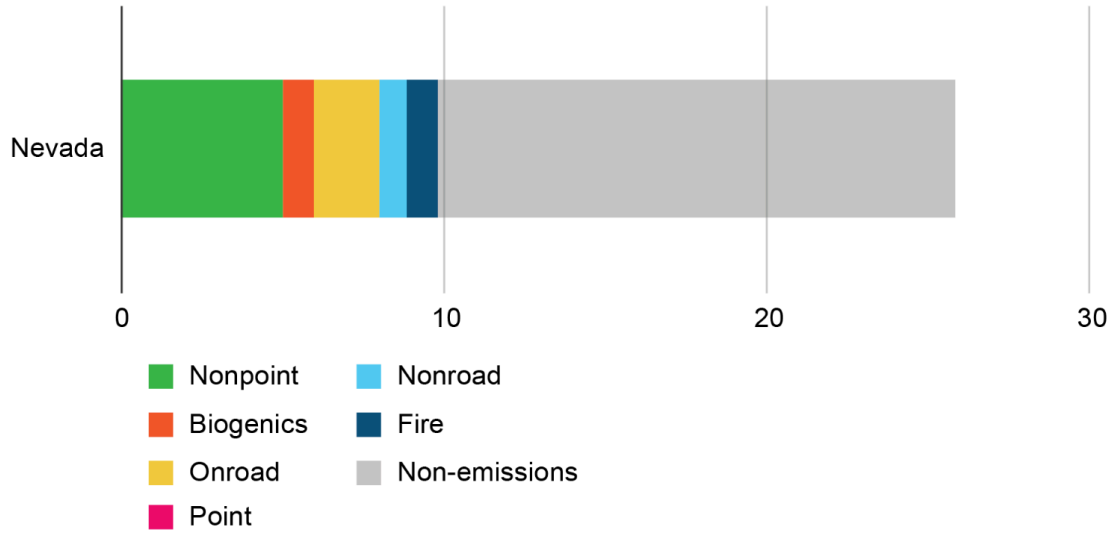
[58] Centers for Disease Control and Prevention. *PLACES: Local Data for Better Health, County Data 2024 Release*. Accessed May 21, 2025. https://data.cdc.gov/500-Cities-Places/PLACES-Local-Data-for-Better-Health-County-Data-20/swc5-untb

[59] Nevada Department of Health and Human Services, Office of Analytics, *Office of Analytics*, accessed May 21, 2025, Community Health Profiles Dashboard: https://dhhs.nv.gov/Programs/Office_of_Analytics/DHHS_Office_of_Analytics/.

City, Elko County, Clark County, and White Pine County ranking among the counties with the highest prevalence of residents living with both asthma and COPD.

Air pollution additionally increases cancer risk. The EPA's 2020 Air Toxics Screening Assessment assessed which air toxics may pose health risks across the country. Figure 8.5 highlights the projected cancer risks by the air pollution source group for the State of Nevada.[60] The top sources of air pollution that may cause cancer risk include nonpoint sources such as residential wood combustion and solvent coating, as well as on-road emission sources (e.g. vehicles). Non-road sources include equipment and vehicles that do not operate on roads, such as construction, lawn and garden, recreational vehicles, and others. The fire category relates to emissions from events like wildfires or prescribed burns. Biogenics refers to trees and other natural sources. Non-emissions refer to pollutants not directly released into the air, such as background levels or those formed through chemical reactions in the atmosphere. Nevada's total incremental lifetime cancer risk attributed to exposure to ambient air pollution is 30 per million.[61] In other words, for every one million people exposed to the current levels of ambient air pollution in Nevada over a typical lifetime (usually assumed to be 70 years), approximately 30 additional individuals are expected to develop cancer due to that exposure.

Figure 8.5 Cancer risk (per million) in the State of Nevada by air pollution source group. Source: 2020 AirToxScreen Emissions.[62]



[60] U.S. Environmental Protection Agency, *2020 AirToxScreen: Assessment Results*, last updated January 2, 2025, https://www.epa.gov/AirToxScreen/2020-airtoxscreen-assessment-resultscanill
Cancer sources that were not emissions groups, including background and secondary sources, are not included in this figure.
[61] U.S. Environmental Protection Agency, *2020 AirToxScreen: Assessment Results*, last updated January 2, 2025, https://www.epa.gov/AirToxScreen/2020-airtoxscreen-assessment-results
[62] U.S. Environmental Protection Agency, *2020 AirToxScreen: Assessment Results*, last updated January 2, 2025, https://www.epa.gov/AirToxScreen/2020-airtoxscreen-assessment-results
Cancer sources that were not emissions groups, including background and secondary sources, are not included in this figure.

The following two figures highlight census tracts that experience both energy burden and exposure to particulate matter ($PM_{2.5}$) pollution levels. Air pollution from industrial sources, such as mining and mineral extraction, geothermal and natural gas plants, as well as asphalt, concrete and gypsum plants, contributes to these exposures. Higher levels of $PM_{2.5}$ exposure can be found in urban areas such as Washoe County and Clark County (namely Las Vegas). In Las Vegas specifically, there is an overlay of burdened census tracts (those over the 90th percentile of energy burden or traffic proximity) and higher $PM_{2.5}$ exposure.

Figure 8.6 $PM_{2.5}$ exposure in the State of Nevada, emitting industries and energy burdened (greater than or equal to the 90th percentile) census tracts.

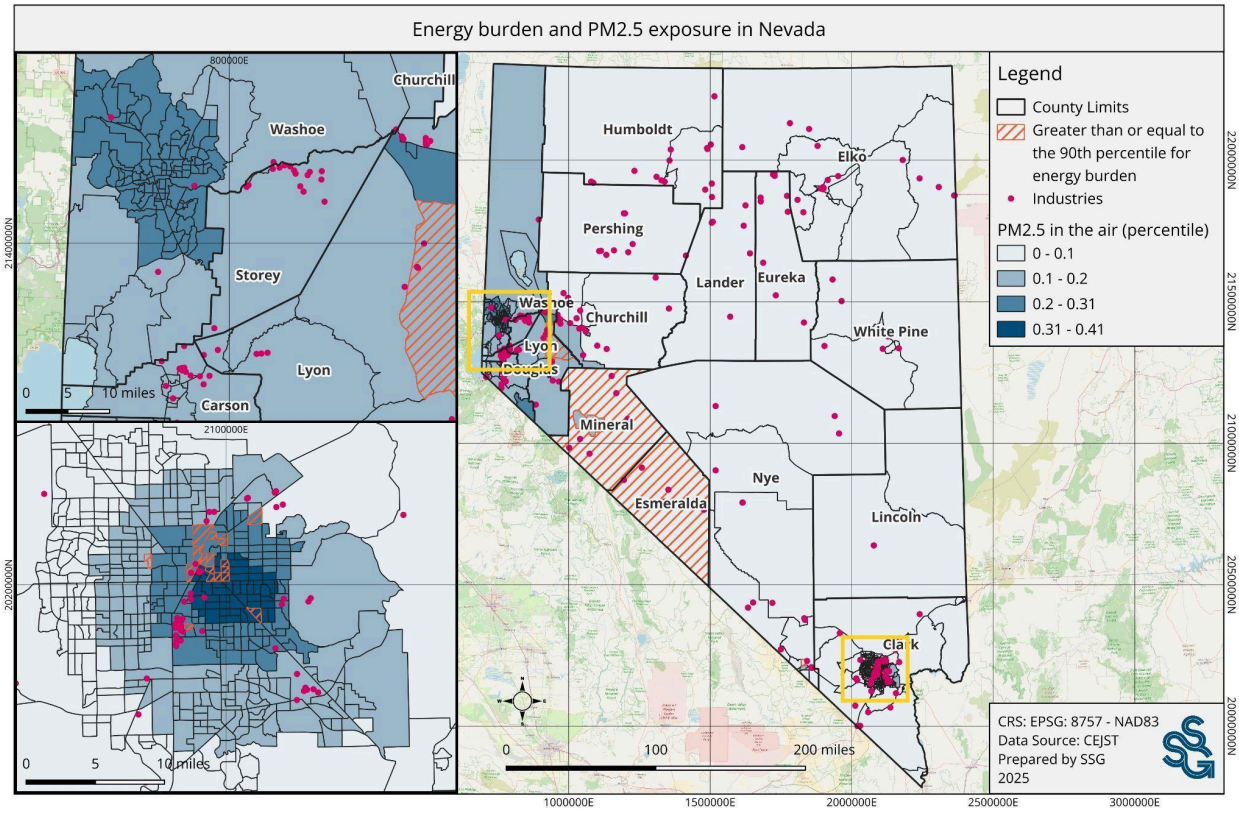
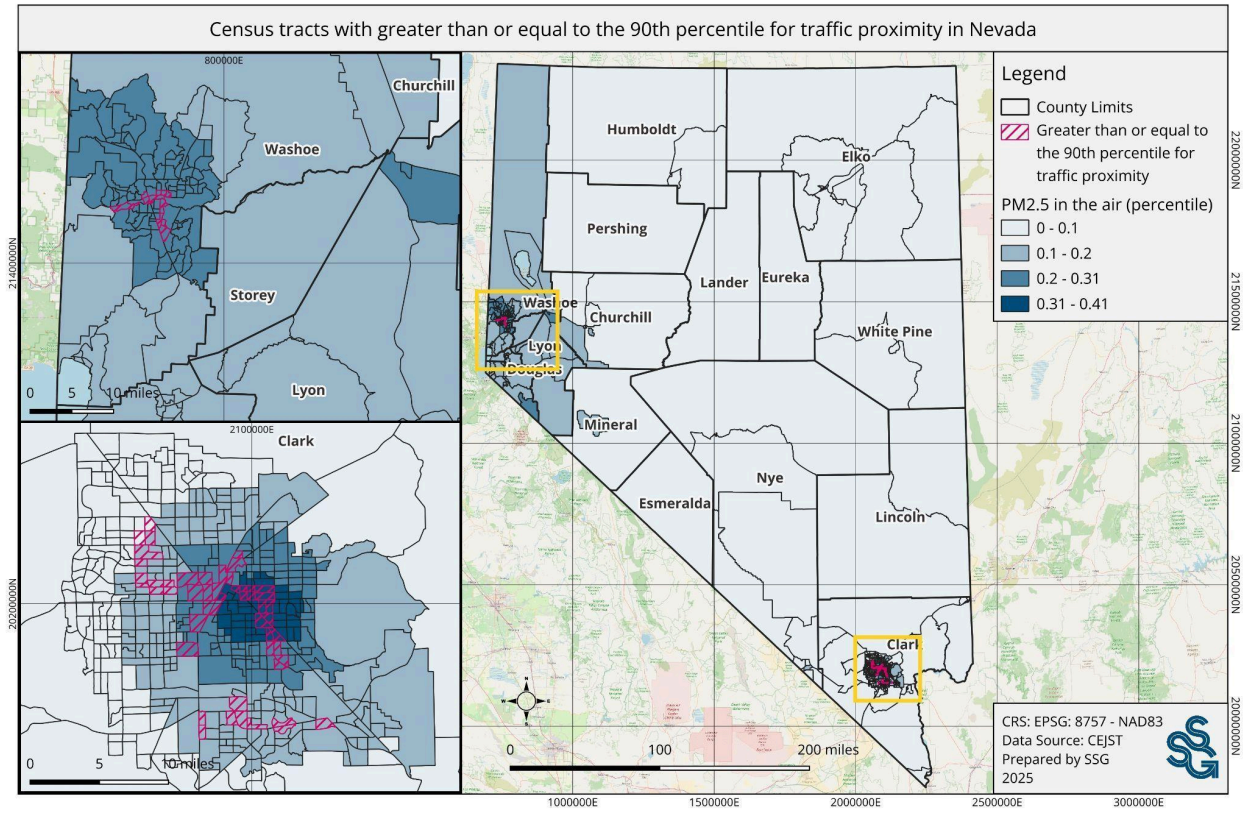


Figure 8.7 $PM_{2.5}$ exposure in the State of Nevada, and burdened census tracts (greater than or equal to the 90th percentile) for traffic proximity.



According to the Rocky Mountain Institute, an estimated 46 early deaths and $513 million in health impact costs occurred in 2017 because of outdoor air pollution from burning gas and other fuels in buildings. The study further calculates that nitrogen oxides (NO_x) and volatile organic compounds (VOCs) pollution cost that state an estimate of $70 million and $38 million in health impact costs respectively.[63] These figures likely underestimate the full health burden, as they exclude impacts from indoor air pollution, direct exposure to other outdoor pollutants, and related health issues like asthma, hospital visits, or emergency care. These numbers show that helping to reduce outdoor air pollution will not only financially benefit the state of Nevada, but will also improve the health of its residents.

The GHG reduction measures assessed in the CCAN can result in improved air quality across the state. The transition to clean energy systems, reduces fossil fuel combustion, which reduces particulate matter and nitrogen oxides. In the building sector, retrofits and the construction of net-zero buildings increases energy efficiency and reduces emissions from the use of heating and cooling systems. The adoption of ZEVs and the expansion of public and active transportation networks reduces air pollution from the transportation sector, which is a

[63] RMI (Rocky Mountain Institute). *Health Air Quality Impacts of Buildings Emissions*. https://rmi.org/health-air-quality-impacts-of-buildings-emissions#NV.

major source of urban air pollution. Similarly, decarbonizing industrial operations through measures such as electrifying industrial processes and integrating on-site renewables reduces pollutants from these sources.

Table 8.6 GHG reduction measures in the CCAN that reduce outdoor air pollution by scenario.

Sector	Opportunity Area	Measures	LC	MF	CD
Energy Systems	Power Nevada with Clean Energy	Incentivize a Clean, Reliable, and Resilient Grid for Nevada	✓	✓	✓
		Expand Residential Solar Access and Affordability with Financing and Technical Support Programs	✓	✓	✓
		Adopt Initiatives Supporting Community Solar and Renewable Co-ops	✓	✓	✓
		Scale Up Solar Installation in Commercial Sector with Financing and Technical Support Programs	✓	✓	✓
Buildings	Build Net Zero New Buildings	Strengthen Building Energy Conservation Codes	✓	✓	✓
		Adopt Net-Zero Ready Standards for All New Buildings	✓	✓	✓
		Invest in Zero-Emission Affordable Housing Options			✓
	Transform Existing Buildings	Establish Building Performance Standards for Existing Large Buildings	✓	✓	✓
		Retrofit Nevada - Modernize Homes Initiative	✓	✓	✓
		Retrofit Nevada - Modernize Businesses Initiative	✓	✓	✓
		Incentivize and Require Heat Pumps for Heating and Cooling in Residential Buildings	✓	✓	✓
		Incentivize and Require Heat Pumps for Heating and Cooling in Commercial Buildings	✓	✓	✓
Transportation	Move with Active and Public Transit	Build Public Transit and Active Transportation Networks for Everyone	✓	✓	✓
	Accelerate Zero Emission Vehicles for All	Launch EV for NV, an initiative to increase personal use EVs	✓	✓	✓
		Establish Lead the Charge, an Electrifying Public Fleets Assistance Program	✓	✓	✓

Sector	Opportunity Area	Measures	LC	MF	CD
		Deploy Community-Based Electric Carsharing Programs			✓
	Drive Sustainable Transport	Incentivize and Require the Clean Commercial Fleet Transition	✓	✓	✓
		Adopt Power Up Clean Worksites, an initiative to transition Off-Road Equipment to ZEVs	✓	✓	✓
		Fuel Sustainable Skies Program	✓	✓	✓
		Propel Marine Vessels to use Low- and Zero-Emission Fuels	✓	✓	✓
Industry	Decarbonize Industry	Maximize Industrial Energy Efficiency	✓	✓	✓
		Accelerate Deployment of Green Hydrogen for Industrial Decarbonization	✓	✓	✓
		Electrify Industrial Processes and Integrate On-Site Renewables	✓	✓	✓
		Support Industrial Carbon Capture, Utilization, and Storage (CCUS) Solutions	✓	✓	✓
Waste	Divert and Reuse Waste	Expand recycling, composting, and sustainable materials management programs	✓	✓	✓
	Harness Landfill Gas	Develop and Fund Landfill Gas Capture and Utilization Systems	✓	✓	✓
Agriculture	Make Farming more Sustainable	Grow Regenerative Agriculture Practices in Nevada	✓	✓	✓
		Improve Grazing Management and Rangeland Resilience	✓	✓	✓
Natural and Working Lands	Grow Nature-Based Solutions	Expand Urban and Community Tree Canopy Coverage Across Nevada	✓	✓	✓
		Protect and Restore Natural Lands Initiative	✓	✓	✓

Table 8.7 highlights the projected co-pollutants released in BAU, BAP, LC, MF and CD scenarios. All three low carbon scenarios result in a significant reduction of co-pollutants within the state compared to the BAP scenario.

Table 8.7. Fossil fuel combustion and related co-pollutants in each scenario, 2021 and 2050. Source: SSG analysis.

CAPs	Base Year (2021)	BAU (2050)	BAP (2050)	LC (2050)	MF (2050)	CD (2050)
MMBTU fossil fuels combusted (millions)	478	654	559	290	317	303
Cumulative MMBTU of fossil fuels combusted (millions)	-	17,455	15,799	11,577	12,483	12,484
CO released (MTon)	250,007	309,417	218,949	4,886	32,042	4,117
HC released (MTon)	8,365	12,114	5,856	116	1,482	108
NOx released (MTon)	49,244	64,274	42,560	9,457	11,371	8,704
Particulate matter ($PM_{2.5}$ MTon) released	3,622	4,768	3,124	436	578	397
Particulate matter (PM 10 MTon) released	9,043	11,292	7,407	731	1,754	686
SOx released (MTon)	3,622	4,768	1,560	265	501	260
VOCs released (MTon)	2,649	4,186	21,113	811	3,538	691

These reductions in outdoor air pollution will have particular benefits for people living in low-income and at-risk communities, as defined in the following maps as those experiencing an energy burden at or above the 90th percentile (Figures 8.8, 8.9, 8.10). Most reductions are found in the Low-Carbon and Community Driven Scenarios.

Figure 8.8 Map of reductions (%) in $PM_{2.5}$ by zone by 2050 in relation to current areas with high energy burden in Nevada in the LC Scenario.

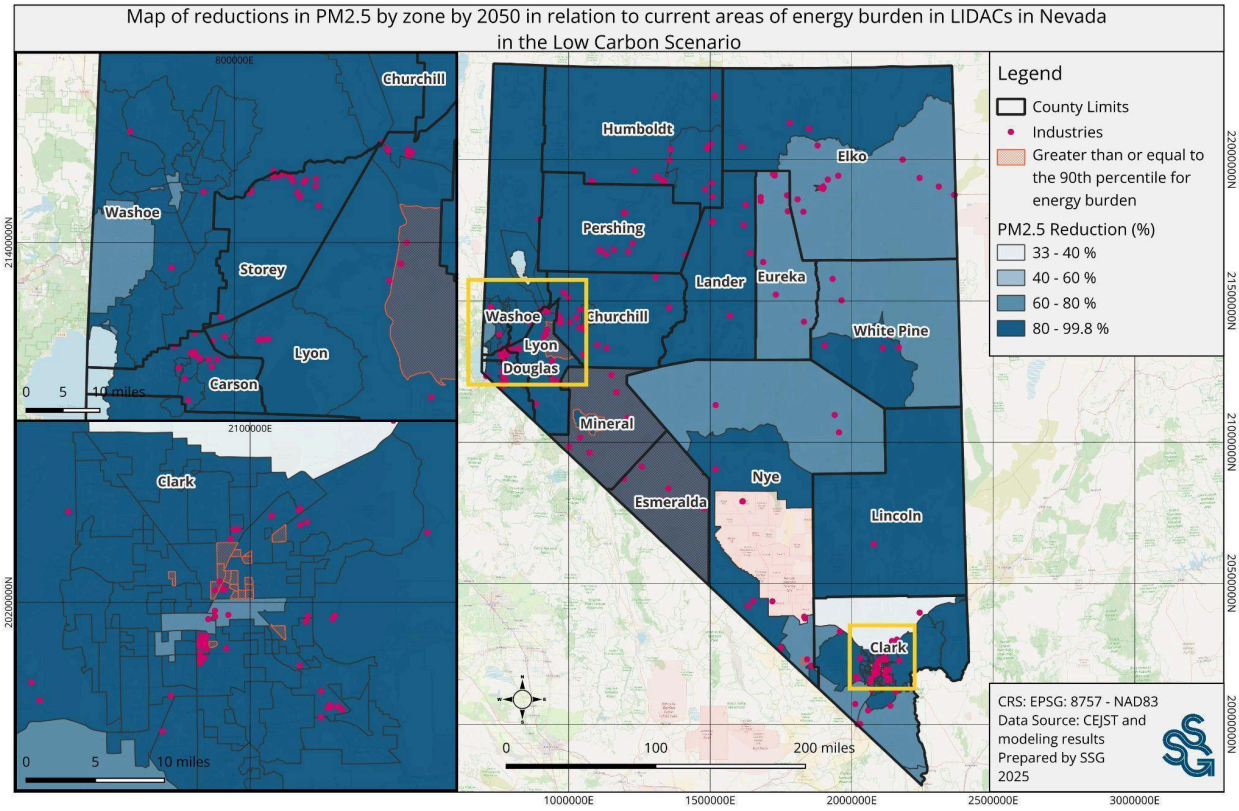


Figure 8.9 Map of reductions (%) in $PM_{2.5}$ by zone by 2050 in relation to current areas with high energy burden in Nevada in the MF Scenario.

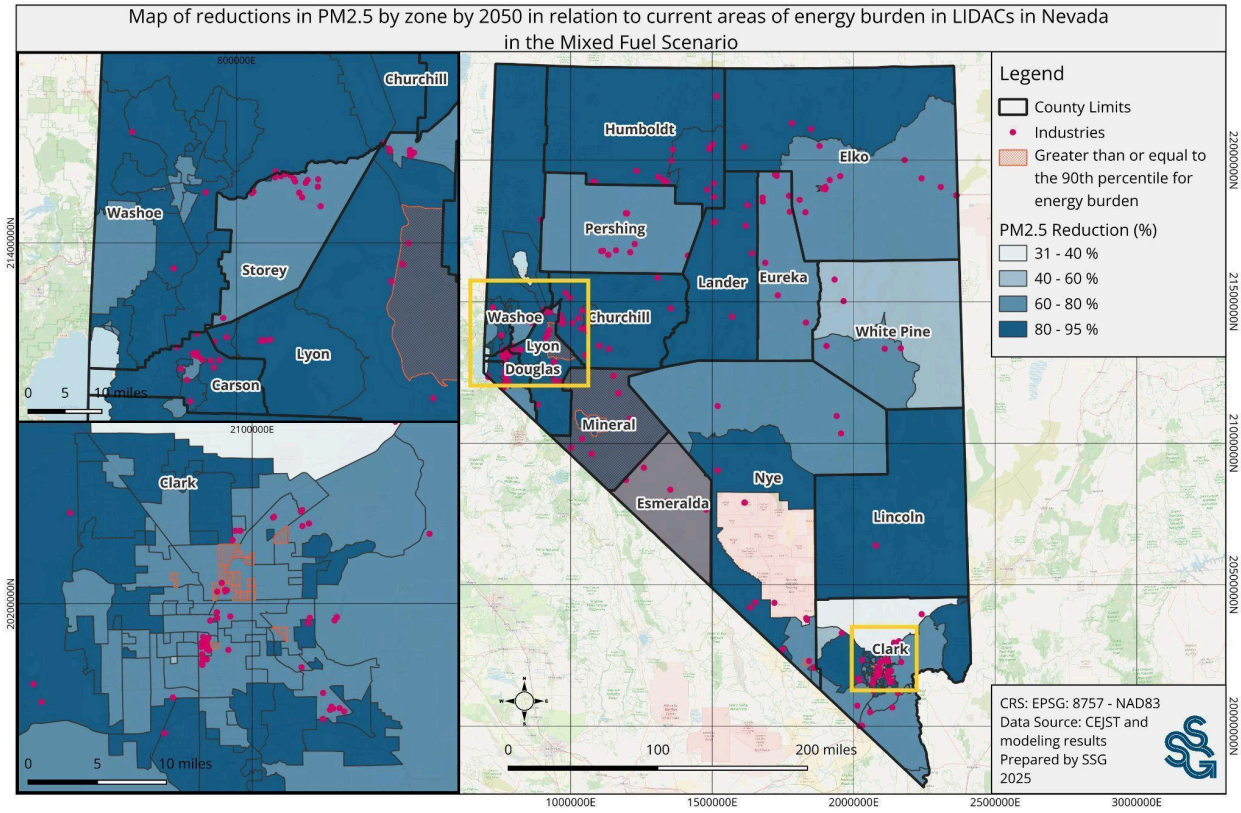
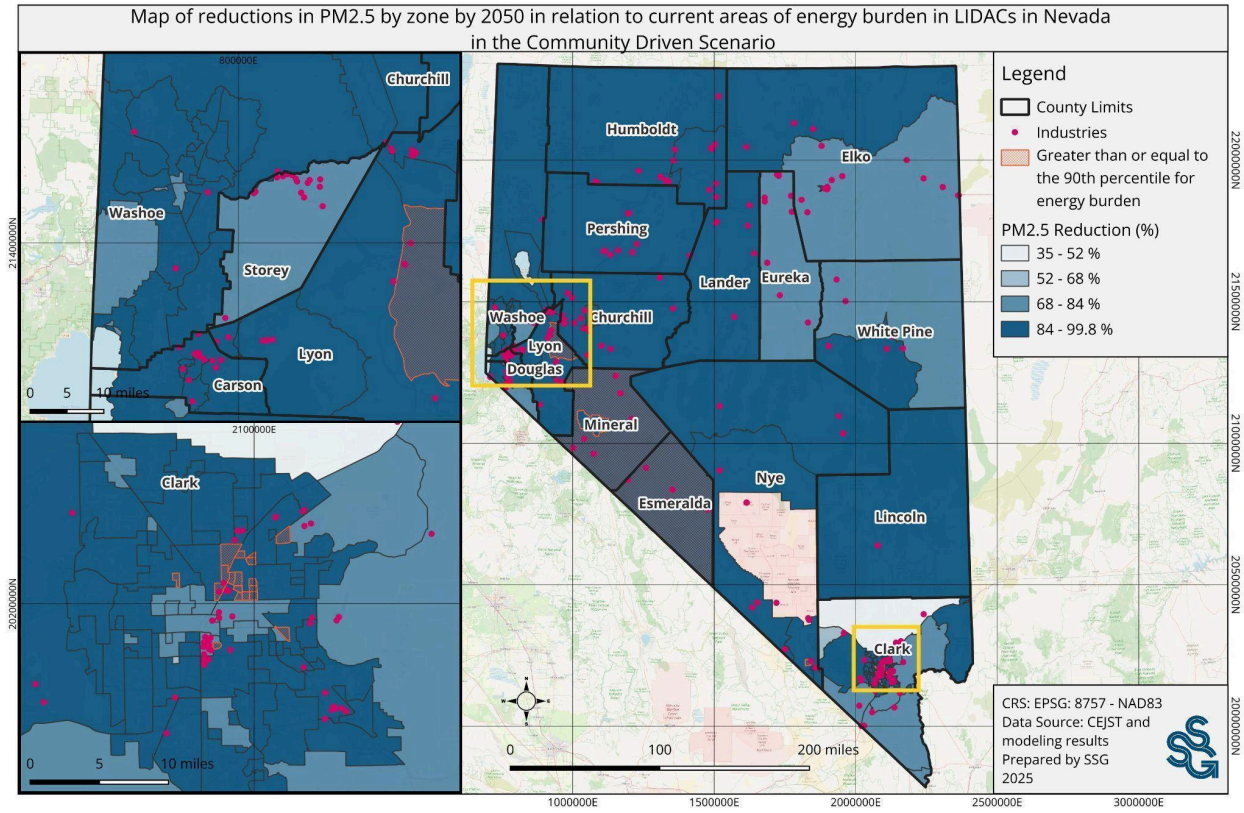


Figure 8.10 Map of reductions (%) in $PM_{2.5}$ by zone by 2050 in relation to current areas with high energy burden in Nevada in the CD Scenario.



While clean hydrogen has the potential to reduce GHG emissions in “hard-to-abate” sectors like industry and transportation, its benefits and impacts vary significantly depending on how it is produced, transported, and used. For example, there are potential co-harms in transitioning to hydrogen combustion engines from fossil-fuel engines, which is promoted in the Mixed Fuel scenario.

According to the Environmental Defense Fund (EDF), in most cases, hydrogen fuel cells are not an energy efficient source for transportation and should be deployed in limited applications only where electrification is not possible.[64] Further, combustion of hydrogen, in thermal power plants, fossil-fuel engines, residential heating, and/or for cooking can generate nitrogen oxides (NOx) which reduces air quality and poses health risks, as mentioned above.[65] In order to mitigate the co-harms associated with hydrogen, the State should require companies to demonstrate compliance with existing air quality regulations, subject permits to emissions caps, adopt new protections when needed (e.g., for large combustion volumes or facilities located near at-risk communities), and reimburse communities for local health impacts.

[64] https://blogs.edf.org/energyexchange/2023/01/30/rule-1-of-deploying-hydrogen-electrify-first/
[65] Adamkiewicz, G, Coglian,o V, Choi, H, Delgado Saborit, JM, Krzyzanowski, M, Harrison, P,Harrison, RM, Henderson, RF, Jarvis, D, Kaden, DA (2010) Nitrogen Dioxide. In: WHO Guidelines for Indoor Air Quality: Selected Pollutants. Copenhagen: WHO Regional Office for Europe. 201–248. Available at https://www.euro.who.int/_data/assets/pdf_file/0009/128169/e94535.pdf.

8.4.2 Indoor Air Quality

According to EPA studies, Americans spend approximately 90% of their lives indoors.[66] Indoor environments can have concentrations of pollutants two to five times higher than typically found outdoors. Those who are most susceptible to the negative effects of air pollution, such as young children and older adults, or those with respiratory and cardiovascular issues, tend to spend even more time indoors, heightening the impact of exposure, particularly from household appliances that burn fossil fuels.

Cooking appliances can release harmful combustion byproducts such as carbon monoxide and particulate matter directly into the indoor environment. As of 2020, approximately 60% of Nevada households are equipped with gas stoves for cooking. [67] This is higher than the national average of 38%.[68]

There is increasing evidence about the health impacts, particularly on children, of using natural gas stoves and fireplaces indoors.[69] Cooking with gas stoves can spike emissions of nitrogen dioxide and carbon monoxide to levels higher than outdoor standards set by the EPA and some states.[70] According to the Rocky Mountain Institute (RMI), homes with gas stoves can have nitrogen dioxide levels that are 50-400% higher than homes with electric stoves.[71] Even in low concentrations, nitrogen dioxide can trigger breathing problems for those who live with asthma or chronic obstructive pulmonary disease and increase the risk of respiratory infections, particularly in children. Ongoing exposure can lead to acute or chronic bronchitis.[72,73] Children are particularly susceptible to illnesses associated with air pollution due to having higher breathing rates, greater levels of physical activity, higher lung surface to body weight ratios and immature respiratory and immune systems.[74]

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[66] Environmental Protection Agency. *Indoor Air Quality (IAQ).* Accessed May 2025. https://www.epa.gov/indoor-air-quality-iaq.
[67] **U.S. Energy Information Administration.** *Residential Energy Consumption Survey 2020: State Data on Appliances.* Accessed May 2025. https://www.eia.gov/consumption/residential/data/2020/state/pdf/State%20Appliances.pdf.
[68] **U.S. Energy Information Administration.** "Today in Energy: Nearly 38% of U.S. Households Cook with Natural Gas." Accessed May 30, 2025. https://www.eia.gov/todayinenergy/detail.php?id=55940.
[69] Seals, B. and Karasner, A. (2020). Health effects from gas stove pollution. Retrieved from: https://rmi.org/insight/gas-stoves-pollution-health
[70] "Gas Stoves: Health and Air Quality Impacts and Solutions," RMI, accessed September 28, 2022, https://rmi.org/insight/gas-stoves-pollution-health/.
[71] Dan Slanger, "Indoor Air Pollution: The Link between Climate and Health," RMI, May 5, 2020, https://rmi.org/indoor-air-pollution-the-link-between-climate-and-health/.
[72] OAR US EPA, "Nitrogen Dioxide's Impact on Indoor Air Quality," Overviews and Factsheets, August 14, 2014, https://www.epa.gov/indoor-air-quality-iaq/nitrogen-dioxides-impact-indoor-air-quality.
[73] Weiwei Lin, Bert Brunekreef, and Ulrike Gehring, "Meta-Analysis of the Effects of Indoor Nitrogen Dioxide and Gas Cooking on Asthma and Wheeze in Children," *International Journal of Epidemiology* 42, no. 6 (December 1, 2013): 1724–37, https://doi.org/10.1093/ije/dyt150.
[74] "Gas Stoves: Health and Air Quality Impacts and Solutions," RMI, accessed September 28, 2022, https://rmi.org/insight/gas-stoves-pollution-health/.

Lower-income households and at-risk communities may be disproportionately impacted by indoor air pollution, as these groups are more likely to live in older, smaller homes with poor ventilation; share the home with more people (higher occupant density); lack adequate stove top ventilation; and have higher rates of asthma and other respiratory diseases due to other sources of pollutants.[75]

Strengthening building energy codes, adopting net-zero ready standards, and retrofitting homes and businesses through initiatives like Retrofit Nevada can improve indoor air quality where they enhance ventilation. Measures that reduce the combustion of fuels in the home such as stoves, water heaters, and furnaces can reduce indoor air pollution. Transitioning to electric systems, particularly by incentivizing and requiring heat pumps, eliminates these combustion-related emissions.

Table 8.8 GHG reduction measures in the CCAN that could reduce indoor air pollution by scenario.

Sector	Opportunity Area	Measures	LC	MF	CD
Buildings	Build Net Zero New Buildings	Strengthen Building Energy Conservation Codes	✓	✓	✓
		Adopt Net-Zero Ready Standards for All New Buildings	✓	✓	✓
		Invest in Zero-Emission Affordable Housing Options			✓
	Transform Existing Buildings	Establish Building Performance Standards for Existing Large Buildings	✓	✓	✓
		Retrofit Nevada - Modernize Homes Initiative	✓	✓	✓
		Retrofit Nevada - Modernize Businesses Initiative	✓	✓	✓
		Incentivize and Require Heat Pumps for Heating and Cooling in Residential Buildings	✓	✓	✓
		Incentivize and Require Heat Pumps for Heating and Cooling in Commercial Buildings	✓	✓	✓

Implementation of measures to reduce carbon emissions occurring at residential and commercial buildings may improve indoor air quality and may reduce the incremental health burdens associated with the co-pollutant emissions. Table 8.9 and 8.10 illustrates the reduction in fuels used for combustion in 2050 in the LC scenarios relative to the BAU and BAP scenarios in residential and commercial buildings, respectively.

[75] Ibid.

Table 8.9 Fuels used in residential buildings in 2050 in the BAU, BAP, LC, MF and CD Scenarios.

Fuel Type	BAU	BAP	LC	MF	CD
MMBTU used in residential buildings in 2050					
Natural gas	53,080,831	47,995,144	776,660	1,175,771	1,271,623
Electricity	76,421,273	65,763,264	16,443,986	25,323,260	12,240,635
Wood	463,314	421,309	1	3,504	4,115
Propane	278,030	275,705	1	3,847	3,187
On-site Solar	2,902,875	3,939,193	34,222,846	25,253,568	38,931,741

Table 8.10 Fuels used in commercial buildings in 2050 in the BAU, BAP, LC, MF and CD Scenarios.

Fuel Type	BAU	BAP	LC	MF	CD
MMBTU used in commercial buildings in 2050					
Natural gas	51,599,192	51,682,888	3,697,158	4,534,202	4,065,362
Electricity	76,620,799	72,185,119	19,841,419	30,297,374	14,484,039
Propane	516,563	365,545	331,102	328,665	327,188
Petroleum Products	126,572	137,996	18,956	18,855	18,569
On-site Solar	1,676,518	2,483,417	41,328,735	30,248,966	46,101,774

Stricter building codes have potential community co-harms. For example, compliance costs could be passed on to tenants and buyers through higher rents or housing prices, potentially worsening housing affordability. Without proper safeguards, programs may also face a “split incentive” challenge, where landlords are reluctant to make upgrades since there is no financial benefit for them, leaving renters in inefficient, high-cost units. Poorly designed incentive structures could further skew benefits toward wealthier households, while those most in need are excluded. To avoid these outcomes, policies to improve indoor air quality through building retrofits and electrification should be paired with accessible financing, targeted incentives, and protections that prevent disproportionate burdens on low-income households.

8.4.3 Physical and Emotional Well-Being

Studies have consistently shown that regular physical activity improves overall health, mental health and fitness, reduces the risk of premature mortality and many chronic diseases and contributes to happiness and reduced anxiety.[76] [77]

Promoting a transition from personal vehicle use to public transportation or other active modes of transportation can lead to increased physical activity and a healthier lifestyle,[78] reducing the relative risk of premature mortality by 30 - 40%.[79]

Increasing access to green spaces and parks may also increase community levels of physical activity. Residents in neighborhoods with ample green space are three times more likely to be physically active and 40% less likely to be overweight than those in neighborhoods with limited green space.[80] Seniors living in neighborhoods with walkable green spaces nearby may live longer on average.[81]

A potential co-harm of promoting walking and cycling is that it may result in greater exposure to air pollution for pedestrians and cyclists.[82] Although cyclists are likely to be more exposed to air pollution, studies have generally agreed that despite air pollution exposure posing a significant health risk, the net benefits of cycling to health almost always outweigh the negative impacts of air pollution.[8384] Furthermore, the expansion of active transportation networks often coincides with the creation of green spaces and parks, which in turn, helps limit citizens to harmful air quality exposure.[8586]

[76] World Health Organization. *Physical Activity*. Last modified October 5, 2022. https://www.who.int/news-room/fact-sheets/detail/physical-activity.
[77] Mayo Clinic Staff. *Exercise: 7 Benefits of Regular Physical Activity*. Mayo Clinic. Accessed June 20, 2025. https://www.mayoclinic.org/healthy-lifestyle/fitness/in-depth/exercise/art-20048389.
[78] U.S. Department of Transportation. *Active Transportation and Health*. Accessed June 20, 2025. https://www.transportation.gov/mission/health/active-transportation-and-health.
[79] Jennifer Dill, "Active Transportation Increases Adherence to Activity Recommendations," *American Journal of Preventive Medicine* 28, no. 2 (2005): 161–170, https://www.researchgate.net/publication/6882480_Active_Transportation_Increases_Adherence_to_Activity_Recommendations.
[80] [CABE] Commission for Architecture and the Built Environment (n.d.). Future Health: Sustainable places for health and well-being. London, U.K.: CABE
[81] Bray, R., C. Vakil, and D. Elliot. (2005). Report on Public Health and Urban Sprawl in Ontario: A review of the pertinent literature. Ontario College of Family Physicians
[82] https://ij-healthgeographics.biomedcentral.com/articles/10.1186/s12942-023-00326-7
[83] https://ij-healthgeographics.biomedcentral.com/articles/10.1186/s12942-023-00326-7
[84] Tainio, Marko, Audrey J. de Nazelle, Thomas Götschi, Sonja Kahlmeier, David Rojas-Rueda, Mark J. Nieuwenhuijsen, Thiago Hérick de Sá, Paul Kelly, and James Woodcock. "Can Air Pollution Negate the Health Benefits of Cycling and Walking?" Preventive Medicine 87 (June 2016): 233–36. doi:10.1016/j.ypmed.2016.02.002.

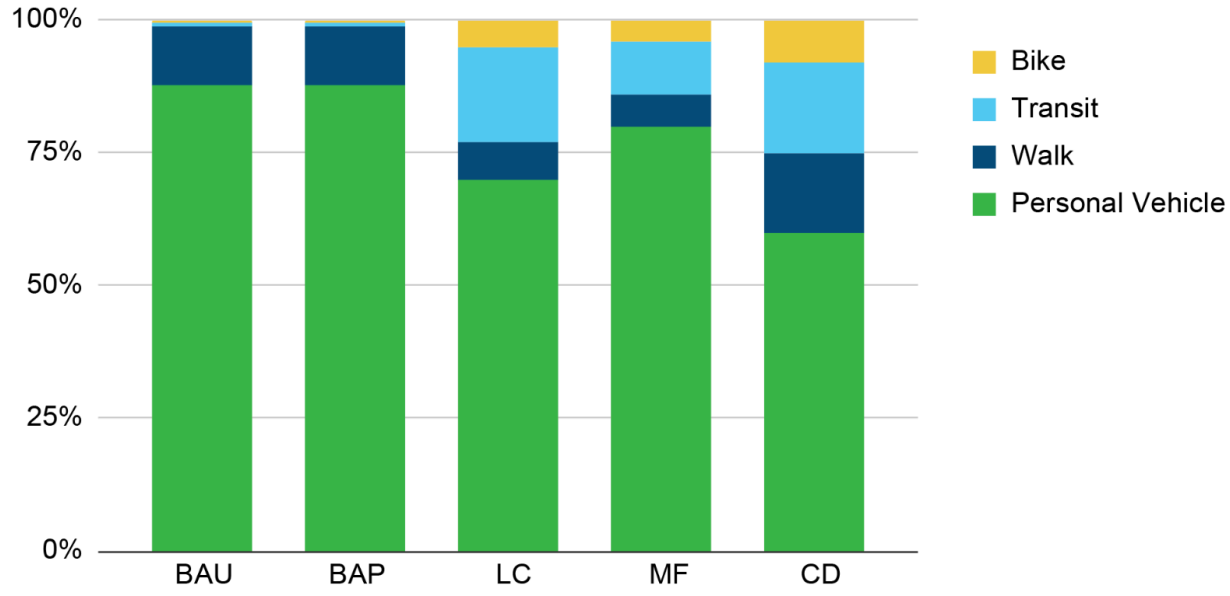
[85] https://ij-healthgeographics.biomedcentral.com/articles/10.1186/s12942-023-00326-7
[86] https://pmc.ncbi.nlm.nih.gov/articles/PMC10936756/

Table 8.11 GHG reduction measures that increase physical and emotional well-being.

Sector	Opportunity Area	Measures	LC	MF	CD
Transportation	Move with Active and Public Transit	Build Public Transit and Active Transportation Networks for Everyone	✓	✓	✓

The following graphs show projected mode shares in 2050 by each scenario (BAP, LC, MF, and CD). The CD Scenario results in the highest share of active transportation by 2050.

Figure 8.12 Mode share distribution for personal trips by scenario, 2050.



8.5 Climate Adaptation and Resilience

8.5.1 Reduction of Urban Heat Island Effect

Nevada's dry climate features extreme temperature swings, with summer temperatures often exceeding 100°F, particularly in the southern part of the state.[87] This makes people in Nevada highly susceptible to heat-related illnesses. In 2024, there were 3,257 emergency department visits due to heat-related illnesses, with cases peaking from July to August during the heat season, which spans from May 1 to September 30.[88] There were 253 heat-related deaths in 2024, of which 240 were in Clark County, a decline from 309 heat-related deaths in 2023.[89]

Between 1970 - 2022, the cities of Reno and Las Vegas warmed up faster than any other cities in the country, in part due to the urban heat island effect.[90] Vulnerable populations, including the elderly, children, pregnant persons, individuals with preexisting health conditions, people with disabilities, unhoused persons, outdoor workers, and those in low-income or socially isolated circumstances, are especially at risk. Strategies such as increasing urban greenery can lower these ambient temperatures, thereby mitigating heat stress and its associated health impacts. These measures not only promote physical health but also enhance overall well-being by creating cooler, more livable urban environments in Nevada's rapidly growing communities and changing climate.

[87] **Office of State Epidemiology.** *Nevada Heat-Related Illness Report: May 1 to September 30, 2024.* Accessed May 2025. https://nvose.org/wp-content/uploads/2024/10/HRI-Report-2024-May1-Sept30.html.
[88] **Office of State Epidemiology.** *Nevada Heat-Related Illness Report: May 1 to September 30, 2024.* Accessed May 2025. https://nvose.org/wp-content/uploads/2024/10/HRI-Report-2024-May1-Sept30.html.
[89] **Nevada Office of State Epidemiology.** *Heat-Related Illness Dashboard.* Accessed May 2025. https://app.powerbigov.us/view?r=eyJrIjoiZWZiODA4ZjctZDAyNi00OTgyLWIwNTAtYmY5ZDRhYTQ0OTg2IiwidCI6ImU0YTM0MGU2LWI4OWUtNGU2OC04ZWFhLTE1NDRkMjcwMzk4MCJ9.
[90] **Climate Central.** *Earth Day: Warming & Solutions 2023.* Accessed May 30, 2025. https://www.climatecentral.org/climate-matters/earth-day-warming-and-solutions-2023.

Figure 8.16 Map of Heat Related Illness Emergency Department Visit Rates by County, Nevada Residents Only (2024) Source: Office of State Epidemiology

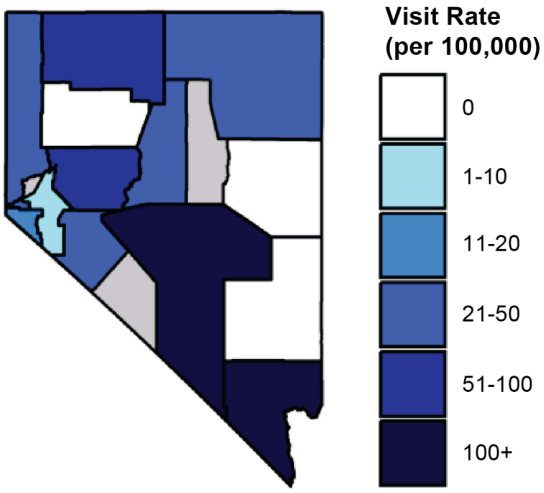
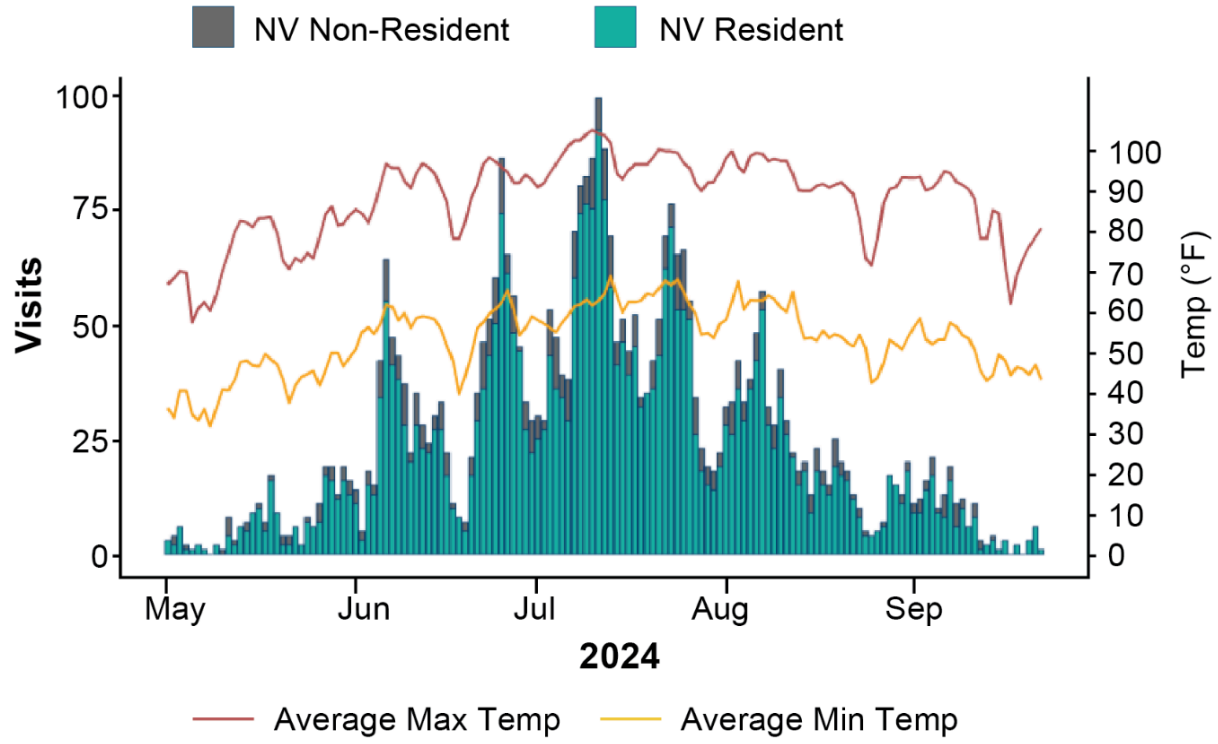


Figure 8.17 Daily Heat-Related Illness Emergency Department VIsits in Nevada (2024). Source: Department of State Epidemiology



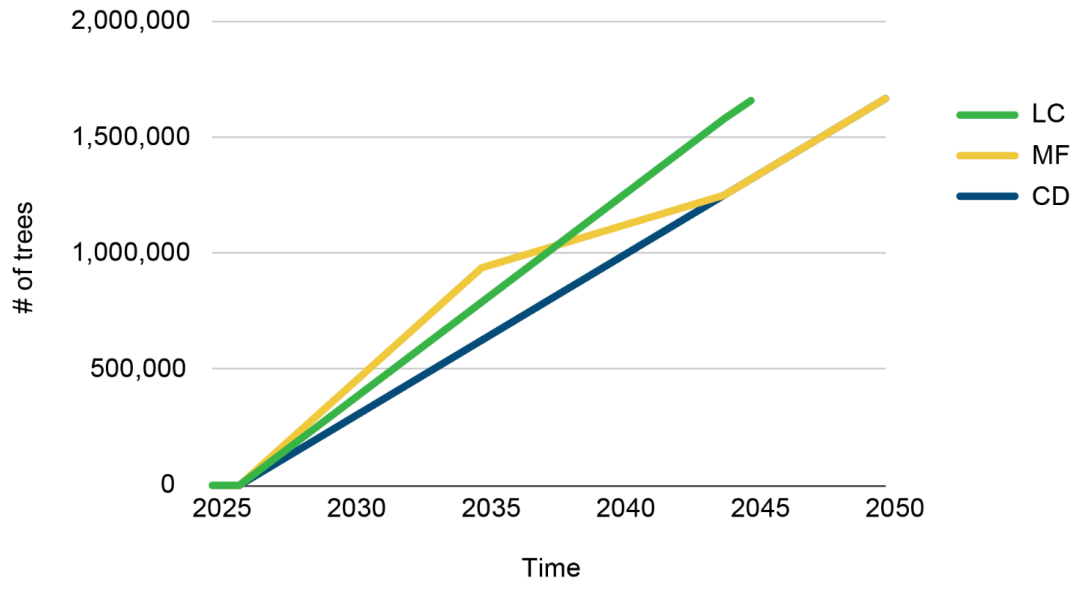
Nevada is already becoming one of the driest State's in the county and a potential co-harms of expanding tree canopy cover in Nevada is that it could exacerbate water stress in an already arid region.[91] Drought-tolerant trees can struggle without proper seasonal irrigation, especially during extreme heat events.[92] Selecting the wrong species, such as cypress or elm, which are not adapted to local heat, soil, or drought, can result in poor survival rates, high maintenance needs, and limited cooling benefits.[93] [94] These challenges can be avoided by selecting desert-adapted trees and following urban forestry best practices for the local area.[95]

Table 8.12 GHG reduction measures in the CCAN that reduce the urban heat island effect.

Sector	Opportunity Area	Measures	LC	MF	CD
Natural and Working Lands	Grow Nature-Based Solutions	Expand Urban and Community Tree Canopy Coverage Across Nevada	✓	✓	✓
		Protect and Restore Natural Lands Initiative	✓	✓	✓

The figure below illustrates the number of trees added for each scenario over time.

Figure 8.18 Number of trees planted over time by scenario. Source: SSG Analysis.



[91] U.S. Department of Agriculture. *USDA Urban Tree Guide for Desert Southwest*. Washington, D.C.: USDA Forest Service, 2003.
[92] California Energy Commission. *Urban Heat Island Mitigation: Water-Energy Considerations in Arid Climates*. Sacramento: California Energy Commission, 2016.
[93] University of Nevada Extension. "Trees That Can't Take the Heat in Southern Nevada." Accessed June 20, 2025. https://extension.unr.edu/publication.aspx?PubID=3855.
[94] Daniel Rothberg, "Southern Nevada at Risk of Losing Tree Shade to Extreme Heat," *Nevada Current*, August 31, 2023, https://nevadacurrent.com/2023/08/31/southern-nevada-at-risk-of-losing-tree-shade-to-extreme-heat.
[95] U.S. Forest Service. *Right Tree in the Right Place: Urban Tree Planting Guide*. Washington, D.C.: USDA Forest Service, 2000.

9. Tribal Nations

The list of GHG reduction measures proposed for Nevada presents opportunities to align with and advance Tribal communities' objectives for energy sovereignty, clean water supply, resilient housing, and robust food infrastructure that has been mentioned during tribal engagement interviews.

Initiatives such as expanding residential and community solar access, scaling commercial solar installations, and transitioning public and commercial fleets to electric vehicles not only reduce carbon emissions but also could lead to energy independence, empowering Tribal Nations to harness local, renewable resources and reduce reliance on external and/or unreliable energy grids.

Measures that strengthen building energy codes, promote net-zero ready construction (highly energy-efficient buildings designed so that, with the future addition of renewable energy systems, can produce as much energy as they consume annually), and retrofit existing homes and businesses directly enhance housing resilience and comfort, while simultaneously cutting utility costs and emissions for Tribal community members facing cost barriers. These steps dovetail with Tribal priorities for affordable, durable housing that can withstand extreme weather, fluctuating energy demands and an unreliable grid.

Investments in public transit and active transportation networks reduce dependence on automobiles, improve air quality, and improve connectivity within Tribal communities and with neighboring communities, improving access to employment opportunities and essential services.

The Nevada Department of Native American Affairs (DNAA), Inter-Tribal Council of Nevada(ITCN), Nevada Clean Energy Fund (NCEF), and the Alliance for Tribal Clean Energy (ATCE) represent critical conduits through which Tribal communities in Nevada have accessed and can continue to connect federal funding, such as through the EPA's Climate Pollution Reduction Grant (CPRG) directly to community needs. DNAA has historically served as a trusted state-level partner, fostering dialogue and supporting policy frameworks that elevate Tribal priorities. ITCN, with its long-standing role as a collective voice and resource hub for Nevada's tribes, has demonstrated its capacity to navigate federal funding streams and advocate for equitable resource distribution. NCEF, operating as a third-party facilitator, plays an instrumental role in demystifying complex funding mechanisms, providing technical assistance, and streamlining application processes to unlock critical funding for clean energy and resilience projects. ATCE's specialized expertise in energy sovereignty and Tribal capacity-building has empowered tribes to design and implement renewable energy initiatives that align with community goals and sustainability principles. Together, these institutions create a robust ecosystem of support that bridges federal resources with local action, ensuring

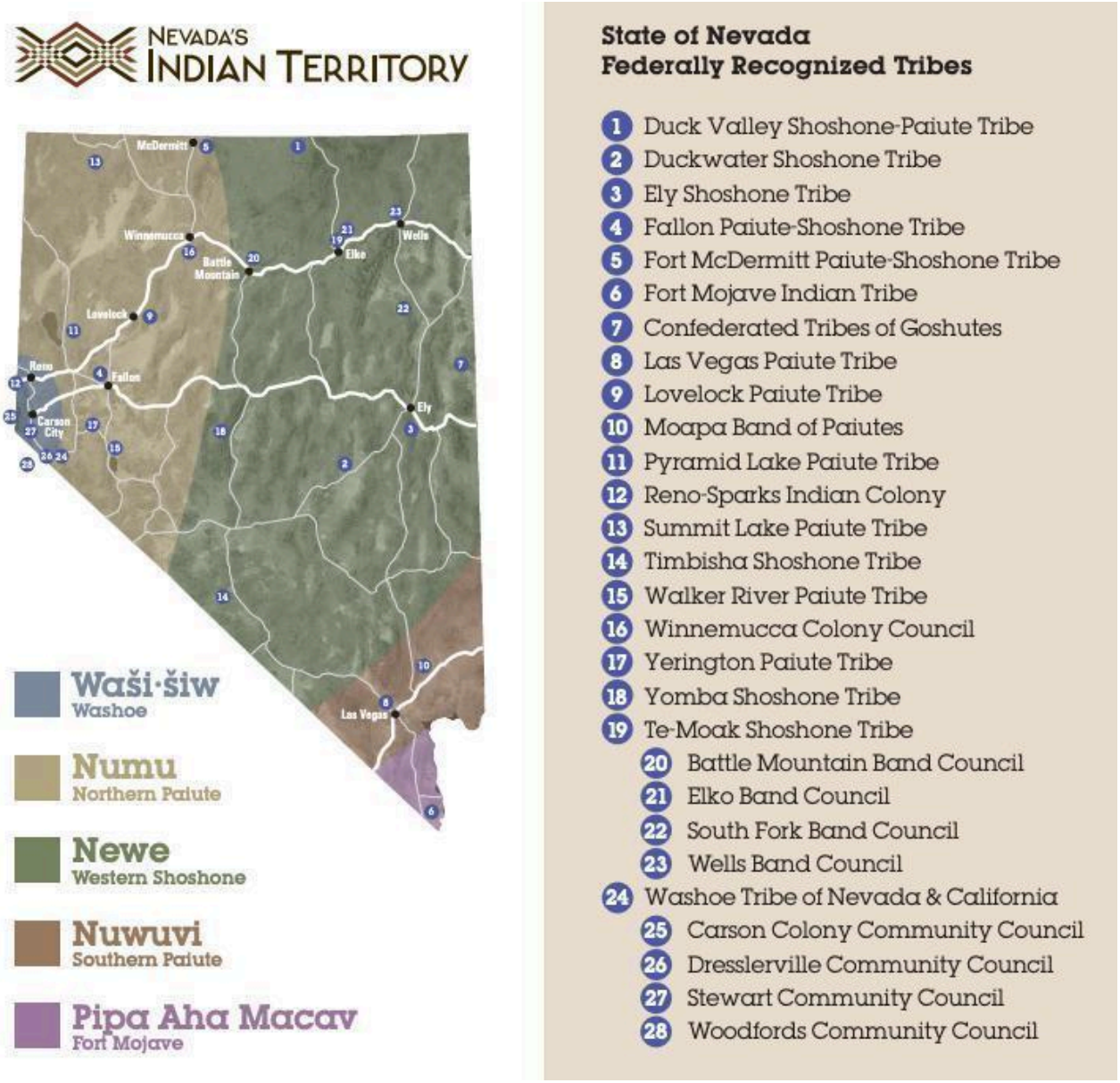
that transformative programs like CPRG could reach and directly benefit Tribal communities, supporting a just transition and long-term climate resilience.

9.1 Nations in Nevada

In Nevada, there are 28 federally recognized tribes and urban Native communities, which include 5 major groups: Wasi-siw (the Washoe People), Mumu (the Northern Paiute People), Newe (the Western Shoshone People), Nuwuvi (the Southern Paiute People) and Pipa Aha Macav (the Fort Mojave People), all apart of the Great Basin Indigenous People[9697]. Some of the larger groups include the Pyramid Lake Paiute Tribe, Elko Band, Ely Shoshone Tribe and Moapa Band of Paiute. The Te-Maok Shoshone Tribe and the Washoe Tribe of Nevada and California have smaller councils within their leadership. Nevada's Tribes, bands, and colonies span approximately 1,500 square miles of land.[98] As of 2023, Indigenous people make up 1.1% of Nevada's population.[99]

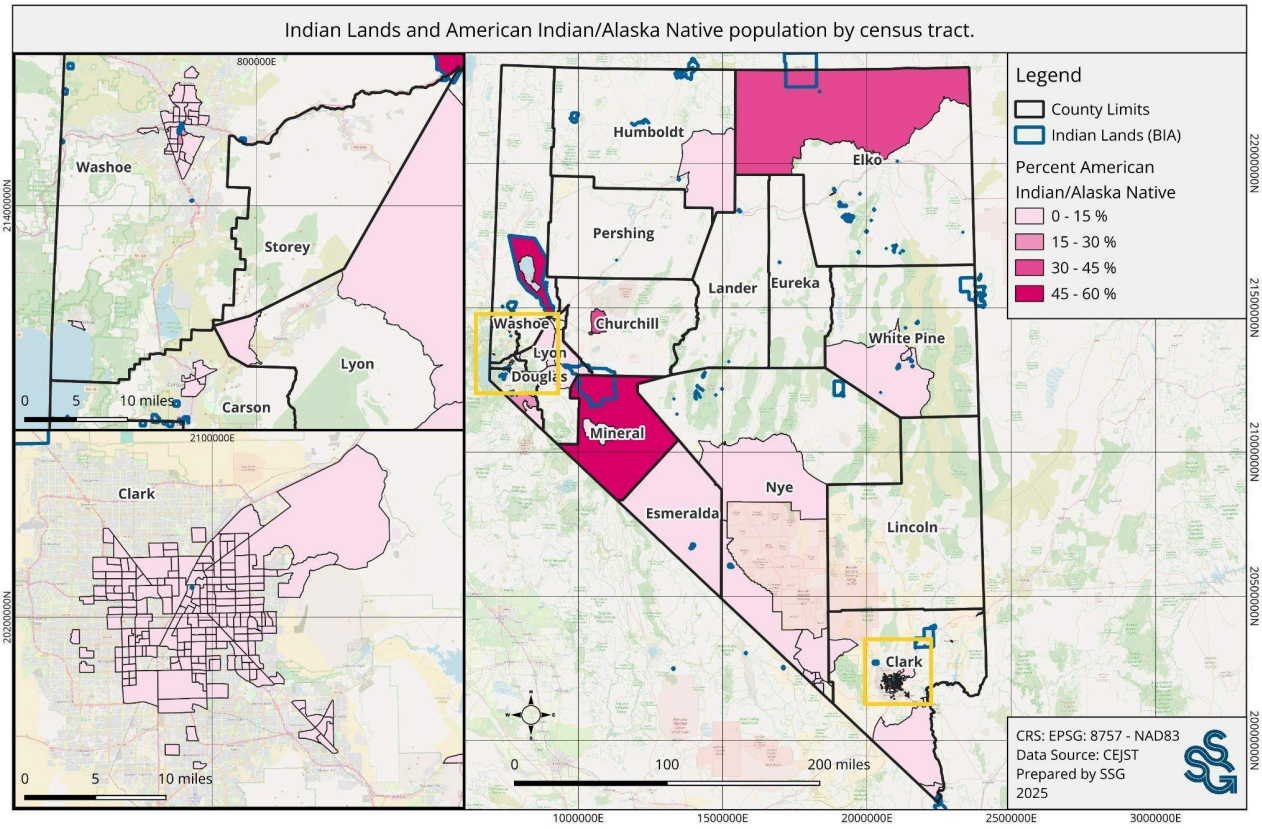
[96] Nevada Department of Native American Affairs. "Tribal Nations." Accessed May 2025. https://dnaa.nv.gov/tribal-nations/.
[97] Nevada's Indian Territory. "Home." Accessed May 2025. https://nevadasindianterritory.com/.
[98] Nevada Clean Energy Fund. "Tribes – Clean Energy Assistance." Accessed May 2025. https://nevadacef.org/tribes/.
[99] Nevada Department of Health and Human Services, Office of Analytics. "2024 Nevada Epidemiologic Profile." Accessed May 2025. https://dhhs.nv.gov/uploadedFiles/dhhsnvgov/content/Programs/Office_of_Analytics/2024%20Nevada%20Epidemiologic%20Profile%20-%20FINAL(6).pdf.

Figure 9.1 Map of the 28 federally recognized Tribes and urban Native communities in the State of Nevada. Source: Nevada Department of Native American Affairs.



The following figure shows the spatial distribution of Tribal populations across Nevada, including Indian Land boundaries, provided by the Bureau of Indian Affairs. Tribal communities are distributed across the state, both in the north and south, with a higher concentration of Indian lands in Mineral County, Elko County and Washoe County.

Figure 8.20 *Indian Lands and the American Indian/Alaska Native population by census tract. Source: Bureau of Indian Affairs and Council on Environmental Quality, 2022.*



9.2 Burdens and Risks

Tribal Nations in Nevada face a range of interconnected burdens and risks that are amplified by both geographic isolation and systemic disparities. Key concerns highlighted through engagement interviews with Tribal stakeholders include limited access to essential health and social services, under-resourced educational programs, challenges within the courts and legal systems, and the unmet needs of elders. In rural reservations, where the majority of Nevada's Tribal communities are situated, energy-related challenges such as grid instability and power outages undermine the reliability of essential services. Compounding these risks is the widespread use of propane and wood for heating and cooking, which contributes to air pollution and respiratory health concerns.[100] These environmental health challenges intersect with mobility constraints, as many reservations are located far from grocery stores, healthcare facilities, and other critical resources.[101] The burden of these challenges is not uniform; it varies across northern and southern Nevada, reflecting differences in climate, infrastructure, population density and socio-economic conditions. Collectively, these risks deepen vulnerabilities and exacerbate disparities in health, safety, and overall well-being for Tribal communities.

9.3 Current and Past Initiatives in Tribal Communities within Nevada

This section highlights initiatives currently being implemented in Nevada's Tribal communities that align with and advance the greenhouse gas reduction measures evaluated in the CCAN.

- In 2010 and 2012, the U.S. Department of Energy recognized four Tribal Energy Projects in Nevada, which featured solar and renewable energy initiatives led by the Te-Moak, Washoe, and Yerington Paiute tribes.[102]

[100] Janette Zambrano, "Nevada Clean Energy Fund Awarded $100,000 Grant from NV Energy Foundation to Expand Tribal Clean Energy Program," *Nevada Clean Energy Fund*, September 13, 2024, https://nevadacef.org/nv-energy-foundation-award/.
[101] U.S. Department of Agriculture. USDA-Tribal Collaboration Strengthens Food Security on Nevada's Indian Reservations. Last modified September 19, 2023. https://www.usda.gov/about-usda/news/blog/usda-tribal-collaboration-strengthens-food-security-nevadas-indian-reservations .

[102] U.S. Department of Energy, Office of Indian Energy. "Tribal Energy Projects Database." Accessed May 2025. https://www.energy.gov/indianenergy/tribal-energy-projects-database.

- In November 2023, the Department of Energy's Home Energy Rebates Program (HEAR) allocated $224 million in rebates to support Tribal efforts in home electrification and appliance upgrades. Through this initiative, the Nevada Clean Energy Fund (NCEF) invests approximately $2.5 million in grant funding for tribes, enabling improved wiring, panels, insulation, and the installation of hot water heaters, heat pumps, and HVAC systems.[103]

- In March 2024, the Fallon Paiute Shoshone Tribe (FPST) contributed to the Climate Pollution Reduction Grant (CPRG) submitting its own PCAP to the EPA.[104]

- In September 2024, the NV Energy Foundation awarded $100,000 to the Nevada Clean Energy Fund (NCEF) to expand its Tribal Clean Energy Program. This funding supports NCEF's efforts to assist tribes in accessing Home Energy Rebates (HEAR) from the U.S. Department of Energy and Community Change Grants (CCG) from the Environmental Protection Agency.[105] [106]

- In September 2024, the Nevada Clean Energy Fund (NCEF) announced the formation of a Tribal Advisory Board to guide the Solar for All program funded by the EPA. This board is designed to ensure that solar energy reaches low-income and historically underserved communities, while also supporting the development of Tribally owned clean energy projects. The board includes representatives from the Walker River Paiute Tribe, the Pyramid Lake Paiute Tribe, the University of Nevada, Reno, and other key organizations, representing a collaborative approach.[107]

- In December 2024, the EPA awarded $20 million to the Nevada Clean Energy Fund (NCEF), in partnership with the Walker River Paiute Tribe (WRPT), through the Community Change Grants Program. This project will deliver critical water, energy, and food infrastructure to approximately 1,200 residents of the Walker River Reservation. As part of the initiative, NCEF will upgrade energy performance and the resilience of 150 households.[108]

[103] U.S. Department of Energy. "DOE Offers Tribes $225 Million in Rebates for Home Electrification and Appliances." November 17, 2023. https://www.energy.gov/scep/slsc/home-energy-rebates-program/articles/doe-offers-tribes-225-million-rebates-home.
[104] Fallon Paiute Shoshone Tribe. *Priority Climate Action Plan*. March 2024. https://www.epa.gov/system/files/documents/2024-04/fallon-paiute-shoshone-tribe-pcap.pdf.
[105] Nevada Clean Energy Fund. "Nevada Clean Energy Fund Awarded $100,000 Grant from NV Energy Foundation to Expand Tribal Clean Energy Program." September 13, 2024. https://nevadacef.org/nv-energy-foundation-award/.
[106] Nevada Clean Energy Fund. "Tribes – Clean Energy Assistance." Accessed May 2025. https://nevadacef.org/tribes/.
[107] Nevada Clean Energy Fund. "NCEF Launches New Community Councils to Support Solar for All Program." September 26, 2024. https://nevadacef.org/new-community-councils/.
[108] Nevada Clean Energy Fund. "Nevada Clean Energy Fund and Walker River Paiute Tribe Selected for Community Change Grant Award." December 12, 2024. https://nevadacef.org/community-change-grant-award/.Nevada Clean Energy Fund+5.

9.4 Benefits and Opportunities of Emission Reduction Measures

Insights gathered through engagement interviews with Tribal representatives, supplemented by desktop research, highlight the multifaceted benefits and opportunities of emissions reduction measures in Nevada's Tribal communities. These discussions revealed a strong interest in initiatives that not only reduce costs and utility burdens but also address grid infrastructure challenges, particularly through home electrification, weatherization, and energy efficiency improvements. Interviewees emphasized the importance of building trust and fostering tailored relationships with each tribe, as individual communities possess distinct needs and priorities that necessitate customized support. Capacity constraints, especially in navigating complex funding programs, were noted as a key barrier; however, with support and collaborative partnerships, Tribes can successfully implement and manage these projects. Prioritized initiatives identified through engagement include battery storage and community resilience hubs on reservations, designed to ensure reliable access to heating, cooling, and food and medicine storage during power outages. The interviews and research underscored the growing interest in transportation solutions, such as shuttle and bus services that connect rural reservations to essential services. While rooftop solar and battery systems were mentioned, they have seen more limited uptake in Tribal communities. These findings underscore the need for flexible, community-driven emission reduction strategies that align with Tribal goals and capacities.

10 | Workforce Analysis and Planning

The transition to a low-carbon, climate-resilient economy presents both a challenge and a transformative opportunity for Nevada. A key dimension of this transformation is a capable, available, and right-sized workforce. This analysis examines the current state of key industries and occupations in Nevada that are most relevant to the measures that have been evaluated in the CCAN. This workforce analysis is a foundational component of the CCAN, serving to identify current labor market capacities, gaps in workforce readiness, and opportunities to ensure that the green jobs of the future are available to everyone.

The purpose of this workforce analysis is to assess the state's existing workforce in key sectors impacted by climate action—such as buildings, transportation, energy, agriculture and natural working lands, waste and industry—and to identify strategies to align workforce development efforts with the potential climate measures. This analysis may inform potential policies and programs that support worker training, career development, and just transition strategies, with a focus on at-risk and low-income communities. In accordance with CPRG guidelines, this chapter provides a labor market assessment, outlines strategies to develop and retain a qualified workforce, and identifies mechanisms to remove barriers to high-quality jobs.

10.1 Labor Market Scope and Geographic Area

The labor market area in this chapter covers the state of Nevada. This analysis aims to identify the workforce available as well as the workforce needed in the future to support the economy, including jobs in renewable energy development, construction, and maintenance, energy efficiency and green building construction, resource management, environmental protection, and transportation. Ultimately, job growth to support climate measures can enhance Nevada's economic competitiveness, reduce its carbon footprint, and build a more sustainable future for all Nevadans.

Throughout this chapter, data from various sources are used to define the landscape of jobs in Nevada and in the United States, including from the U.S. Bureau of Labor Statistics (BLS) and the Nevada Governor's Office of Economic Development. Data on energy jobs will come from the United States Energy & Employment Jobs Report (USEER), which measures employment in several sectors of the energy economy, including those currently employed in traditional and fossil fuel-driven sectors. The USEER reports on data from the previous year.

10.1.1 Overview of Workforce Stakeholders

There are numerous groups with an interest in workforce development in Nevada; a non-exhaustive list of some of those organizations are identified in Table 10.1 for reference. Some groups in the list are particularly focused on creating new, high quality employment opportunities among underemployed demographics, while others have a mandate to help build a labour force that will meet the needs of employers. At the state level, efforts for workforce development are geared toward bolstering sectors that can benefit and stabilize the economy more broadly. Some have significant impact in their communities. For example, Nevadaworks leverages over $49 million in grants to implement workforce development initiatives in northern Nevada, and has served over 2,000 participants in the past year.[109]

Efforts to engage with stakeholders are ongoing, and general engagement has also generated input about the workforce, described below.

Table 10.1. Workforce development organizations and other interested parties.

Organization Name	Organization Type
Nevadaworks	Non-profit
NV Energy	Utility
Reno + Sparks Chamber of Commerce	Industry Group
Solar Energy Industries Association	Industry Group
Workforce Connections	Non-profit
Builders Association of Northern Nevada	Industry Group
Southern Nevada Home Builders Association	Industry Group
Office of Workforce Innovation (OWINN)	Government
Air Liquide	Private sector
Nevada Mining Association	Non-profit
Help of Southern Nevada	Non-profit
Nevada Hispanic Business Group	Non-profit
Nevada Environmental Justice Coalition	Non-profit
Southern Nevada Trades High School	Non-profit
Desert Research Institute	Non-profit

[109] Nevadaworks. System Partners. https://nevadaworks.com/system-partners/.

Input From Engagement Activities

Stakeholder engagement was critical to ensuring that these workforce findings were grounded in relevant local context and experience. As part of this process, interviews with representatives from workforce agencies and relevant industries helped ensure the analysis reflects the needs, challenges, and opportunities facing those on the front lines of the transition to a low-carbon economy. These conversations provide insight into current workforce capacities, industry innovation, and potential pathways for economic growth aligned with climate measures. Input related to workforce development that emerged through engagement is summarized below:

- Improving access to good employment and rights for workers is a core component of improving quality of life.
- A key component of current workforce development is to diversify workforce availability and employment opportunities beyond the tourism and hospitality industries.
- Existing sectoral partnerships and initiatives are primarily in manufacturing, digital technology, healthcare, and logistics.
- Outdoor workers in Nevada face increased risks due to extreme heat, given the state's already hot and arid climate.

10.2 Labor Market Area Characteristics

10.2.1 Current Workforce

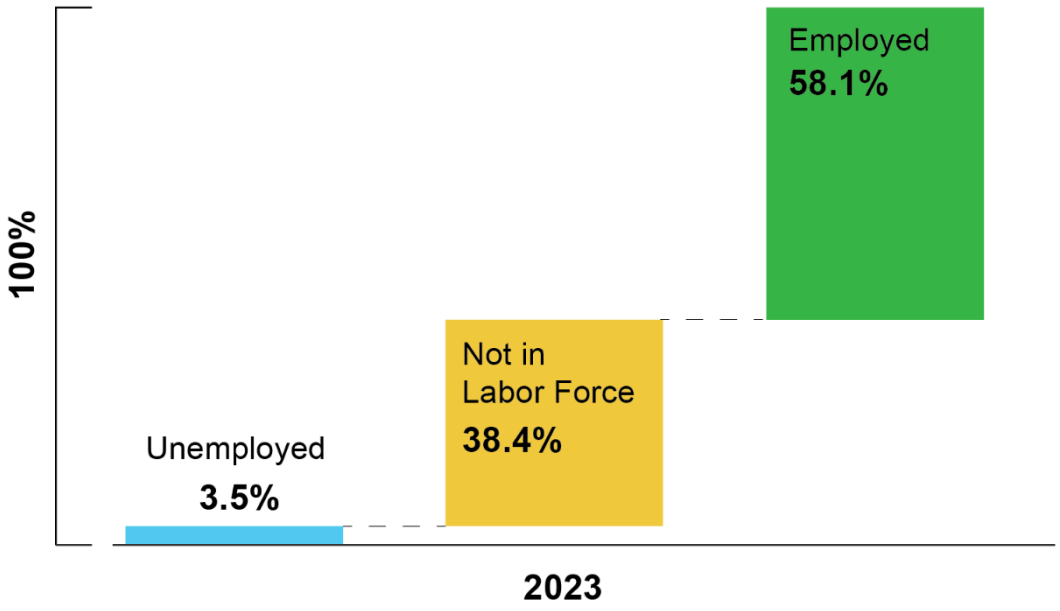
Both total population and total employment in Nevada are projected to grow over the next few years. From 2017 to 2022, the state's population grew by 205,180 to nearly 3.2 million residents and is projected to grow 4.5% by 2027, adding 141,577 residents. Over the same period (2017-2022), jobs increased by 10% to 1.6 million; the state outpaced the national job growth rate of 3.4%.

In 2023, of the potential labor force population in Nevada, which includes the non-institutionalized population 16 years of age and older, 58.1% were employed, 3.5% were unemployed, and 38.4% were not in the labor force (Figure 10.1).[110] Those that are employed and unemployed are considered to be in the labor force, while those not in the labor force include students, housewives, retired workers, seasonal workers who were not looking for work, institutionalized people, and people doing only incidental unpaid family work (less than 15 hours during the reference week).[111]

[110] Nevada Governor's Office of Economic Development. (2023). Data Portal: Detailed Overview Reports. Available at: https://goed.nv.gov/data-portal/.

[111] U.S. Census. Glossary: Not in labor force. https://www.census.gov/glossary/?term=Not+in+labor+force.

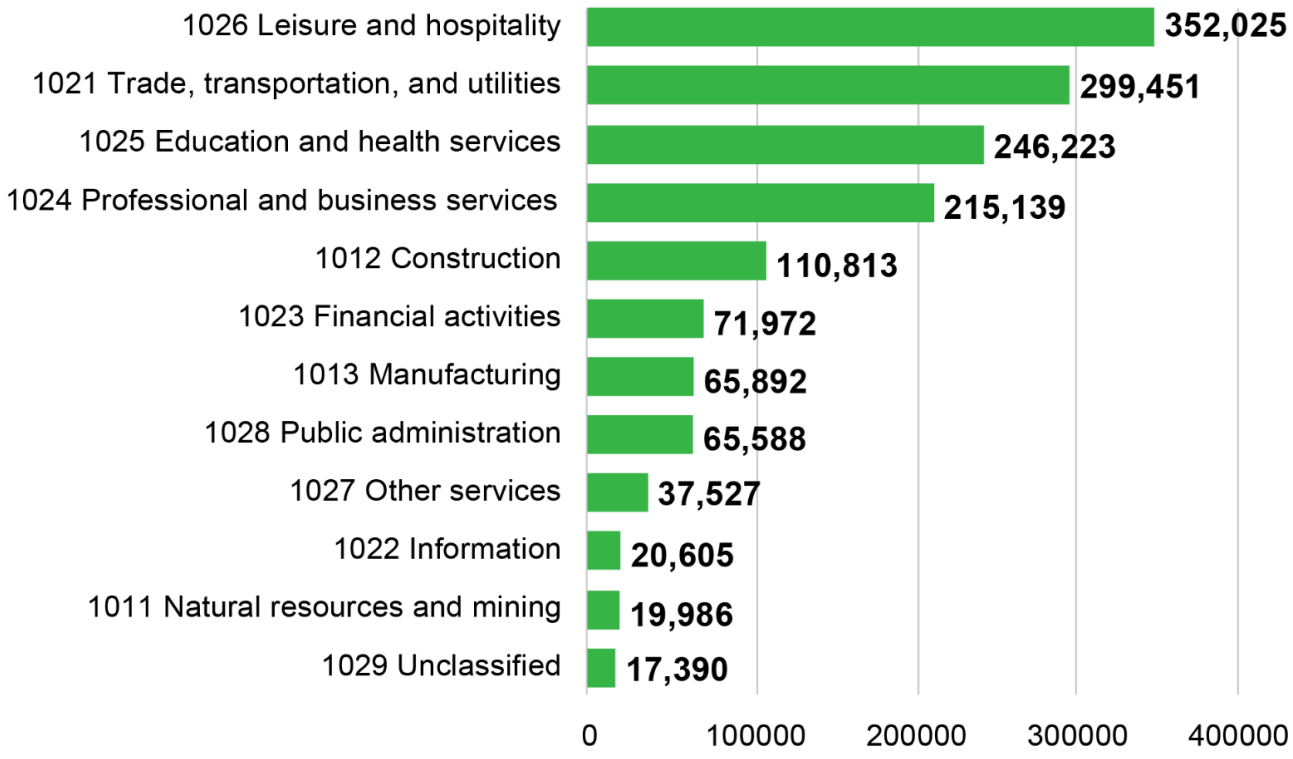
Figure 10.1. Labor force breakdown, Nevada, 2023, Source: Nevada Governor's Office of Economic Development (2023)



Approximately 23% of annual average employment in Nevada in 2023 was in the leisure and hospitality industry, followed by trade, transportation, and utilities (19.7%), and education and health services (16.2%) (Figure 10.2).[112]

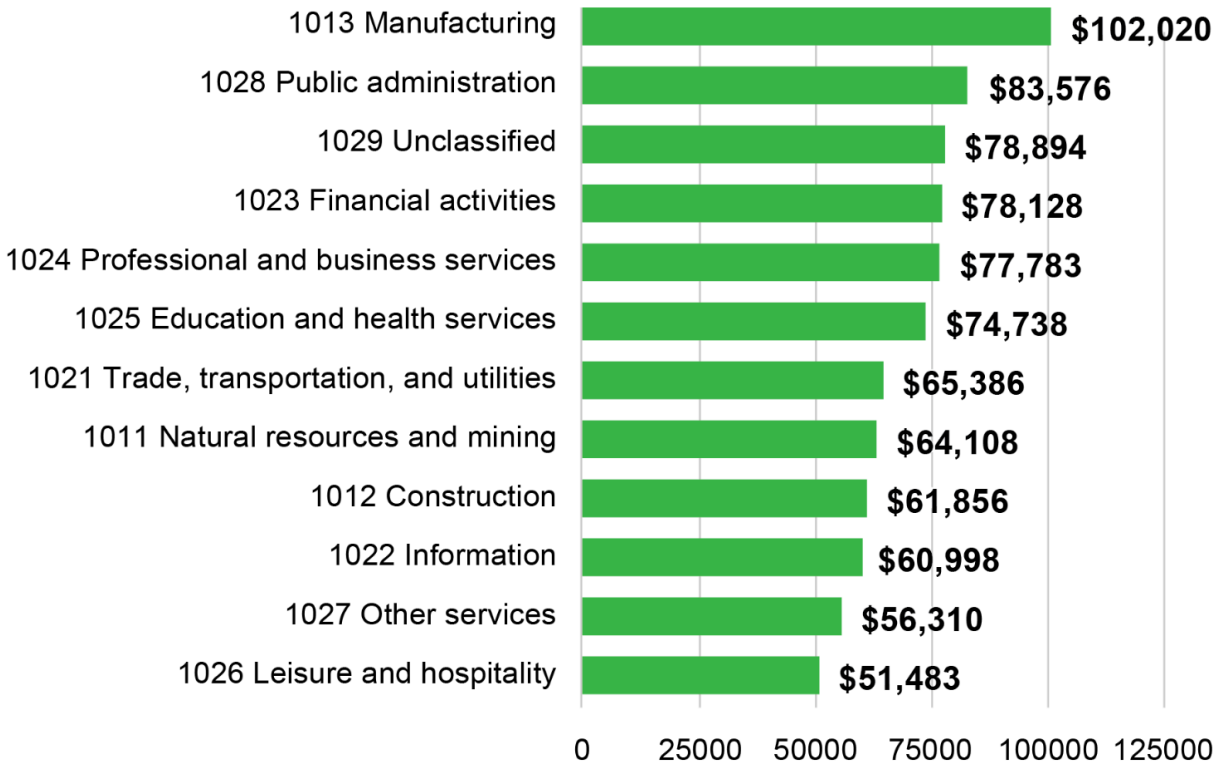
[112] U.S. Bureau of Labor Statistics. (2023). Quarterly Census of Employment and Wages. Available at: https://www.bls.gov/cew/data.htm.

Figure 10.2: Annual average employment by industry, Nevada, 2023, Source: U.S. Bureau of Labor Statistics (2023)



In 2023, average annual pay among all industries in Nevada was $63,793.[113] The manufacturing industry had the highest average annual pay ($102,020), followed by public administration ($83,576), unclassified (or those businesses that did not report a NAICS code) ($78,894), and financial activities ($78,128) (Figure 10.3).

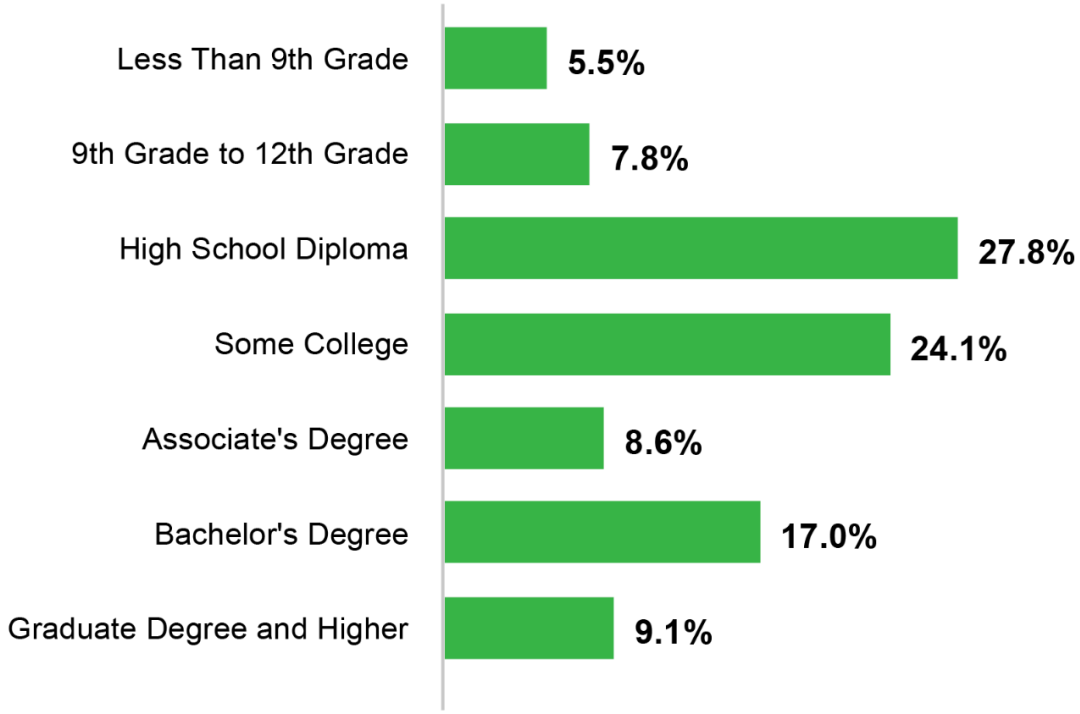
Figure 10.3: Average annual pay by industry, Nevada, 2023, Source: U.S. Bureau of Labor Statistics (2023)



[113] U.S. Bureau of Labor Statistics. (2023). Quarterly Census of Employment and Wages. Available at: https://www.bls.gov/cew/data.htm.

Education attainment can play a role in determining the readiness and capacity of workers to meet the required technical or specialized skills required in green industries. In 2023, 17% of Nevada residents possessed a bachelor's degree, which was 3.8% below the national average (Figure 10.4).

Figure 10.4: Educational attainment, Nevada, 2023, Source: Nevada Governor's Office of Economic Development (2023)



10.2.2 Energy Sector Employment

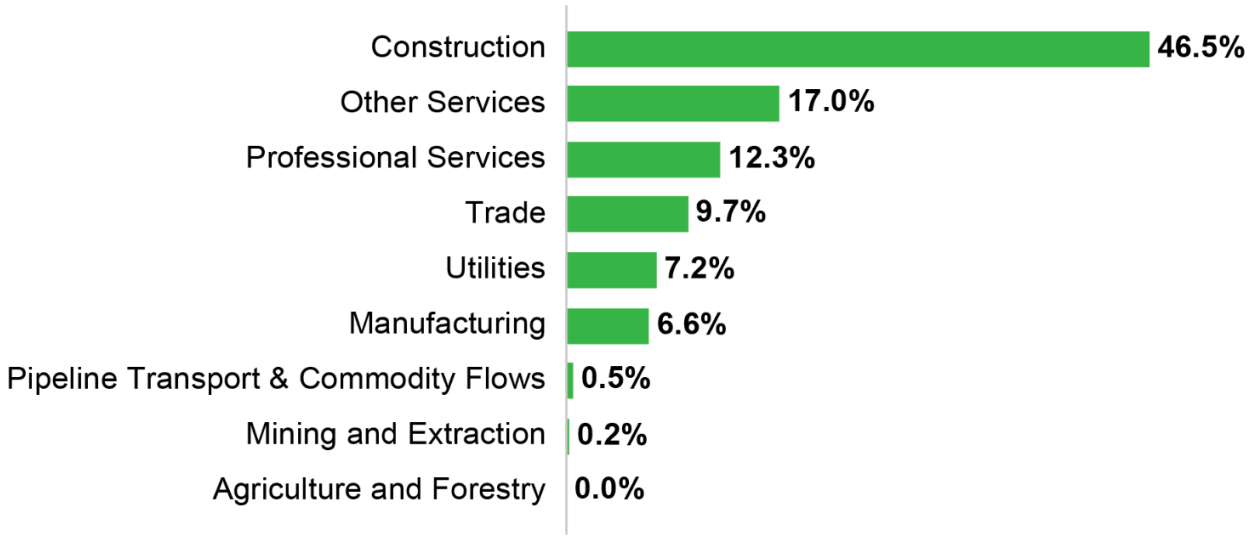
Nevada supports a large and growing workforce in the renewable and advanced energy sectors. The state ranks high among other US states in the following categories:

- #1 in per capita jobs related to solar, wind, and energy storage[114]
- #2 in the nation for jobs in energy storage
- #7 in the nation for jobs in renewable electricity generation
- #9 in energy sector job growth from 2022-2023 (5.6%)[115]
- #29 in jobs in renewable and advanced energy fields

[114] U.S. Department of Energy. (2024). 2024 U.S. Energy & Employment Jobs Report (USEER). Available at: https://www.energy.gov/policy/us-energy-employment-jobs-report-useer.
115 Environmental Entrepreneurs. (n.d.). *Clean Jobs America*. Retrieved January 5, 2025, from https://cleanjobsamerica.e2.org/

The 2024 U.S. Energy and Employment Report (USEER) from the U.S. Department of Energy found that there were 62,637 energy workers in Nevada in 2023. This was an increase of 5.9% from 2022. Nearly half of the advanced energy jobs in Nevada in 2023 were in the construction industry (46.5%) (Figure 10.5). Other top industries include other services (17.0%), professional services (12.3%), and trade (9.7%).[116]

Figure 10.5: Advanced energy jobs by industry, Nevada, 2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)



The USEER allocates energy employment to five technology areas (Table 1):

- Transmission, distribution, and storage;
- Motor vehicles;
- Energy efficiency;
- Electric power generation; and
- Fuels.

The energy sector in Nevada represents 4.4% of total state employment.[117] Nationally, the energy sector represents roughly 5% of total employment.[118]

[116] From the U.S. Bureau of Labor Statistics, establishments in the other services sector are primarily engaged in activities such as equipment and machinery repairing, promoting or administering religious activities, grantmaking, advocacy, and providing drycleaning and laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services. Available at: https://www.bls.gov/iag/tgs/iag81.htm.
[117] U.S. Department of Energy. (2024). 2024 U.S. Energy & Employment Jobs Report (USEER). Available at: https://www.energy.gov/policy/us-energy-employment-jobs-report-useer.
[118] U.S. Department of Energy. (2024). 2024 U.S. Energy & Employment Jobs Report (USEER) and U.S. Bureau of Labor Statistics Current Employment Statistics (2023).

Nevada has a diversified portfolio of advanced energy jobs across counties. The smallest technology area is Fuels of which very few jobs are in renewable or clean fuel industries. The largest proportion are within the Transmission, Distribution, and Storage technology area, of which most jobs are in traditional transmission, distribution, and storage. In 2024, Nevada experienced the fastest growth rate in the nation in the Motor Vehicle technology area (14.6%).[119] Notably, Nevada is also ranked #4 nationally for its share of jobs in renewable electric generation (0.7%). About 88% of energy jobs in Nevada are in the counties that make up the Las Vegas and Reno areas (Clark, Storey, and Washoe); however, there is a broad distribution of jobs throughout the state, as seen in Table 10.2 and Figure 10.6.

Table 10.2: Energy employment by county, Nevada, 2024[120]

County	Total	Transmission, Distribution, and Storage	Motor Vehicles	Energy Efficiency	Electric Power Generation	Fuels
Churchill	636	140	97	91	297	11
Clark	33,961	6,517	9,451	9,104	7,388	1,501
Douglas	1,105	53	200	244	548	59
Elko County	1,117	309	205	228	339	36
Esmeralda	20	10	-	-	-	10
Eureka	104	15	-	-	89	-
Humboldt	404	54	143	14	166	26
Lander	319	146	-	-	121	52
Lincoln	103	24	-	-	79	-
Lyon	978	34	447	129	285	83
Mineral	54	-	-	-	54	-
Nye	584	198	72	71	195	47
Pershing	10	-	10	-	-	-
Storey	9,896	9,097	401	75	187	137
Washoe	10,464	1,456	2,984	2,742	2,825	458
White Pine	120	51	26	-	43	-
Carson City	1,295	315	678	199	81	22

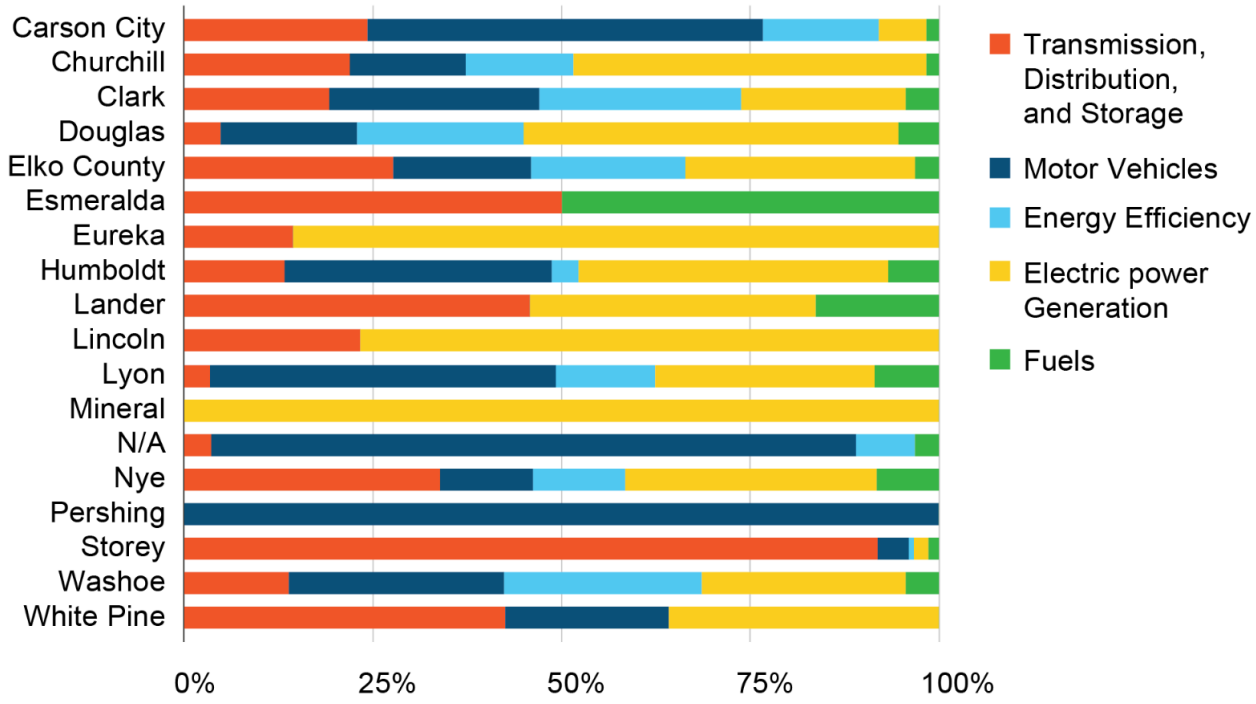
[119] U.S. Department of Energy. (2024). 2024 U.S. Energy & Employment Jobs Report (USEER) – Energy Employment by State 2024. Available at: https://www.energy.gov/policy/us-energy-employment-jobs-report-useer.
[120] The total number of county jobs by technology area does not equal state job totals in following sections due to methodological constraints; in the USEER data, counties with fewer than 10 energy jobs in a segment aren't captured in the county level data.

County	Total	Transmission, Distribution, and Storage	Motor Vehicles	Energy Efficiency	Electric Power Generation	Fuels
N/A[121]	311	11	266	24	-	10
Total	**61,482**	**18,430**	**14,980**	**12,921**	**12,699**	**2,452**

Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)

Figure 10.6 shows the distribution of jobs by county in each technology area. Clark and Washoe counties have the greatest number of jobs across technology areas, and follow a similar distribution of jobs across technology areas, while nearly 92% of Storey County's energy jobs are in the transmission, distribution, and storage technology area.

Figure 10.6: Percent of Employment by Technology Area, Nevada, 2023



The average hourly wage earned by workers in the energy industry tends to be higher than other jobs within the state, however some technology areas lag behind average state wages (Table 10.3). Wages tend to be similar or slightly lower across technology areas in Nevada compared to national averages; these figures do not consider demand for labor or cost of living differences across states.

[121] From the U.S. Department of Energy's 2024 U.S. Energy and Employment Jobs Report (USEER): The "N/A" numbers are jobs that are not allocated to a specific county within a given state.

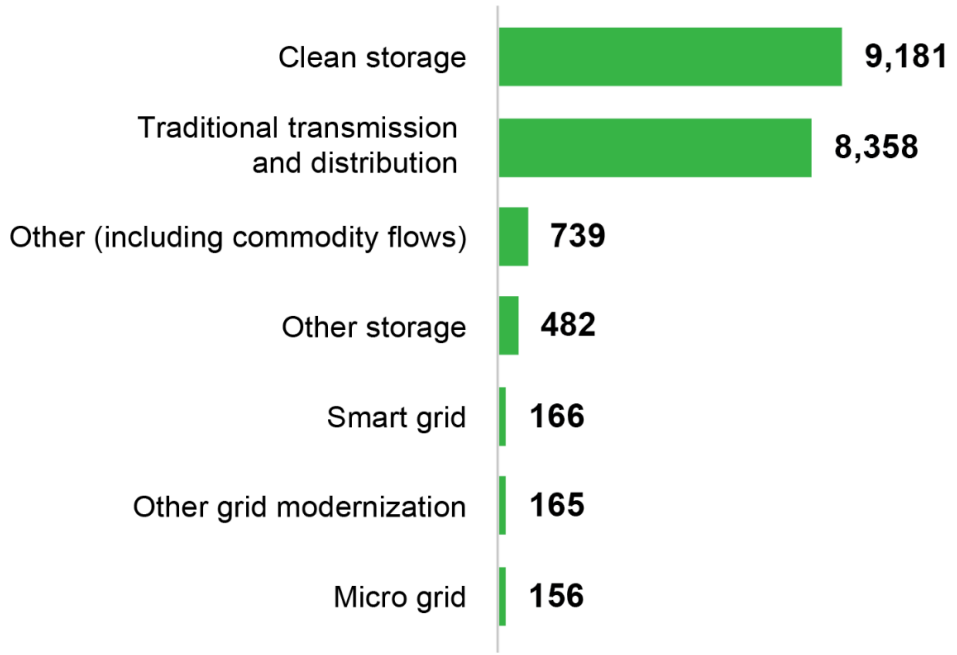
Table 10.3: Energy average hourly wages, Nevada and United States, 2019[122]

	Electric Power Generation	Transmission Distribution, and Storage	Energy Efficiency	Fuels	Motor Vehicles	Overall (Energy)	Overall (All Technology Areas)
Nevada	$26.15	$30.74	$23.23	$23.54	$22.42	$25.88	$24.52
United States	$27.19	$31.25	$24.44	$23.89	$22.29	$25.60	$27.08

Transmission, Distribution, and Storage Employment

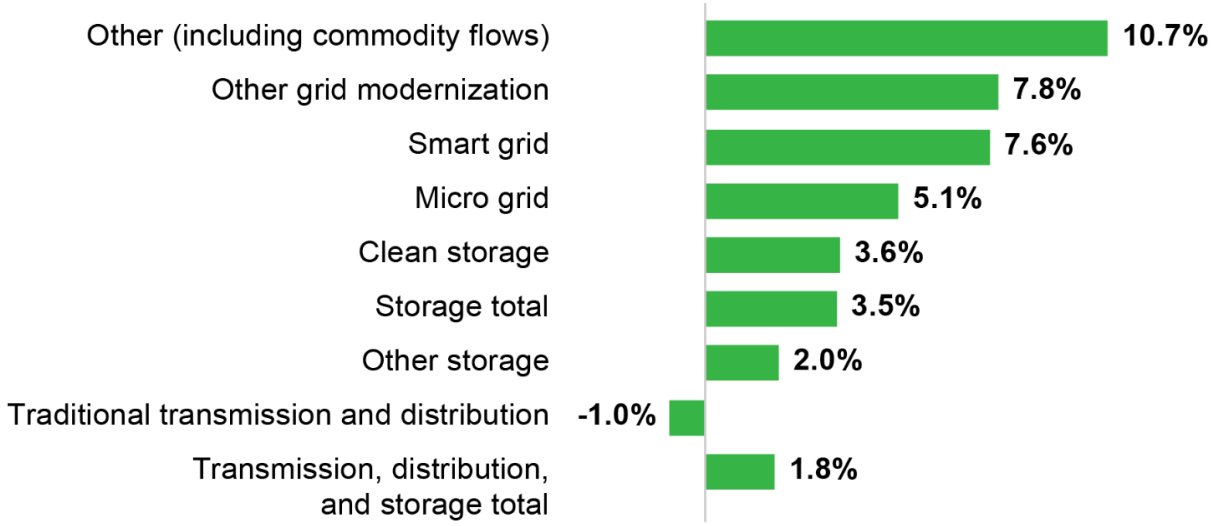
The transmission, distribution, and storage technology area employed 18,430 workers in Nevada in 2024, with the largest proportion of jobs in clean storage (9,181 jobs) (Figure 10.7). This technology area has the largest number of employees in the state of those measured by USEER. Growth in the technology area lags the nation (3.8%), though notably, the state saw small losses in traditional transmission and distribution jobs while growth was concentrated in smart grid, micro grid, and other grid modernization (Figure 10.8).

Figure 10.7: Transmission, Distribution, and Storage Employment Detail, Nevada, 2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)



[122] Source: BW Research Partnership, National Association of State Energy Officials, & Energy Futures Initiative. (2020). Wages, benefits, and change: A supplemental report to the annual U.S. energy and employment report.

Figure 10.8: Transmission, Distribution, and Storage Employment by Technology,Percent Change, Nevada, 2022–2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)



Motor Vehicle Manufacture and Components Employment

The motor vehicles technology area employed 14,980 workers in Nevada in 2024 (Figure 10.9). While employment in the motor vehicle technology area in Nevada is overwhelmingly concentrated in traditional gasoline and diesel vehicles, today, growth in hybrid, battery electric, and hydrogen fuel cell vehicles outpaced growth in traditional vehicles between 2022 and 2023 (Figure 10.10). Overall employment in the technology area outpaced national growth (14.1% in Nevada versus 2.8% across the U.S.) and saw the highest amount of growth year over year of any other technology area in the state.

Figure 10.9: Motor Vehicles Employment Detail, Nevada, 2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)

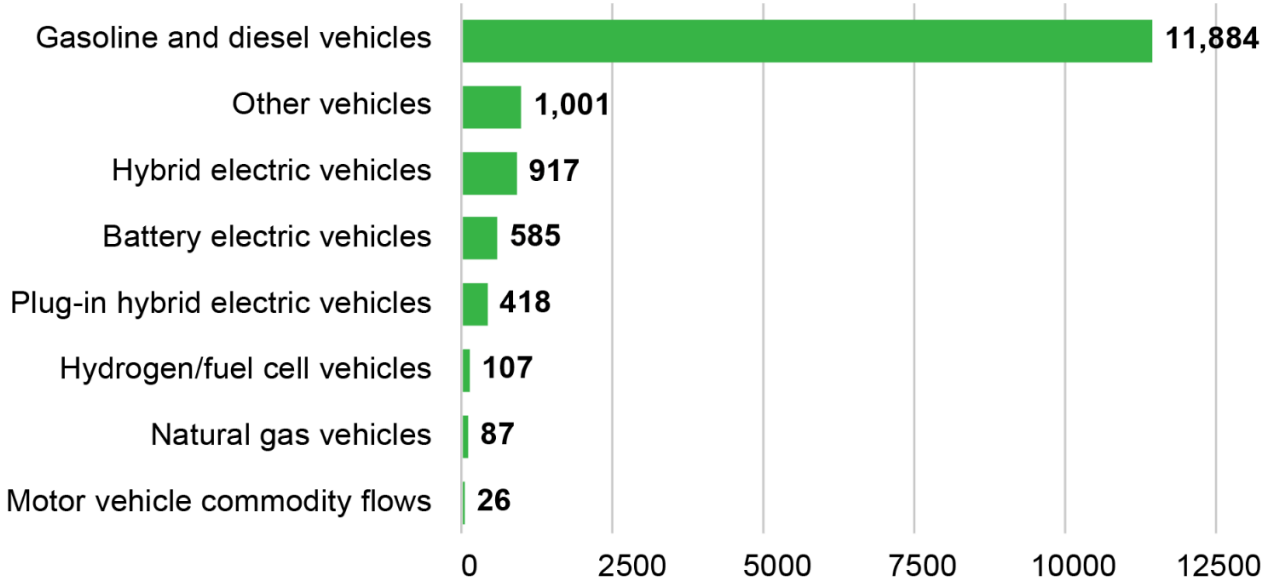
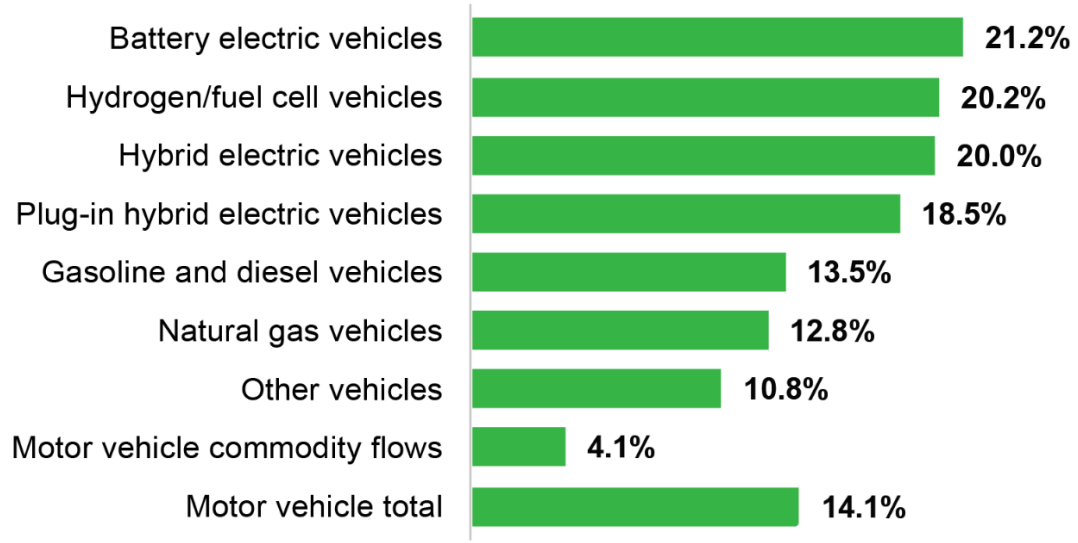


Figure 10.10: Motor Vehicle Employment by Technology, Percent Change, Nevada 2022–2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)



Energy Efficiency Employment

The energy efficiency technology area employed 12,921 workers in Nevada in 2024 (Figure 10.11). Figure 10.12 shows that growth was concentrated in Energy STAR and Efficient Lighting and Traditional HVAC with an efficiency component, while more modest growth was seen in renewable heating and cooling employment.

Figure 10.11: Energy Efficiency Employment Detail, Nevada, 2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)

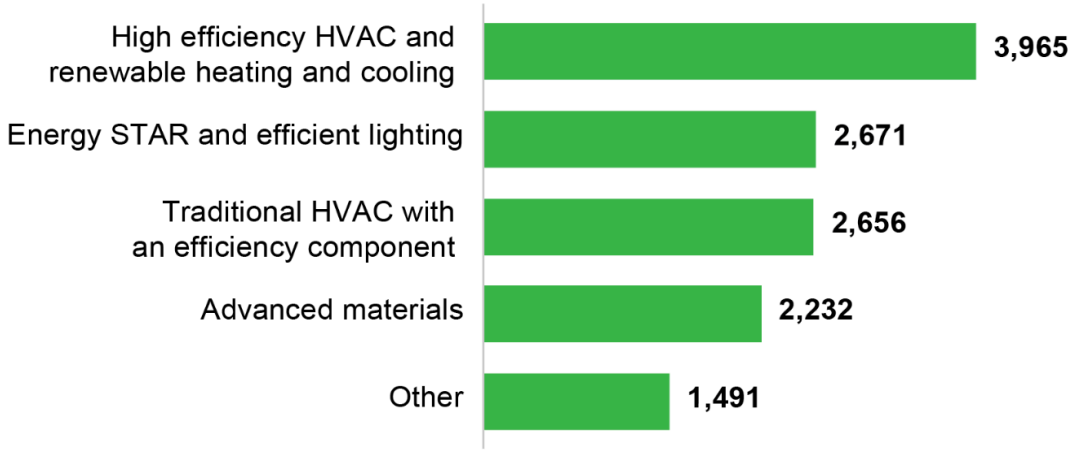
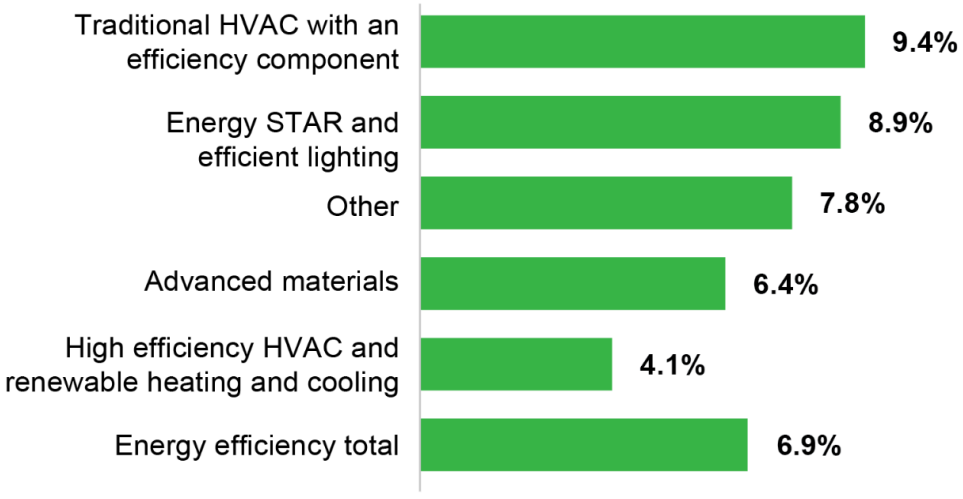


Figure 10.12: Energy Efficiency Employment by Technology, Percent Change, Nevada, 2022–2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)



Electric Power Generation Employment

The electric power generation technology area employed 12,699 workers in Nevada in 2024 (Figure 10.13). The majority of Nevada's electric power generation employment is in solar technology, representing about 2.5% of solar power jobs in the United States. While wind power still makes up a small share of power generation employment in the state, it saw the largest growth of any other segment in the state at 35.1% and represented the fastest growth in wind power employment in the nation (Figure 10.14).

Figure 10.13: Electric Power Generation Employment Detail, Nevada, 2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)

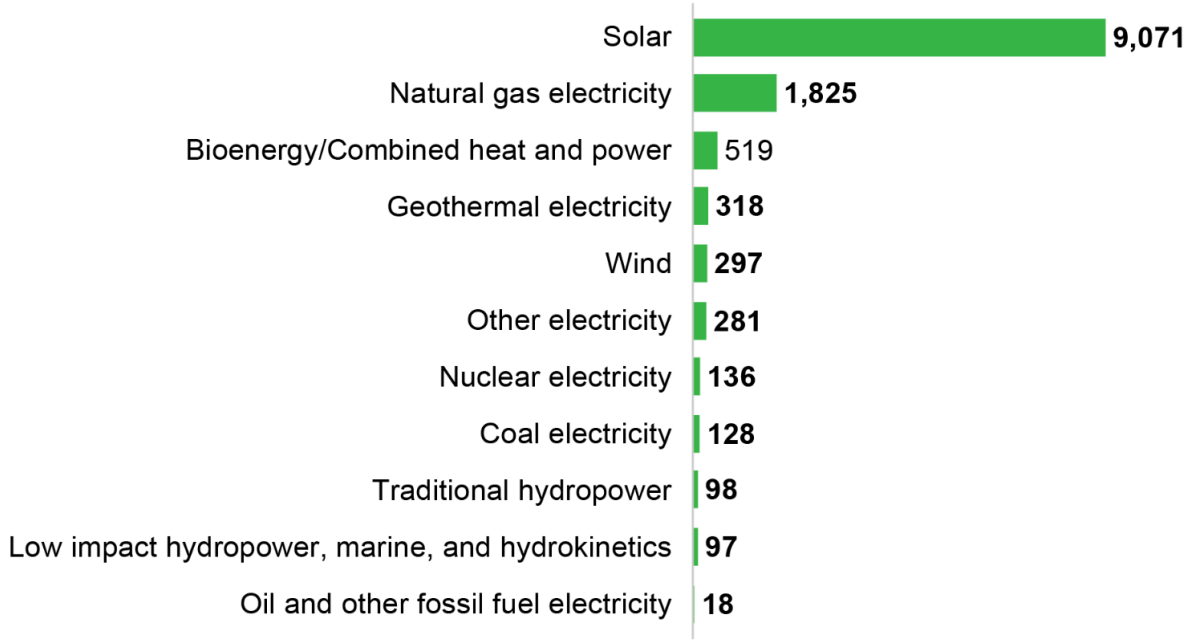
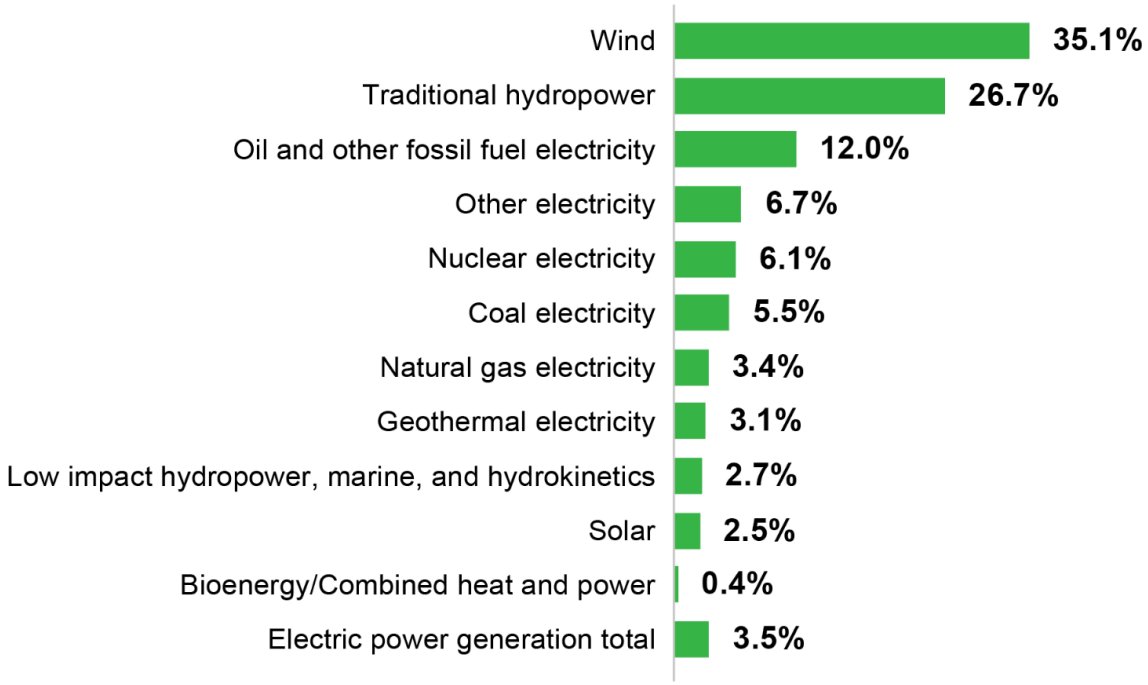


Figure 10.14: Electric Power Generation Employment by Technology, Percent Change, Nevada, 2022–2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)



Fuels Employment

The fuels technology area employed 2,452 workers in Nevada in 2024 (Figure 10.15). Nationally, the fuels technology area saw modest growth (1.8%) making Nevada only a slight outlier. Employment in the fuels technology area is overwhelmingly concentrated in natural gas and petroleum, while clean sources have very few employees in the state. Growth in fuels employment in 2023 was in nuclear, other ethanol and non-woody biomass, and other fuels, but the segments are small compared to other technology areas (Figure 10.16).

Figure 10.15: Fuels Employment Detail, Nevada, 2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)

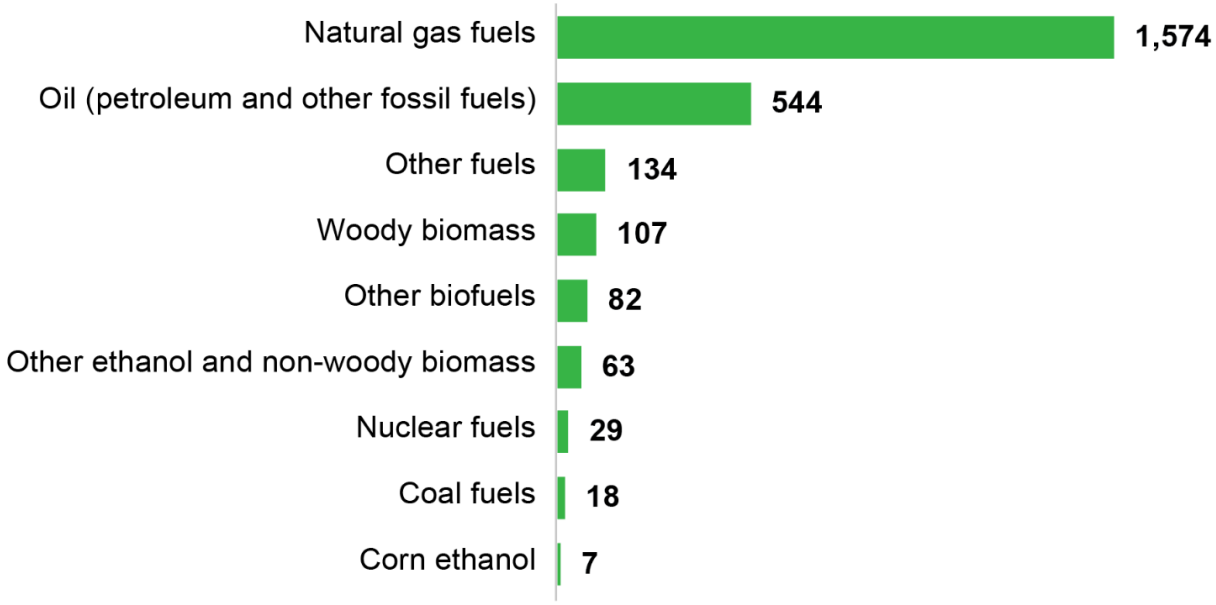
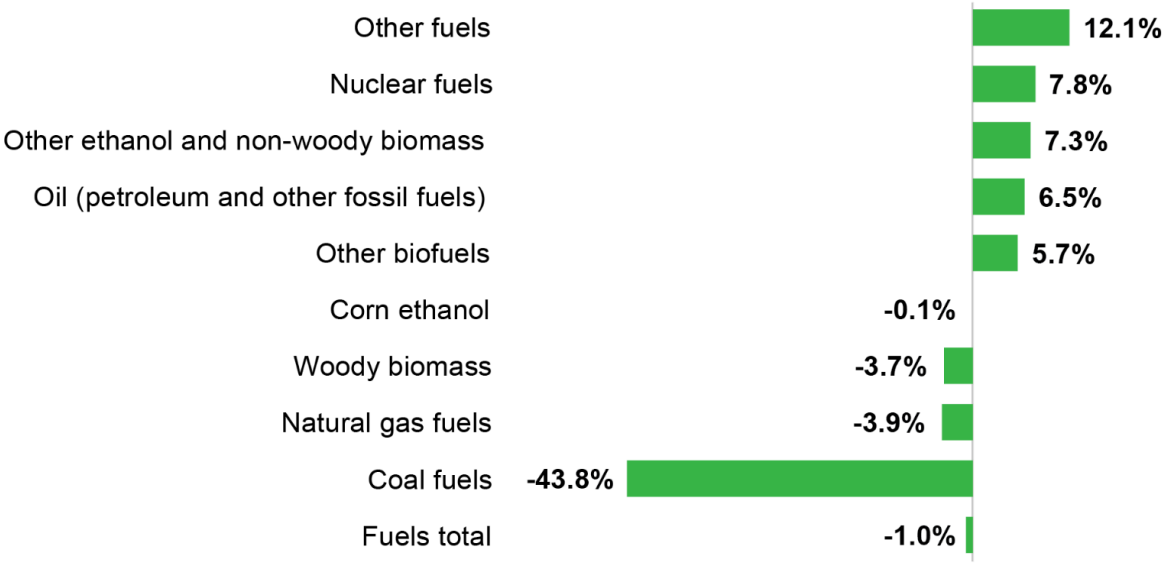


Figure 10.16: Fuels Employment by Technology, Percent Change, Nevada, 2022–2023, Source: U.S. Department of Energy, 2024 U.S. Energy & Employment Jobs Report (USEER)



10.3 Workforce Projections

New and growing jobs related to clean energy represent a shift in workforce demands. The transition to a green economy requires a workforce equipped with the relevant education, knowledge, and skills. To best prepare for this future, Nevada should build a strong, diverse pipeline of talent. This involves new training, expanded workforce development partnerships and initiatives, and targeted upskilling of the labor pool.

The Nevada Governor's Office of Economic Development's Comprehensive Economic Development Strategy, released in 2023, highlights the state's clean tech industry and complete lithium supply chain as advantages in the energy transition. To diversify the economy and grow target industries, particularly in clean energy, the report identifies the need for infrastructure development, including electric vehicle infrastructure and broadband infrastructure, and the need to increase capital access to startups and later-stage businesses.[123] Clean energy industries continue to grow in Nevada; in 2024, five international companies announced business development in Nevada in key strategic sectors, including battery technology, sustainable mining and research services, and other energy-efficient manufacturing.[124]

According to data from the Nevada Governor's Office of Economic Development, there are 54,998 jobs in clean energy in the state in 2025, which is an increase of 104.9% from 2015.[125] Top occupations in these industries include plumbers, pipefitters, and steamfitters; heating, air conditioning, and refrigeration mechanics and installers; construction laborers; general and operations managers; and miscellaneous assemblers and fabricators.[126]

A study from LinkedIn projects that, to meet ongoing demand for green talent, the size of the global green talent pool will need to be doubled by 2050.[127] Between 2023 and 2024, global demand for green talent grew twice as quickly as supply, with demand increasing by 11.6% and supply by 5.6%. During that time, the sharpest demand spike for green talent was in the technology, information, and media industry, where the share of jobs requiring green skills grew 60%.[128]

[123] Nevada Governor's Office of Economic Development. (2023). Realizing Nevada's Electric, Innovative, and Connected Future. Available at: https://goed.nv.gov/wp-content/uploads/2024/02/Statewide-Plan-Water-Health-Executive-Summary-1.pdf.
[124] Nevada Governor's Office of Economic Development. (2024). International Companies Announce Investment in Nevada. Available at: https://goed.nv.gov/newsroom/international-companies-announce-investment-in-nevada/.
[125] Nevada Governor's Office of Economic Development. (2025). Nevada's Clean Energy Sector. Available at: https://goed.nv.gov/wp-content/uploads/2025/03/Clean-Energy.pdf.
[126] Nevada Governor's Office of Economic Development. (2025). Nevada's Clean Energy Sector. Available at: https://goed.nv.gov/wp-content/uploads/2025/03/Clean-Energy.pdf.
[127] LinkedIn. (2024). Global Green Skills Report 2024. Available at: https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/Global-Green-Skills-Report-2024.pdf.
[128] Ibid.

In the U.S., demand for green talent grew 9.8% between 2023 and 2024, while supply increased just 3.1%. Given the current demand, the hiring rate for green talent is 80.3% greater than the hiring rate for talent overall. The fastest-growing green skills in the U.S. include building performance, responsible sourcing, environmental projects, environmental due diligence, and sustainable growth.[129]

10.3.1 Key Occupations by Sector

The section identifies key occupations in each of the climate sectors: energy, buildings, transportation, industry, waste, and working and natural lands. The occupations shown in the table below are the typical occupations that will be needed inNevada to implement the measures in the CCAN. This list is not exhaustive and there are additional occupations not shown that are required for the implementation of climate measures.

Table 10.4: Climate sectors and key occupations

Sector	Description	Priority Typical Occupations
Energy	Occupations related to renewable energy generation and power systems.	Construction Laborers, Solar Photovoltaic Installers
Buildings	Occupations involved in energy efficient building design, construction, retrofitting, HVAC, and weatherization.	Civil Engineers, Construction and Building Inspectors, Electricians, Heating, Air Conditioning, and Refrigeration Mechanics and Installers
Transportation	Occupations related to vehicles, public transit, logistics, and infrastructure.	Automotive Service Technicians and Mechanics, Bus and Truck Mechanics and Diesel Engine Specialists,Transportation Workers, All Other
Industry	Occupations in manufacturing, engineering, production, and related operations.	Chemical Engineers, Electrical Engineers, Industrial Engineers, Machinists
Waste	Occupations focused on recycling, waste removal, landfill gas, and wastewater.	Environmental Engineers
Working and Natural Lands	Occupations related to agriculture, land conservation, forestry, soil and water, and wildlife.	Forest and Conservation Technicians, Hydrologists, Soil and Plant Scientists

[129] Ibid.

10.3.2 Workforce Supply

Nevada has a current labor pool of residents employed in the occupations referenced in Table 10.4. The table below provides an overview of the current and projected employment trends for those occupations.

From 2010 to 2022, most of the key occupations in Nevada grew. Occupations that grew significantly include Construction Laborers (123%), Heating, Air Conditioning, and Refrigeration Mechanics and Installers (248%), Electrical Engineers (111%), and Industrial Engineers (189%). Some occupations declined slightly, including Construction and Building Inspectors (-8%), Bus and Truck Mechanics and Diesel Engine Specialists (-8%), Chemical Engineers (-20%), Environmental Engineers (-20%), and Hydrologists (-25%).

The key occupations with the largest employment include Construction Laborers (13,010), Electricians (7,060), and Automotive Service Technicians and Mechanics (6,710). Most priority occupations have moderate projected growth by 2032, with all priority occupations projected to experience at least 10% growth from 2022 to 2032. Key occupations with the largest projected growth include Solar Photovoltaic Installers (57%), Bus and Truck Mechanics and Diesel Engine Specialists (28%), Chemical Engineers (25%), and Industrial Engineers (24%).

Table 10.5: Nevada employment trends in key occupations

Sector	Occupation	Total Employment (2010)	Total Employment (2022)	Median Wage (2024)	Projected Employment (2032)	Projected Growth (2022–2032)
Energy	Construction Laborers	5,840	13,010	$47,780	14,890	14.5%
Energy	Solar Photovoltaic Installers	N/A	140	$46,500	220	57.1%
Buildings	Civil Engineers	2,870	3,060	$98,690	3,400	11.1%
Buildings	Construction and Building Inspectors	1,130	1,040	$76,560	1,080	3.8%
Buildings	Electricians	4,500	7,060	$64,950	8,060	14.2%
Buildings	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,150	4,000	$59,230	4,590	14.8%
Transportation	Automotive Service Technicians and Mechanics	4,590	6,710	$47,570	7,380	10.0%
Transportation	Bus and Truck Mechanics and Diesel Engine Specialists	1,410	1,300	$65,180	1,660	27.7%
Transportation	Transportation Workers, All Other	450	530	$39,420	590	11.3%
Industry	Chemical Engineers	50	40	$78,220	50	25.0%

Sector	Occupation	Total Employment (2010)	Total Employment (2022)	Median Wage (2024)	Projected Employment (2032)	Projected Growth (2022–2032)
Industry	Electrical Engineers	470	990	$104,840	1,100	11.1%
Industry	Industrial Engineers	450	1,300	$100,170	1,610	23.8%
Industry	Machinists	830	880	$55,580	990	12.5%
Waste	Environmental Engineers	250	200	$112,330	220	10.0%
Working and Natural Lands	Forest and Conservation Technicians	440	600	$53,350	670	11.7%
Working and Natural Lands	Hydrologists	240	180	$97,430	200	11.1%
Working and Natural Lands	Soil and Plant Scientists	N/A	40	$76,940	40	0.0%

Source: BLS OEWS (2024); U.S. Department of Labor State Employment Projections (2022)

10.3.3 Projected Workforce Demand for CCAN Implementation

Workforce by Opportunity Area and Sector

Overall, all three scenarios will generate jobs for the State of Nevada. The table below illustrates the combined number of capital expenditure jobs and maintenance jobs across the scenarios, revealing that the Low Carbon Scenario will create the highest number of jobs. While the adoption of new technologies will boost job creation overall, it is important to note that maintenance jobs will gradually decrease due to the efficiency and reliability of these technologies. For instance, electric vehicles (EVs) require no oil changes or exhaust systems, and have fewer transmission parts, reducing the need for frequent and complex maintenance. Despite this trend, the overall adoption of these measures will contribute significantly to job growth across Nevada. The adoption of electric vehicles overall will create employment opportunities in areas such as battery manufacturing and recycling, and charging infrastructure installation and maintenance, helping offset the decline in traditional automotive maintenance jobs.

Table 10.6. Changes in capital expenditure and maintenance jobs in Low-Carbon, Mixed Fuel and Community Driven Scenarios from 2026-2050.

Scenario & Types of Jobs	# of Jobs
LC Capital Expenditure Jobs	488,229
LC Maintenance Jobs	-33,847
LC Total Jobs	**454,382**
MF Capital Expenditure Jobs	465,354
MF Maintenance Jobs	-38,198
MF Total Jobs	**449,449**
CD Capital Expenditure Jobs	454,013
CD Maintenance Jobs	-74,660
CD Total Jobs	**415,815**

Furthermore, Opportunity Areas are projected to create significant cumulative employment opportunities, particularly through the decarbonization of industry and the transformation of existing buildings. These efforts are closely linked to anticipated growth in the industrial sector, especially for positions like chemical and industrial engineers, as shown in Table 10.5 in the section above.

Table 10.7. Changes in employment opportunities in Low-Carbon, Mixed Fuel and Community Drive Scenarios from 2026-2050, relative to the Business-as-Planned Scenario, by Opportunity Area in person-years of employment.

Big Move	LC Scenario	MF Scenario	CD Scenario
Transform Existing Buildings	294,119	298,742	304,320
Build Net Zero New Buildings	36,909	27,199	31,443
Power Nevada with Clean Energy	24,557	24,126	55,383
Move with Active and Public Transit	-19,972	-5,679	28,405
Accelerate Zero Emission Vehicles for All	-88	1,349	-66,744
Drive Sustainable Transport	192	130	192
Decarbonize Industry	108,367	94,887	52,521
Divert and Reuse Waste	5,896	5,896	5,896
Harness Landfill Gas	24	24	24
Make Farming more Sustainable	4,063	2,438	4,063
Grow Nature-Based Solutions	315	339	312

Following Opportunity Areas, the table below highlights estimated employment opportunities across various, more specific sectors, such as construction and transportation. The construction sector in particular, alongside commercial and industrial machinery and equipment repair and maintenance, are projected to generate the highest number of jobs. These projections align with the key drivers of employment identified above: transforming existing buildings and decarbonizing industry.

Table 10.8 Changes in employment opportunities in Low-Carbon, Mixed Fuel and Community Drive Scenarios from 2026-2050 relative to the Business-as-Planned Scenario, by sector in person-years of employment.

Sector	Low-Carbon Jobs Total	Mixed Fuel Jobs Total	Community Driven Jobs Total
Construction	313,529	313,729	319,846
HVAC equipment manufacturing	16,785	11,743	14,461
Electric power generation, transmission and distribution	25,272	24,596	56,839
Transit and ground passenger transportation	-20,000	-5,707	-38,302
Motor vehicle manufacturing	132	1,506	155
Aerospace product and parts manufacturing	0	0	0
Agriculture, construction, and mining machinery manufacturing	0	0	0
Water transportation	0	0	0
Commercial and industrial machinery and equipment repair and maintenance	108,367	94,887	52,521
Waste management and remediation services	5,920	5,920	5,920
Crop production	4,063	2,438	4,063
Support activities for agriculture and forestry	315	339	312

Due to insufficient and unreliable data, providing accurate cost estimates for the aerospace products and parts manufacturing, agriculture, construction, and mining machinery manufacturing. water transportation and waste management and remediation services sectors would involve making too many assumptions, resulting in significant uncertainty. Therefore, no estimates have been provided.

10.4 Workforce Gaps and Strategies

This section identifies solutions to address workforce shortages and potential workforce partners and resources at the federal, state, regional, and/or local level to help address challenges that could limit the ability of Nevada to implement the measures in the CCAN. Existing partnerships and resources can be leveraged to support the achievement of these measures.

Table 10.7: Potential workforce needs by climate sector

Sector	Job Training	Additional Staffing	Employees with Specialty Certifications	Support for Transitional Workforce	Career Pathway Awareness and Education
Buildings	X			X	
Energy	X		X	X	X
Transportation	X				X
Industry	X		X		
Waste	X		X		
Working and Natural Lands	X				

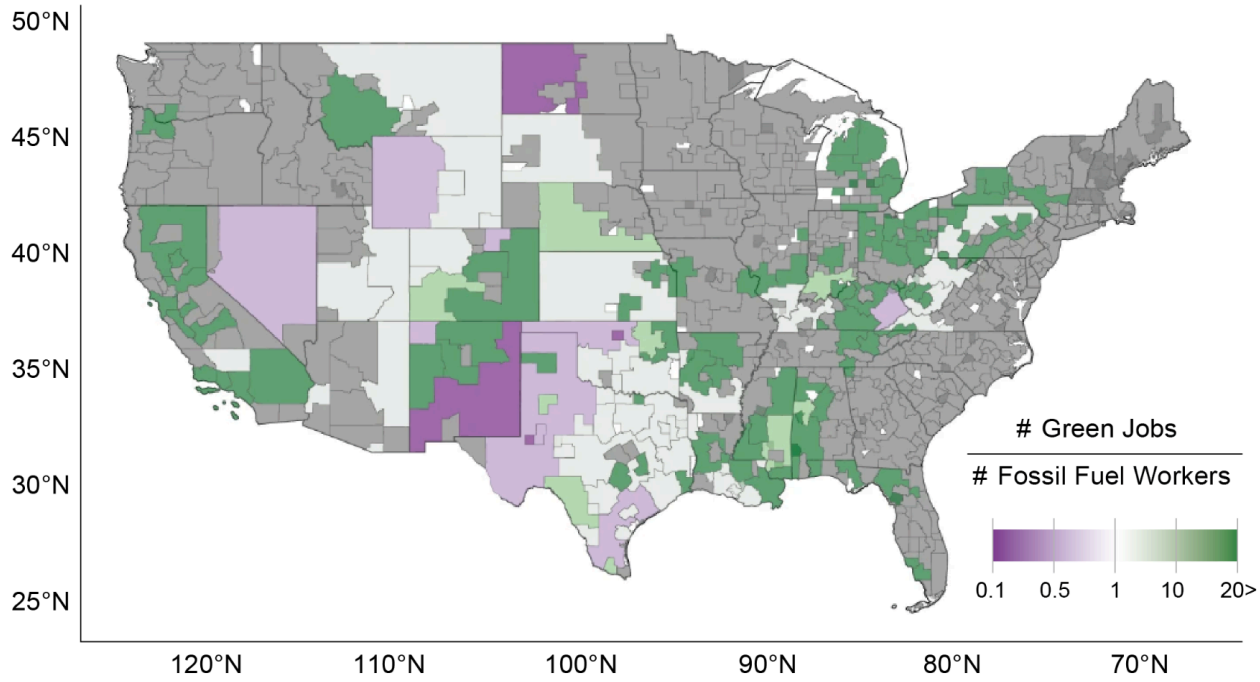
10.4.1 Location Considerations

A primary consideration of workforce planning is reducing worker displacement by minimizing job losses and economic shocks as the economy transitions to green jobs.[130] A study published in 2023 found that the ratio between green jobs and 2019 fossil fuel worker employment is less than one for most of the state. This indicates that there are far fewer available green jobs than there are current workers who may be at risk in the green jobs transition (Figure 10.17). The same report explains that one of the greatest barriers to the energy transition is that fossil fuel workers have not historically exhibited geospatial mobility and are not often located close to green jobs.[131] Nevada's large size and low population density outside of the Las Vegas metro, increases the risks of job displacement for rural workers. Section 2.2 provides greater detail around potential at-risk workers and opportunities for transition, especially in solar power, in the state.

[130] Adam Mayer. (2018). A just transition for coal miners? Community identity and support from local policy actors. Available at: https://www.sciencedirect.com/science/article/abs/pii/S2210422417302459

[131] Lim, et al. (2023). Location is a major barrier for transferring US fossil fuel employment to green jobs. Available at: https://www.nature.com/articles/s41467-023-41133-9

Figure 10.17: Ratio of green jobs to fossil fuel workers, United States, 2024[132]



10.4.2 Good Job Principles

High quality jobs are those that provide stable pay, job security, safe working conditions, and secure benefits to support workers and their families.

Support is needed for employers in reducing barriers to accessing high-quality jobs. This may include removing unnecessary hiring requirements, providing reasonable accommodations to individuals with disabilities during the hiring process, recruiting from communities underrepresented in the workforce, and providing transparent pay schedules with equitable wages and career ladders.

In 2022, the US Department of Commerce and Department of Labor partnered to define what makes a good job. The “Good Jobs Principles” provide a framework for employers, workers and governments for creating stable, secure jobs with livable wages and safe working conditions. The eight principles are outlined below and can be a guide for developing future workforce development programs, training, job support, and recruitment initiatives:[133]

[132] Ibid.

[133] These have been adapted from the U.S. Department of Labor’s Good Jobs Principles as of 2024. Available at: https://www.dol.gov/newsroom/releases/osec/osec20220621.

- Recruitment and Hiring: Qualified applicants are actively recruited. Applicants are free from discrimination, including unequal treatment or application of selection criteria that are unrelated to job performance. Applicants are evaluated with relevant skills-based requirements. Unnecessary credentials, educational, and experience requirements are minimized.
- Benefits: Full-time and part-time workers are provided benefits that promote economic security and mobility. These include health insurance, a retirement plan, workers' compensation benefits, work-family benefits such as paid leave and caregiving supports, and others that may arise from engagement with workers. Workers are empowered and encouraged to use these benefits.
- Equal Opportunity: All workers have equal opportunity. Workers are respected, empowered, and treated fairly. Individuals from underserved communities do not face systemic barriers in the workplace. Underserved communities are persons adversely affected by persistent poverty, discrimination, or inequality, including Black, Indigenous, people of color; LGBTQ+ individuals; women; immigrants; veterans; military spouses; individuals with disabilities; individuals in rural communities; individuals without a college degree; individuals with or recovering from substance use disorder; and justice-involved individuals.
- Empowerment and Representation: Workers can form and join unions. Workers can engage in protected, concerted activity without fear of retaliation. Workers contribute to decisions about their work, how it is performed, and organizational direction.
- Job Security and Working Conditions: Workers have a safe, healthy, and accessible workplace, built on input from workers and their representatives. Workers have job security without arbitrary or discriminatory discipline or dismissal. They have adequate hours and predictable schedules. The use of electronic monitoring, data, and algorithms is transparent, equitable, and carefully deployed with input from workers. Workers are free from harassment, discrimination, and retaliation at work. Workers are properly classified under applicable laws. Temporary or contractor labor solutions are minimized.
- Organizational Culture: All workers belong, are valued, contribute meaningfully to the organization, and are engaged and respected especially by leadership.
- Pay: All workers are paid a stable and predictable living wage before overtime, tips, and commissions. Workers' pay is fair, transparent, and equitable. Workers' wages increase with increased skills and experience.
- Skills and Career Advancement: Workers have equitable opportunities and tools to progress to future good jobs within their organizations or outside them. Workers have transparent promotion or advancement opportunities. Workers have access to quality employer- or labor-management-provided training and education.

10.4.3 Ensure Access for Underrepresented Groups

The transition to green jobs often magnifies disparities in the job market. Compared to all occupations nationally, the green jobs workforce is often older, dominated by male workers, and primarily White.[134] A 2021 jobs report found that women represent less than 30% of all workers in the green energy sector, and Black workers are underrepresented by nearly 40%, comprising only 8% of clean energy jobs.[135] Job creation gains in clean energy have been shown to accrue in wealthier areas amongst highly paid workers, while lower paid manual labor workers often experience modest change in pay, despite needing additional skills and training.[136]

At the same time, lower paid workers are often at greater risk of job displacement. Labor reallocations in the clean energy transition often favor workers with access to higher education while most negatively impacting non-college educated workers. Historically, a small subset of workers in carbon intensive industries have been able to transition to green jobs, and most workers have transitioned to other carbon intensive jobs, showing that there may be a lack of options available to these workers. These effects are more pronounced for workers over 55 years old and rural workers in job markets with limited options.[137]

Despite these patterns, job transitions that are focused on promoting training and upskilling for workers can greatly contribute to broader economic benefits. Workers in the clean energy sector often earn higher wages when compared to workers nationally. Many green jobs also offer higher wages and low barriers to entry for workers at the lower end of the income spectrum.[138] Green construction and renewable-energy generation jobs often have higher union coverage and require less education than jobs in other sectors.[139]

Barriers to Green Jobs

Workforce barriers to the green jobs transition may include a lack of awareness of green jobs, limited English proficiency, a lack of childcare resources, limited transportation or access to job sites, and the geographic mismatch discussed above. Many green jobs require technical proficiency in new skills, and workers that lack the financial capital to invest in training may have difficulty attaining green jobs. Section 10.4.5 lists current state resources for training.

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[134] Muro, et al. (2019). Advancing inclusion through green energy jobs. Available at: https://www.brookings.edu/wp-content/uploads/2019/04/2019.04_metro_Clean-Energy-Jobs_Report_Muro-Tomer-Shivaran-Kane_updated.pdf#page=34

[135] E2. (2021). Help Wanted Diversity in Clean Energy. Available at: https://e2.org/wp-content/uploads/2021/09/E2-ASE-AABE-EEFA-BOSS-Diversity-Report-2021.pdf

[136] Popp, et al. (2021). The Employment Impact of a Green Fiscal Push: Evidence from the American Recovery and Reinvestment Act. Available at: https://www.jstor.org/stable/27133172

[137] Curtis, et al. (2023). Workers and the Green-Energy Transition: Evidence from 300 Million Job Transitions. Available at: https://www.nber.org/system/files/working_papers/w31539/w31539.pdf

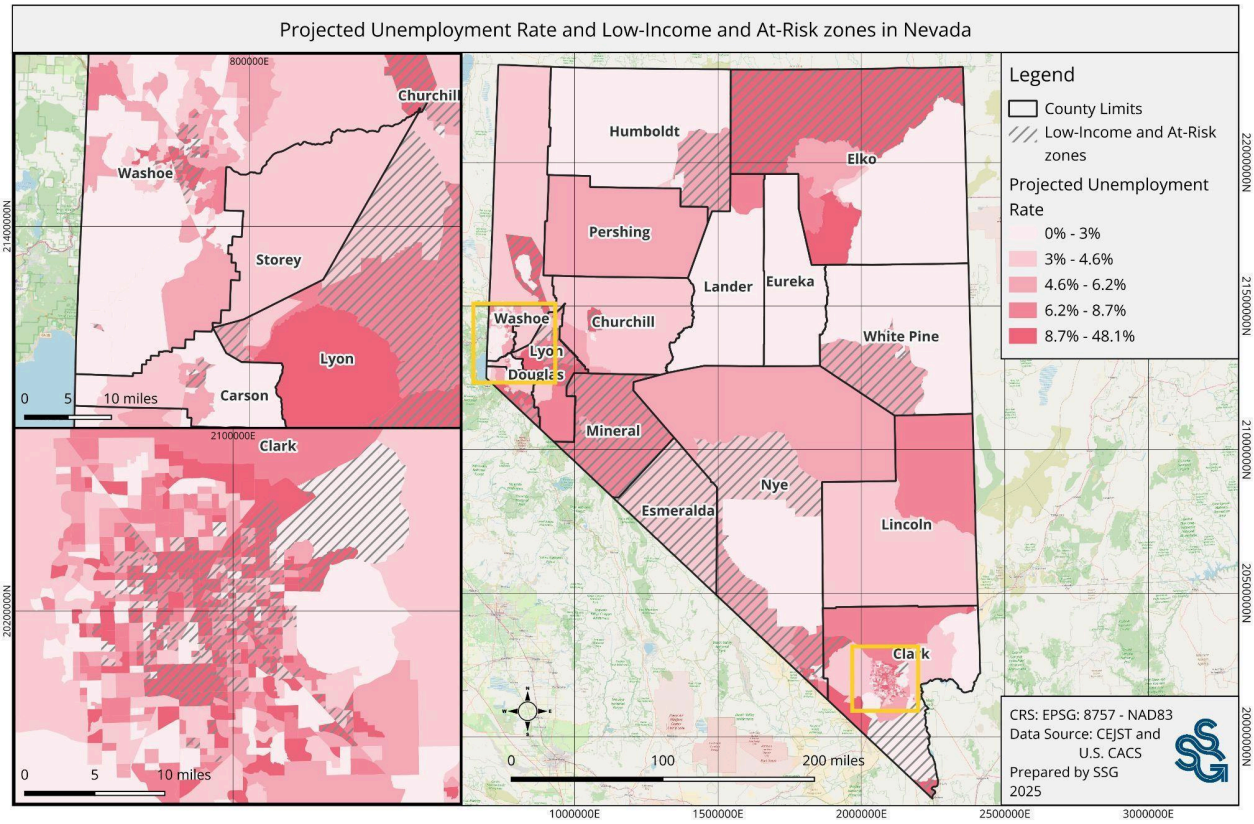
[138] Muro, et al. (2019). Advancing inclusion through green energy jobs. Available at: https://www.brookings.edu/wp-content/uploads/2019/04/2019.04_metro_Clean-Energy-Jobs_Report_Muro-Tomer-Shivaran-Kane_updated.pdf#page=34

[139] Urban Institute (2024). Available at: https://www.urban.org/projects/clean-energy-job-access-race-gender

Figure 10.18 shows that many of the low-income and at-risk communities intersect areas of low to mid-range unemployment, with a few areas of high unemployment where job access and creation may be difficult. Likewise, in some areas, 20% to 40% of workers commute over 40 minutes which may show existing difficulties with job access (Figure 10.19). The Las Vegas-Henderson-North Las Vegas MSA is highlighted in each map, because the MSA currently has 73.0% (2,293,764 residents) of the total state population of 3,141,000, according to the 2018-2023 ACS 5-Year data. Because many of the census tracts outside the MSA are rural, there may also be a higher margin of error in the data presented.

Figure 10.20 shows that large areas of the state lack internet access. Likewise, many of these communities have over 20% of households with no internet access. Inability to access the internet impacts access to training opportunities, job posting websites, and other forms of education and accessibility to the job market.

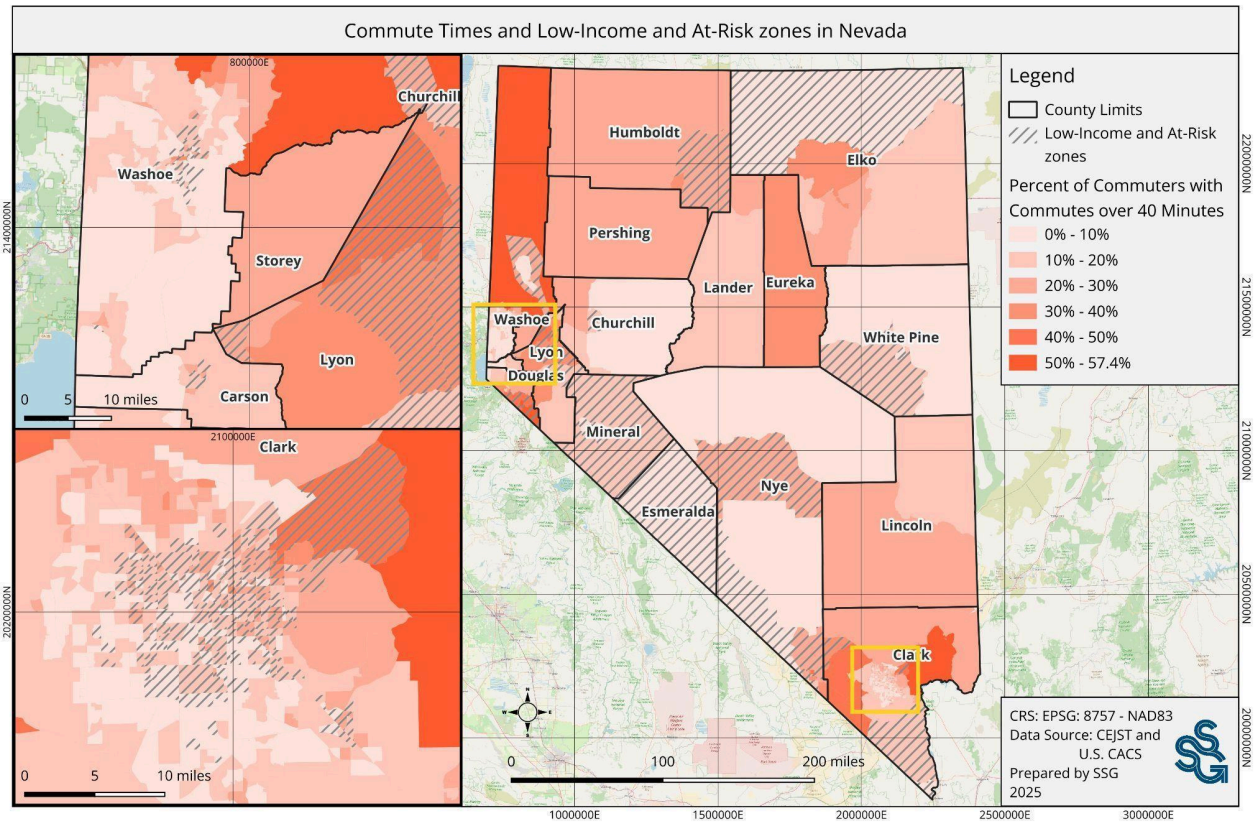
Figure 10.18: Projected Unemployment Rate by Census Tract* and At-Risk Zones, Nevada, 2024



*Note – ESRI forecasts the unemployment rate of the working population age 16+ based on historical data for each census tract.

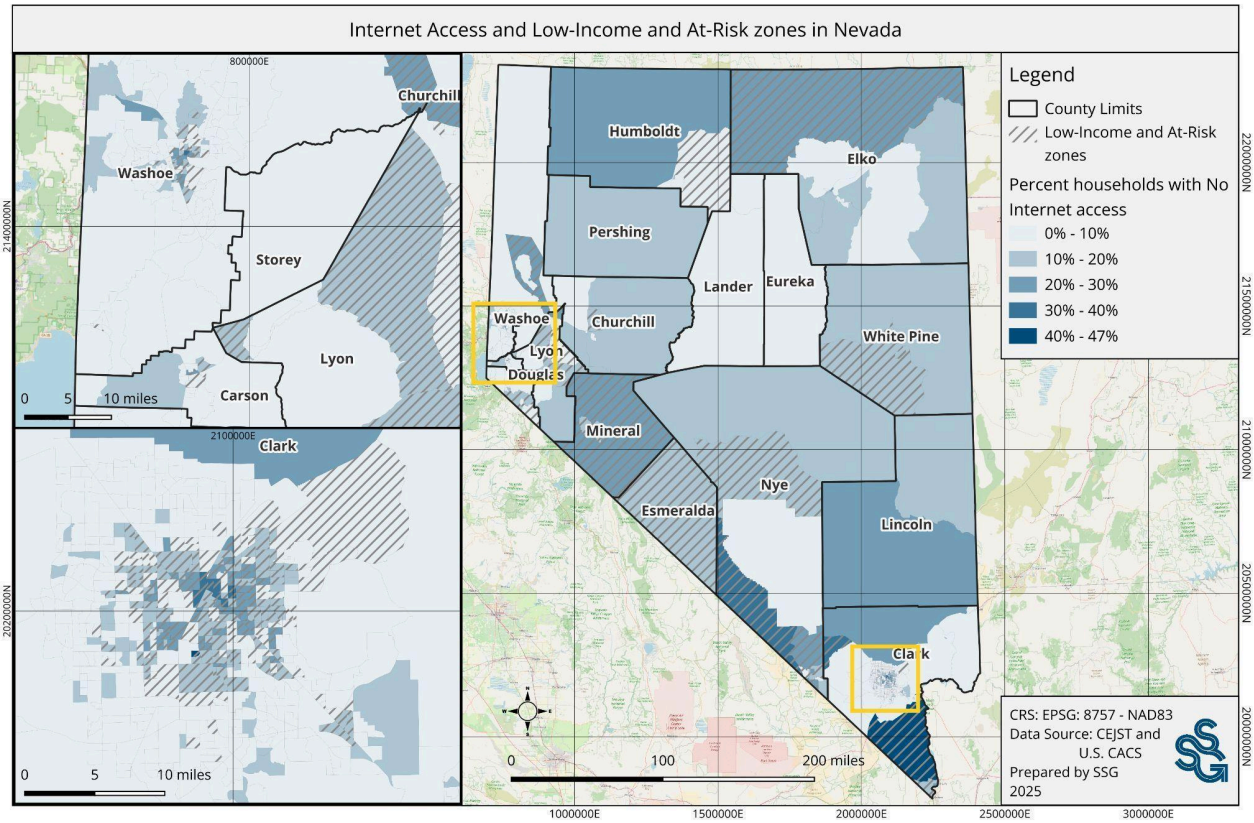
Source: ESRI Labor Force. (2024). Forecasts using American Community Survey 5-Year Estimates 2019-2023.

Figure 10.19: Commute Times by Census Tract and At-Risk Zones, Nevada, 2022



Source: U.S. Census American Community Survey, 5-Year Estimates 2018-2022 (2022)

Figure 10.20: Internet Access and At Risk Zones, Nevada, 2022



Source: U.S. Census American Community Survey, 5-Year Estimates 2018-2022 (2022)

10.4.5 Leverage or Expand Existing Partnerships and Programs

Colleges, Universities, and Training Programs

Public and private universities, colleges and training programs in Nevada can provide training and education in green industries. Universities like Nevada State University and University of Nevada offer existing degrees or training programs in solar energy, solar panel installation, and renewable energy.

The Desert Research Institute (DRI), a non-profit research institute in Reno and Las Vegas, received a grant in 2024 from the U.S. Department of Energy's Office of Environmental Management to support the state's clean energy workforce pipeline.[140] The

[140] Desert Research Institute. (2024). DRI's STEM Education Program Receives DOE Grant to Support Nevada's Clean Energy Workforce Pipeline. Available at: https://www.dri.edu/stem-education-program-receives-doe-grant/.

$2 million grant will allow DRI to strengthen its partnerships and introduce middle and high school students across the state to skills in fields like clean energy, waste management, and environmental remediation.[141]

Workforce development in the state can also be strengthened through existing partnerships that educational institutions have with community partners. For example, Western Nevada College in Carson City, NV, in partnership with the nonprofit greenUP!, founded the Nevada Green Business Network, which is a coalition of organizations offering a statewide green business certification and promotion program.[142]

Programs, Resources, and Partners

Developing Nevada's future workforce will be a collaborative effort between state and local entities, educational institutes, nonprofits, and private industry. The list below includes local, state and federal programs, initiatives, partners, and other resources that can be leveraged and grown to meet future workforce needs. The below workforce organizations and resources may be potential partners in future measures.

[141] Desert Research Institute. (2024). DRI's STEM Education Program Receives DOE Grant to Support Nevada's Clean Energy Workforce Pipeline. Available at: https://www.dri.edu/stem-education-program-receives-doe-grant/.
[142] Nevada Green Business Network. (2025). About Us. Available at: https://nvgreenbusiness.org/about-us/.

Table 10.8: Workforce Programs, Resources, and Partners

Name	Coordinating Agency	Resource Type	Description
Federal Resources			
Reentry Employment Opportunities	U.S. Department of Labor	Funding	The Reentry Employment Opportunities (REO) program provides funding for justice-involved youth and young adults and adults who were formerly incarcerated.[143]
Workforce Pathways for Youth	U.S. Department of Labor	Job Training, Workforce Development	The Workforce Pathways for Youth (WPY) program expands job training and workforce activities for youth, including soft-skill development, career exploration, job readiness and certification, summer jobs, year-round job opportunities and apprenticeships in out-of-school time organizations nationwide.[144]
Youth Connections	U.S. Department of Labor	Online Learning Tool	The Youth Connections Community is an online learning destination for public workforce system staff and partners who serve youth in the Workforce Innovation and Opportunity Act (WIOA) Youth Program.[145]
YouthBuild	U.S. Department of Labor	Online Learning Tool, Resources	The YouthBuild Community is a shared electronic space where grantees can support each other in implementing successful programs, sharing tools, and fostering partnerships.[146]

[143] U.S. Department of Labor. Reentry Employment Opportunities. Available at: https://www.dol.gov/agencies/eta/reentry.
[144] U.S. Department of Labor. Workforce Pathways for Youth. Available at: https://www.dol.gov/agencies/eta/youth/workforce-pathways-for-youth.
[145] U.S. Department of Labor, Employment and Training Administration. Workforce GPS Youth Connections. Available at: https://youth.workforcegps.org/.
[146] U.S. Department of Labor, Employment and Training Administration. Workforce GPS YouthBuild. Available at: https://youthbuild.workforcegps.org/.

Name	Coordinating Agency	Resource Type	Description
Career Pathways	U.S. Department of Labor	Online Learning Tool, Resources	The Career Pathways Community helps workforce development leaders, practitioners, and policymakers expand state and local career pathways efforts currently underway or being planned.[147]
Building Pathways to Infrastructure Jobs	U.S. Department of Labor	Funding	Administered by the Department of Labor's Employment and Training Administration, the grants enable public-private partnerships to develop, implement and scale worker-centered programs that train people for in-demand jobs in advanced manufacturing, information technology and professional, scientific and technical service occupations.[148]
Map a Career in Clean Energy	U.S. Department of Energy	Interactive Career Mapping Tools	This interactive mapping tool showcases careers in clean energy based on your education and experience. The user can explore opportunities in advanced manufacturing, bioenergy, green buildings, hydrogen and fuel cells, hydropower, marine energy, solar, and wind.[149]
Better Buildings Accelerator	U.S. Department of Energy	Partner Networks	Better Buildings Accelerators are collaborative peer-to-peer networks designed to facilitate learning and leadership opportunities that result in new strategies and practices in clean energy deployment. Accelerators focus on partner-identified areas that aim to overcome persistent barriers to clean energy options.[150]

[147] U.S. Department of Labor, Employment and Training Administration. Workforce GPS Career Pathways. Available at: https://careerpathways.workforcegps.org/.
[148] U.S. Department of Labor. (2024). Department of Labor announces approximately $35M in additional funding available for 2nd round of Building Pathways to Infrastructure Jobs grants. Available at: https://www.dol.gov/newsroom/releases/eta/eta20240515.
[149] U.S. Department of Energy. Map a Career in Clean Energy. Available at: https://www.energy.gov/eere/jobs/map-career-clean-energy.
[150] U.S. Department of Energy. Better Buildings Accelerators. Available at: https://betterbuildingssolutioncenter.energy.gov/accelerators.

Name	Coordinating Agency	Resource Type	Description
State Resources			
Office of Workforce Innovation (OWINN)	Office of Workforce Innovation (OWINN)	Workforce development support and coordination	OWINN works to support Nevada's workforce by providing leadership in assessing workforce policies and developing innovative ideas to strengthen the workforce system, promoting registered apprenticeships and work-based learning, leveraging labor-market and workforce data, validating industry-recognized credentials, and developing career pathways.[151]
Nevada Governor's Office of Economic Development	Nevada Governor's Office of Economic Development	Workforce development services and programs	The Office of Economic Development established a workforce development training program to support workers and businesses. It also provides individual career mapping in partnership with OWINN.[152]
EmployNV	EmployNV	Job search, labor market data, and online learning	EmployNV is a job center in Nevada, providing support to individuals and employers.[153]
EmployNV Career Hub	EmployNV Career Hub	Training and employment services	EmployNV's Career Hub connects jobseekers to training, education, and employment opportunities.[154]
Nevada Small Business Development Center	Nevada Small Business Development Center	Support for small businesses	Nevada Small Business Development Center provides advising services, education, training, and assistance to small businesses and start-ups.[155]

[151] Nevada Office of Workforce Innovation. About OWINN. Available at: https://gowinn.nv.gov/about/.
[152] Nevada Governor's Office of Economic Development. Workforce Development. Available at: https://goed.nv.gov/programs/workforce-development/.
[153] EmployNV. Available at: https://www.employnv.gov/vosnet/Default.aspx.
[154] EmployNV Career Hub. About. Available at: https://employnvcareerhub.org/about/.
[155] Nevada Small Business Development Center. Available at: https://nevadasbdc.org/.

Name	Coordinating Agency	Resource Type	Description
Local and Regional Resources			
Nevada Hispanic Business Group	Nevada Hispanic Business Group	Support for small businesses	Nevada Hispanic Business Group offers support and resources to small businesses in Southern Nevada.[156]
Nevadaworks	Nevadaworks	Training and employment services	Nevadaworks is Northern Nevada's hub for training and employment opportunities for job seekers and employers.[157]
Workforce Connections	Workforce Connections	Training and employment services	Workforce Connections is Southern Nevada's Local Workforce Development Board, establishing partnerships with employers and the community to connect job seekers to education, training, and employment.[158]

[156] Nevada Hispanic Business Group. Home. Available at: https://www.nvhispanicbusinessgroup.org/.
[157] Nevadaworks. Home. Available at: https://nevadaworks.com/.
[158] Workforce Connections. General Information. Available at: https://nvworkforceconnections.org/inside-wc/.

10.4.6 Explore Funding Opportunities

Many of the funding opportunities powering clean energy and workforce development are a result of federal investments from the Inflation Reduction Act (IRA) and Infrastructure Investment and Jobs Act (IIJA). The Inflation Reduction Act of 2022 was the single largest investment in climate energy in American history.[159] The IRA has several different provisions, including the Energy Infrastructure Reinvestment (EIR) Program, aimed to help "retool, repower, repurpose, or replace energy infrastructure that has ceased operations or to improve the efficiency of infrastructure that is currently operating".[160] The IRA funds expanded activities authorized by the Bipartisan Infrastructure Law (BIL), which was a $1.2 trillion investment in repairing and modernizing the nation's infrastructure.[161] The BIL includes $550 billion in new federal infrastructure funding to repair, rebuild, and modernize water infrastructure, transportation infrastructure, energy infrastructure and more.

The Clean Energy Plan, which is a component of the IRA, allocated $14.5 billion in clean energy investments to the state of Nevada. These funds have already created 20,000 jobs, and another 40,000 are expected to be created over the next decade.[162] Subgrantees of these federal funds include the nonprofit Nevada Clean Energy Fund (NCEF), whose mission is "to provide funding for qualified clean energy projects and improve the standard of living by promoting more efficient and lower cost clean energy projects that create high-paying, long-term jobs throughout rural Nevada".[163]

The resources listed in the table below play a crucial role in funding and supporting state programs that aim to address workforce development, clean energy, environmental protection, and economic growth. For instance, the Building Pathways to Infrastructure Jobs Grant Program and the Community Capacity Building Grant Program help equip Nevada's workforce with the skills needed for clean energy and infrastructure jobs, complementing the state's State Energy Program aimed at enhancing workforce development in these sectors. The Nevada Clean Energy Fund and the Pollution Prevention Grant align with federal efforts to reduce energy use and pollution, helping state programs like the Nevada Governor's Office of Energy and the University of Nevada's Business Environmental Program address these critical challenges. Federal funds like the Workforce Innovations for the New Nevada help create employment opportunities. Through these partnerships, the federal resources bolster the state's capacity to implement programs that promote economic resilience and sustainable development.

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[159] Inflation Reduction Act of 2022. U.S. Department of Energy. Available at: https://www.energy.gov/lpo/inflation-reduction-act-2022.

[160] Inflation Reduction Act of 2022. U.S. Department of Energy. Available at: https://www.energy.gov/lpo/inflation-reduction-act-2022.

[161] How New and Expanded Federal Programs Can Deliver Good Jobs and Environmental Benefits. Available at: https://www.bluegreenalliance.org/site/a-user-guide-to-the-bipartisan-infrastructure-law-bil/.

[162] Clean Energy Career Fair Showcases Nevada's Growing Industry and Job Opportunities. Climate Power. Available online at: https://climatepower.us/news/clean-energy-career-fair-showcases-nevadas-growing-industry-and-job-opportunities-2/

[163] Nevada Clean Energy Fund Secures $156 Million Federal Solar for All Grant, Supported by USDA Rural Development. Available at: https://nevadacef.org/nv-clean-energy-fund-secures-156mm-federal-solar-for-all-grant/.

Table 10.9 is an overview of both public and private funding sources for workforce development of green jobs.

Table 10.9: Funding Opportunities

Name	Coordinating Agency	Amount	Eligible Parties	Description	Status
Federal Programs					
Building Pathways to Infrastructure Jobs Grant Program	U.S. Department of Labor	$1,998,841	The Department of Employment, Training and Rehabilitation's Office of Workforce Innovation (OWINN)	The grant will support 13 public-private partnerships aimed at preparing workers for well-paying infrastructure jobs and implement Project CEJA (Clean Energy Jobs Academy) to offer high-quality employment opportunities in the clean energy sector and lithium battery supply chain.[164]	Awarded
Community Capacity Building Grant Program (CCBGP)	U.S. Department of Energy	$2 million	Desert Research Institute (DRI) STEM Education Program	Funding will be used to prepare the next generation with the knowledge and technical skills needed for employment in fields such as clean energy, waste management, and environmental remediation.[165]	Awarded

[164] Nevada secures funding to boost clean energy jobs. Available at: https://news3lv.com/news/local/nevada-secures-funding-to-boost-clean-energy-jobs.
[165] DRI's STEM Education Program Receives DOE Grant to Support Nevada's Clean Energy Workforce Pipeline. Available at: https://www.dri.edu/stem-education-program-receives-doe-grant/.

Name	Coordinating Agency	Amount	Eligible Parties	Description	Status
BIL's Energy Efficiency and Conservation Block grant Program (EECBG)	U.S. Department of Energy	$1,767,140	Nevada Governor's Office of Energy	The EECBG Program is designed to assist states, local governments, and Tribes in implementing strategies to reduce energy use, reduce fossil fuel emissions, and improve energy efficiency.[166]	Funds have been awarded.
State Programs					
State Energy Program - Energy Workforce Development (SEPBIL)	Nevada Governor's Office of Energy	$2,270,290.80	Local governments, Tribal Nations, nonprofit organizations, public schools, community partners	The GOE will maximize funding to implement an equitable, data-informed, and community-led clean energy workforce development program throughout the State of Nevada aimed at providing in-demand training and workforce development within communities most in need.[167]	NOFO to be released Fall 2025

[166] EECGB Subgrantee Memo. Available at: https://nevadacef.org/wp-content/uploads/2024/04/EECGB-Subgrantee-Memo-240311-GOE-NCEF.pdf.
[167] Nevada Governor's Office of Energy. Workforce Development. Available at: https://energy.nv.gov/Programs/Workforce_Development/.

Name	Coordinating Agency	Amount	Eligible Parties	Description	Status
Workforce Innovations for the New Nevada (WINN)	Nevada Governor's Office of Economic Development (GOED)	Unspecified	Companies in the following industries: Aerospace & Defense, Agriculture, Energy, Healthcare, Logistics & Operations, Manufacturing, Mining, Technology, and Tourism, Gaming & Hospitality	The WINN program refers to legislation that requires the Governor's Office of Economic Development to engage industry and educational partners to create, customize or expand programs to provide responsive workforce development training opportunities in targeted skill areas needed by companies in the state.[168]	Ongoing

[168] Nevada Governor's Office of Economic Development. Workforce Innovations for a New Nevada (WINN). Available at: https://goed.nv.gov/programs/winn/.

Name	Coordinating Agency	Amount	Eligible Parties	Description	Status
Nevada Recreational Trail Program (RTP) Grants	Nevada State Parks	Unspecified	Nonprofits / Community-based organizations (CBOs), Tribal governments, Local governments	The Nevada Division of State Parks Recreational Trails Program (RTP) funds will be awarded to eligible applicants for the purpose of constructing and/or maintaining motorized and non-motorized outdoor recreational trails, trailhead amenities, and trailside signage. Funds can also be used to support outdoor education programs and eligible project planning and clearance activities.[169]	Deadline Pending
Privately Funded Programs					
NV Energy Foundation Grant	NV Energy Foundation	N/A	N/A	Fund programs or initiatives related to the environment, education and youth development or safety and wellness.[170]	LOI Process began March 2025.

[169] Nevada State Parks. Recreational Trails Program. Available at: https://parks.nv.gov/about/grant-programs/recreational-trails-program.
[170] NV Energy. NV Energy Foundation. Available at: https://www.nvenergy.com/about-nvenergy/community/foundation.

Name	Coordinating Agency	Amount	Eligible Parties	Description	Status
CTA Green Grants Program	Consumer Technology Association	$10,000 to $50,000	Organizations that demonstrate a clear vision, measurable goals, and a positive impact on the environment and the community	The CTA has supported the sustainability efforts of organizations in Southern Nevada that have a clear and positive impact on the environment and community.[171]	Proposal deadline on October 3, 2025.
Nevada Clean Energy Fund	The Nevada Clean Energy Fund	Unspecified	Communities, local businesses, schools, governments, Tribes, utilities, contractors, lenders, and others	The Nevada Clean Energy Fund (NCEF) is a nonprofit organization that provides financial and technical resources to Nevadans to accelerate clean energy growth in the state, reduce energy costs, create jobs, and meaningfully address climate change.[172]	Ongoing

[171] CTA Green Grants Program. Available at: https://www.ces.tech/about-ces/green-grants-program/?_gl=1*1g0j1cs*_gcl_au*MjAzOTI0NzIxMC4xNzM3OTk1NjIx.
[172] Nevada Clean Energy Fund. About NCEF. Available at: https://nevadacef.org/about/.

Name	Coordinating Agency	Amount	Eligible Parties	Description	Status
PowerShift	NV Energy's Business Energy Services	Incentive amounts vary	Business customers with an annual electricity use of 400,000 kWh or less	NV Energy's Business Energy Services program is offering up to 50% higher rebates in 2025 for small business customers. Rebates are offered for energy-efficient equipment such as interior and exterior lighting, kitchen equipment, and air-cooled HVAC units. Small business energy efficiency incentives can cover up to 90% of the total project cost.[173]	Ongoing

[173] Business Environmental Program Nevada. Small Business Incentives for NV Energy's Business Energy Services (BES) Program. Available at: https://unrbep.org/small-business-incentives-from-nv-energys-business-energy-services-bes-program/.

10.5 Tracking and Measuring Workforce Progress

To ensure that workforce initiatives are meeting their intended audience, providing successful career and training outcomes, program progress will need to be measured and tracked consistently over time. The types of metrics tracked will depend upon the types of workforce initiatives, the availability of data, and the frequency with which data can be tracked and updated. These metrics can also be supported through the collection of qualitative data from regular meetings with industry leaders, community organizations, policy makers, and workers in green industries that can provide additional insight into workforce initiatives and ensure alignment with workforce goals and needs.

Key performance metrics should be refined during the program design and planning process. Metrics should be developed in partnership with workforce development partners to determine what can feasibly be tracked and who will be responsible for tracking, maintaining, and sharing the metrics as needed. Potential key performance metrics are included in Table 8.

Table 10.10: Potential Key Performance Metrics for Workforce Initiative Evaluation

Metric Type	Example Key Performance Metrics
Workforce Initiatives	• Number of new workforce initiatives • Number of expanded workforce initiatives • Total number of workforce initiatives
Job Creation	• Number of jobs created annually, by sector
Transitional Workforce	• Number of participants with full-time employment completing green job training programs • Number of workers transitioning to clean energy industries • Demographic breakdown of displaced and retrained workers

Metric Type	Example Key Performance Metrics
Job Quality	• Proportion of full-time versus part-time or contract positions • Retention rates within green industries • Availability of career advancement pathways and wage growth potential • Access to professional development and training • Availability of benefits such as healthcare, retirement plans, and paid leave • Median annual wages in green sectors compared to the overall median wage

Tracking these metrics over time will enable workforce development partners to monitor the impact of their programs and identify any necessary adjustments to optimize program outcomes. Through this data tracking and evaluation approach, Nevada will be able to effectively measure the progress of its workforce initiatives and ensure the creation and sustainability of high-quality employment opportunities while mitigating the impacts of job displacement.

10.5.1 Goals and Metrics on Community Impact

Where possible, the metrics above should be tracked by the demographics listed below to track any disparities in hiring, training, and outcomes.

Table 10.11: Demographic Summary, Nevada v. United States, 2023

Community	Nevada	United States
Total Population	3,141,000	332,387,540
Race		
White alone	53.2%	63.4%
Black or African American alone	9.4%	12.4%
American Indian and Alaska Native alone	1.3%	0.9%
Asian alone	8.7%	5.8%
Native Hawaiian and Other Pacific Islander alone	0.7%	0.2%
Some Other Race alone	11.8%	6.6%
Two or More Races	14.8%	10.7%

Community	Nevada	United States
Ethnicity		
Not Hispanic or Latino	70.8%	81.0%
Hispanic or Latino	29.2%	19.0%
Age		
Median Age	38.9	38.7
Sex		
Male	50.4%	49.5%
Female	49.6%	50.5%
Limited English Proficiency (LEP)		
Speak English less than "very well"	11.1%	8.4%
Poverty Status		
Population for whom poverty status is determined	3,100,449	324,567,147
Population living below poverty	12.6%	12.4%
Disability Status		
Total Civilian Noninstitutionalized Population	3,103,042	327,425,278
With a disability	13.4%	13.0%
Educational Attainment		
Population 25 years and over	2,196,081	228,434,661
Less than high school graduate	12.6%	10.6%
High school graduate (includes equivalency)	27.4%	26.2%
Some college or associate’s degree	32.5%	28.2%
Bachelor’s degree	17.8%	21.3%
Graduate or Professional Degree	9.6%	13.7%

Source: U.S. Census American Community Survey, 5-Year Estimates 2019-2023 (2023)

11 | Conclusions

The Comprehensive Climate Analysis for Nevada (CCAN) offers an in-depth, evidence-based assessment of the state's current and projected greenhouse gas (GHG) emissions, alongside a detailed evaluation of mitigation strategies that could support Nevada's transition to a net-zero future by 2050.

The policy response to climate change- a transition to cleaner, resilient energy generation and use - is an opportunity that plays directly to Nevada's strengths. The transition is well underway. Global electric vehicle sales are growing 25% annually and reached 17 million sales in 2024.[6] Electrification continues to grow for both space and water heating. 2022 marked the first year in which US heat pump sales exceeded the sales of gas furnaces,[7] and 55% of water heater sales in the U.S. were electric in 2024.[8]

Clean electricity surpassed 40% of electricity generation globally in 2024, driven by record growth in renewables, especially solar.[9] In the past few years, owing to enabling government policies and the falling cost of the technology,[10] solar installations have increased exponentially—to the point where more than a gigawatt (1 GW) of solar is being installed globally every day.

Nevada's electricity mix has transformed over the past decade: renewable energy has climbed to 39% of Nevada's electricity generation in 2023.[11] With some of the nation's best solar potential, Nevada's utility-scale solar projects are becoming the largest in the US.[12] Not only a solar powerhouse, Nevada holds abundant underground geothermal energy resources. The state is home to the first of its kind geothermal power plant,[13] and is well-positioned to be a leader in clean, stable renewable energy.

Nevada is the only U.S. state where all three major zero-carbon firm resources—solar, geothermal and lithium—co-exist at scale. Clean-tech manufacturing clusters are emerging around battery manufacturing factories and battery recycling facilities, positioning the state at the epicenter of the national electric vehicle supply chain.

Nevada is in the midst of a transition from being a net importer of fossil-fuel energy, to a net exporter of clean energy. Nevada sits atop one of the world's great untapped energy reserves—not oil or gas, but of solar,[14] wind, and geothermal energy. Rooftop solar alone could generate 48 million MWh on rooftops,[15] which is more than the total electricity consumed in Nevada in 2021 (38 million MWh) and meeting nearly 50% of the State's projected total energy consumption in 2050.

The CCAN was developed through a rigorous technical process and shaped by broad and inclusive engagement, the CCAN is a foundational tool for advancing climate action that is ambitious, equitable, and tailored to Nevada's unique geography, economy, and communities. The results of the analysis are summarised in eight findings:

1. **Nevada can achieve net-zero emissions by 2050.**
2. **Current policies do not achieve Nevada's GHG targets.**
3. **Transformational action is needed across all sectors.**
4. **Climate action will deliver broad co-benefits.**
5. **The LC scenario, which represents the deepest emissions reduction, delivers the most economic benefits.**
6. **Consideration of a-risk community just be central to implementation.**
7. **Implementation requires cross-sector coordination and investment.**
8. **The CCAN is a decision-support tool, not a prescriptive plan.**

The CCAN's modeling shows that Nevada's current trajectory—captured in the BAU and BAP scenarios—is insufficient to meet its GHG targets. While the BAP scenario delivers moderate emissions reductions through already-adopted policies, the analysis makes it clear that additional, transformative action is needed. The three low-carbon scenarios—LC, MF, and CD—demonstrate that Nevada can achieve deep emissions reductions, exceeding 90% below 2021 levels by 2050 (including sequestration), while unlocking substantial public benefits. These benefits include lower household energy costs, improved air quality, enhanced public health, and the creation of thousands of quality jobs across urban, rural, and Tribal communities.

Central to the CCAN is a suite of eleven "Opportunity Areas" that define a cross-sectoral strategy for decarbonization. These range from powering Nevada with clean energy and transforming building stock, to supporting sustainable transport of people and goods, decarbonizing industrial activities, reducing waste, and investing in nature-based solutions and sustainable agriculture. Each Opportunity Area contains a collection of policy measures, implementation timelines, and roles for actors across the public and private sectors. The CCAN describes how investments in infrastructure, workforce development, legal frameworks, and financial mechanisms can enable climate measures to succeed.

The CCAN's engagement process gave rise to a number of insights, especially from low-income and at-risk communities. Community priorities—such as affordability, access to reliable energy and transportation, protection from extreme heat, and fair housing—were central to the development of the climate measures. As the analysis reveals, climate measures that prioritize community resilience and poverty alleviation tend to deliver more enduring and widely distributed benefits.

The economic modeling confirms that these benefits can far outweigh the costs. The three scenarios required similar levels of investment, approximately $4 billion per year on average. The LC scenario, which accelerated GHG emissions reductions, delivered the most public benefits, with a net present value of $40 billion including avoided damages from climate change. The economic analysis provides the case for aligning climate policy with economic development strategy—positioning Nevada not only as a cleaner state, but as a more competitive, affordable, and resilient one.

The CCAN is not a prescriptive roadmap. Instead, it is a flexible, technical resource designed to support decision-makers at every level—from state agencies and utilities to local governments, businesses, and community organizations. It identifies options, clarifies trade-offs, and helps frame a long-term vision for emissions reductions in alignment with Nevada's statutory and aspirational climate goals. It also reinforces the need for continued monitoring, policy integration, intergovernmental coordination, and adaptive learning.

Looking ahead, the success of the measures proposed in the CCAN will rely on continued collaboration and political commitment. Moving from planning toward implementation will require dedicated funding, clear legal authority and responsibility, and capable institutions. The CCAN serves as a foundation for guiding climate efforts in Nevada, a tool for understanding and tracking progress, and a framework for evaluating future initiatives.

In sum, the CCAN demonstrates that the state has the tools, knowledge, and opportunity to achieve a low-carbon future. With targeted investments, inclusive policies, and coordinated implementation, Nevada can demonstrate how climate action can enhance prosperity and quality of life for all residents—now and for generations to come.

NEVADA DIVISION OF
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