3 Priority Climate Action Plan

This section describes current and projected GHG emissions for the State of Nevada, the State's GHG reduction targets, and a suite of near-term, implementation-ready GHG reduction measures designed to bring Nevada closer to reaching its climate action goals.

3.1 Greenhouse Gas (GHG) Inventory

3.1.1 Scope

The Nevada Division of Environmental Protection (NDEP) prepares annual GHG inventories and projections. The most recent release is the 2023 *Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043.*

3.1.3 GHG Accounting Method

NDEP relies on various data sources and methods to develop the GHG inventory and projections including the United States Energy Information Administration's (EIA's) State Energy Data System (SEDS), the EIA's Annual Energy Outlook (AEO), and the EPA's State Inventory Tool. The method was informed by the IPCC, and additional federal, state, and local data sources. A detailed review of the data sources is available in Table 1-3 of the GHG inventory report.[86]

3.1.4 GHG Emissions by Sector and Gas

Gross total GHG emissions for the state were 45.4 MMt CO_2e in 2021, with sequestration reducing the total by 8.2 MMtCO_2e, for a net total of 37.2 MMt CO_2e. In the last decade, net GHG emissions have been climbing slowly after declining from a peak in 2005, oscillating around 37 MMt CO_2e. COVID resulted in a drop of 4-5 MMtCO_2e in 2020, but GHG emissions in 2021 have bounced back to pre-COVID levels.

[86] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.

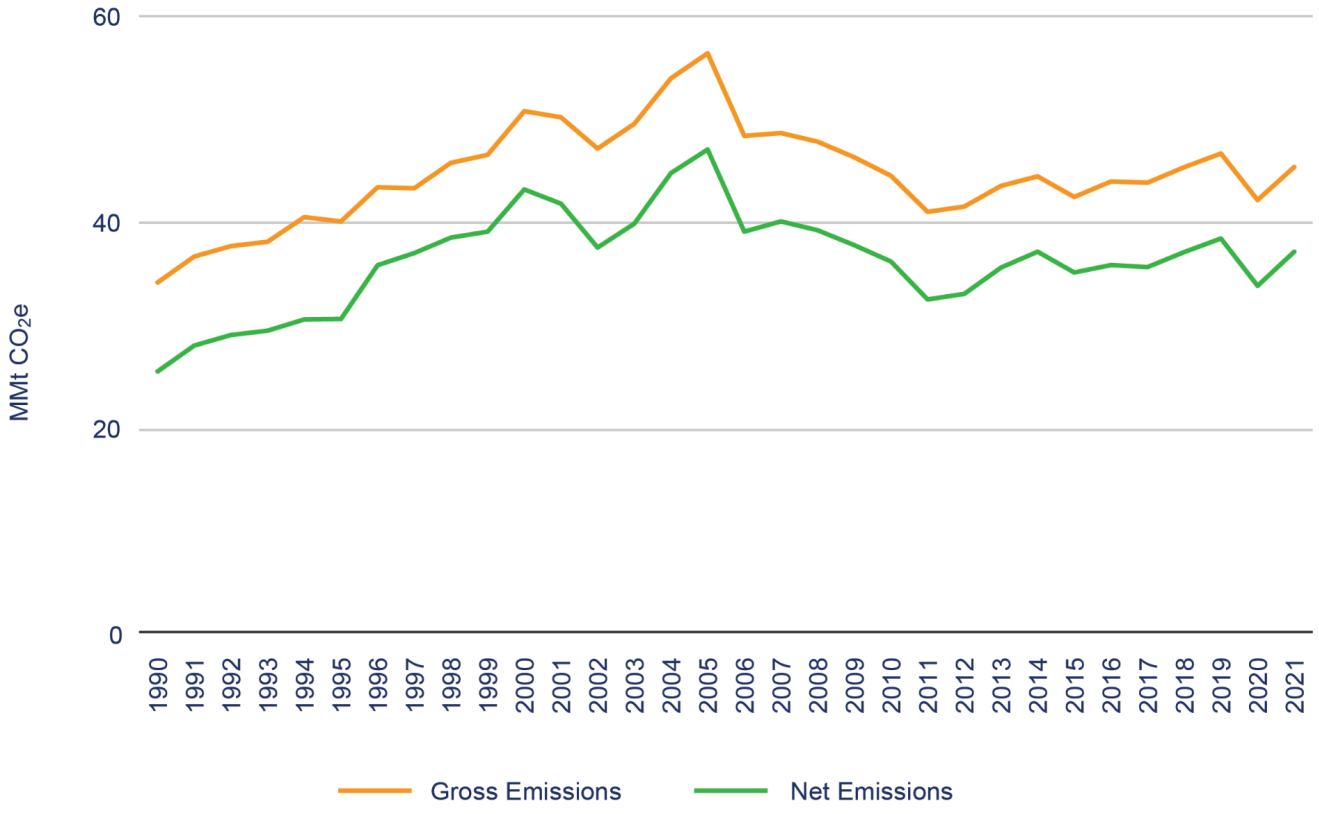

Figure 22: Gross and net GHG emissions, 1990-2021[87]

[87] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.

In 2021, the transportation sector is the major source of emissions, followed by electricity; industry; buildings (commercial buildings followed by residential); and finally, agriculture (See Figure 23).

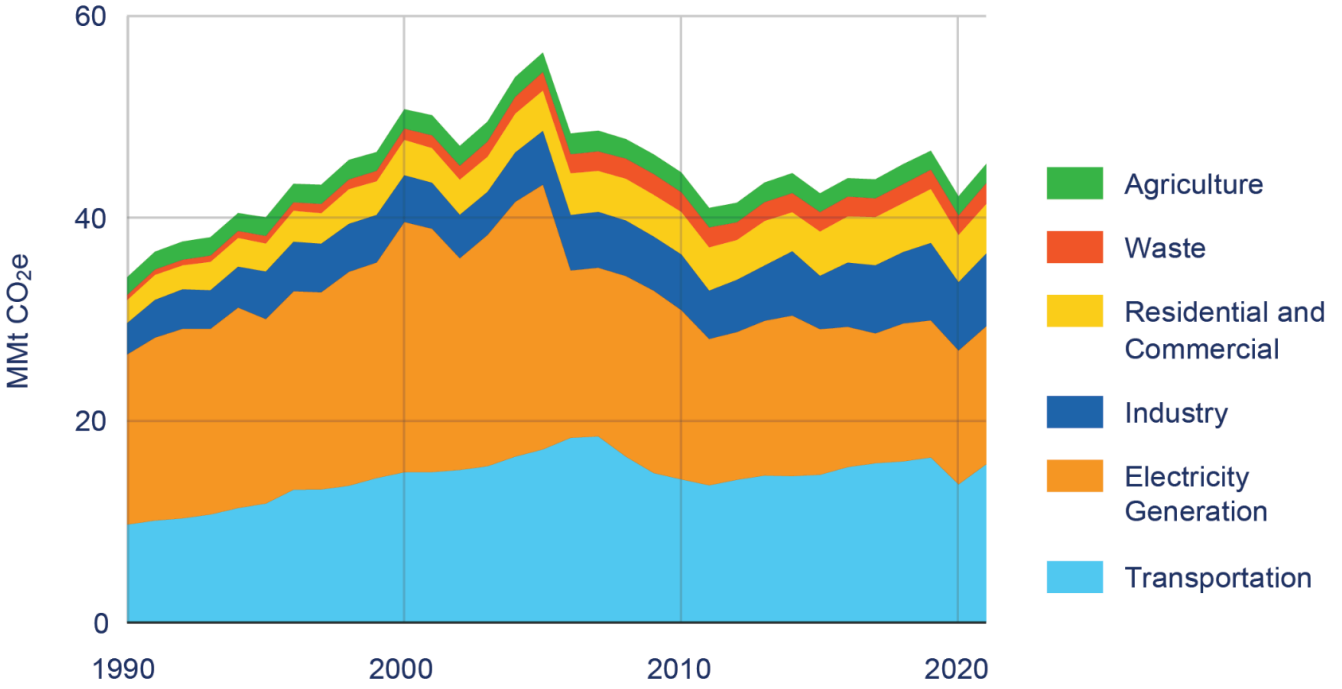

Figure 23: Gross GHG emissions by sector for Nevada, 1990-2021[88]

[88] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.

In 2021, transportation is the major source of emissions (34%), ahead of electricity production (30%), industry (16%) and buildings (11%), of net annual GHG emissions (37.2 $MMtCO_2e$). Sequestration is calculated to absorb just over 8.2 $MMtCO_2e$ per year, approximately 20% of the total.

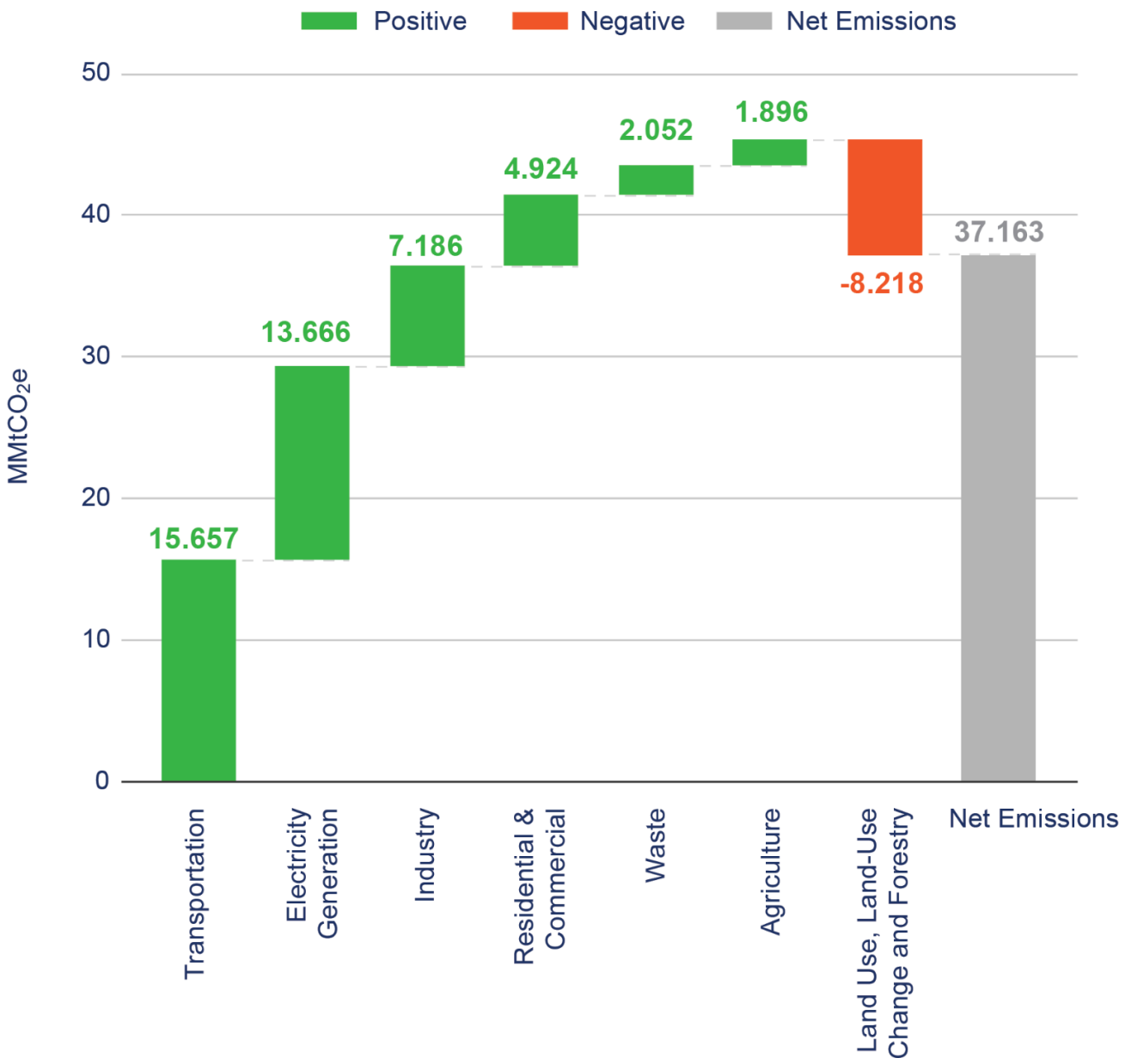

Figure 24: GHG emissions by sector in Nevada, 2021[89]

[89] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.

The primary source of GHG emissions is carbon dioxide; however, the share of emissions from other gases, such as methane, is increasing (18% in 2021 versus 11% in 2000).

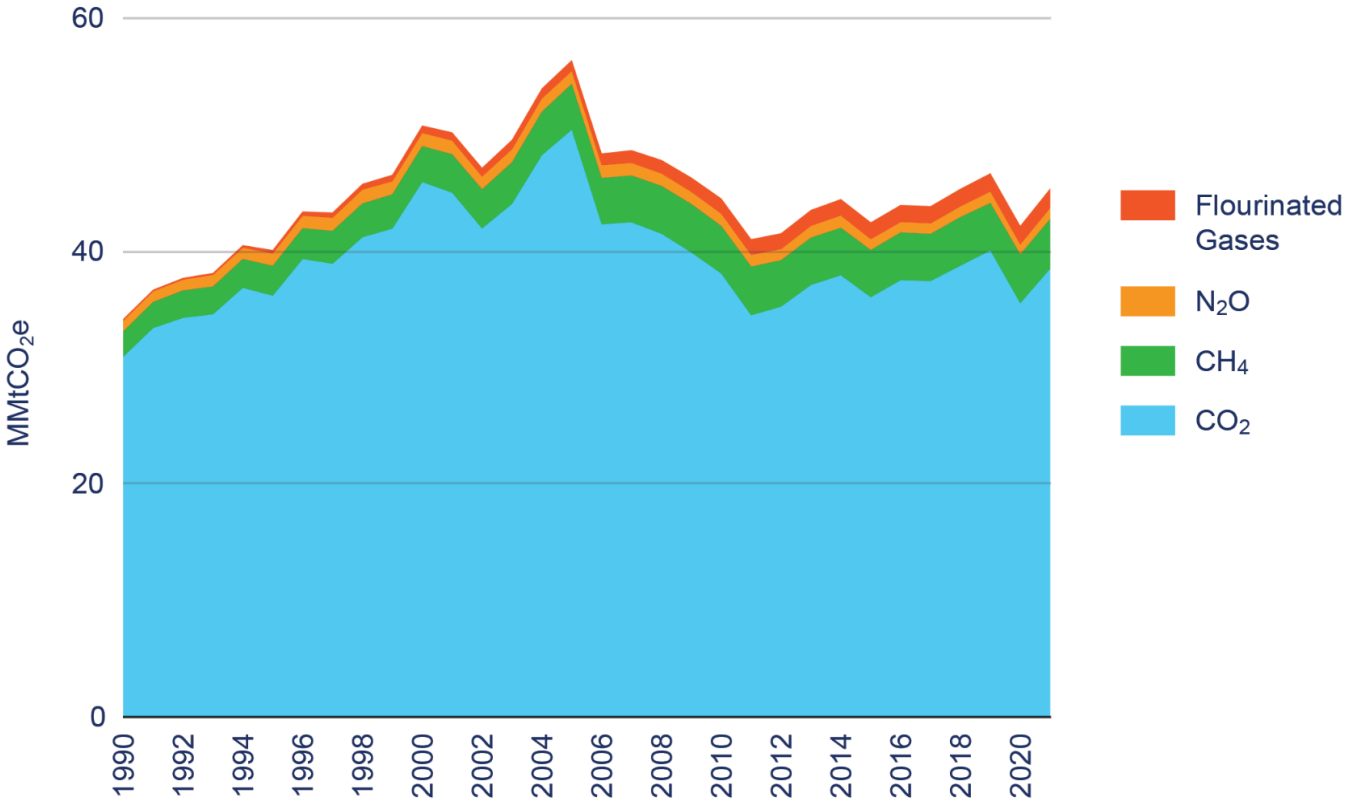

Figure 25: GHG emissions by gas in Nevada, 1990-2021[90]

In 2021, the average energy use per capita across the nation was 14.8 tons/year; Nevada's energy use intensity is a bit lower at 12.5 tons/year. It has decreased forty-six percent since 1970 when it was 21.9 tons/year.[91]

[90] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.
[91] US Energy Information Administration. "Nevada Independent Statistics and Analysis," 2023. https://www.eia.gov/state/?sid=NV.

3.2 GHG Reduction Targets

The state's economy-wide GHG targets were established in 2019 by SB 254.[92] In addition to requiring annual GHG inventories and 20-year GHG projections, SB 254 establishes targets to reduce emissions 28% by 2025 and 45% by 2030, and to achieve zero or net-zero by 2050, relative to 2005. Table 5 describes the projections, targets and required emissions reductions.

Table 5. Nevada's GHG projections and targets[93]

	Current Business As Usual Projections			2019 SB 254 Targets		
Year	**Emissions ($MMTCO_2e$)**	**Emissions Reduction Compared to 2005 Emissions ($MMTCO_2e$)**	**Percent Reduction Compared to 2005 Emissions**	**Emissions ($MMTCO_2e$)**	**Emissions Reduction ($MMTCO_2e$)**	**Percent Reduction**
2005	47.1	n/a	n/a	n/a	n/a	n/a
2021	37.2	9.9	21.1%	n/a	n/a	n/a
2025	35.6	11.5	24.5%	33.9	13.2	28%
2030	34.0	13.1	27.8%	25.9	21.2	45%
2050	24.4	22.7	48.2%	0	47.1	100%

[92] Nevada State Legislature. Bill SB254 Overview, Pub. L. No. 254. Accessed February 2, 2024. https://www.leg.state.nv.us/App/NELIS/REL/80th2019/Bill/6431/Overview.

[93] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.

Figure 26 illustrates historical GHG emissions estimates, future projections until 2050[94], and Nevada's GHG targets.

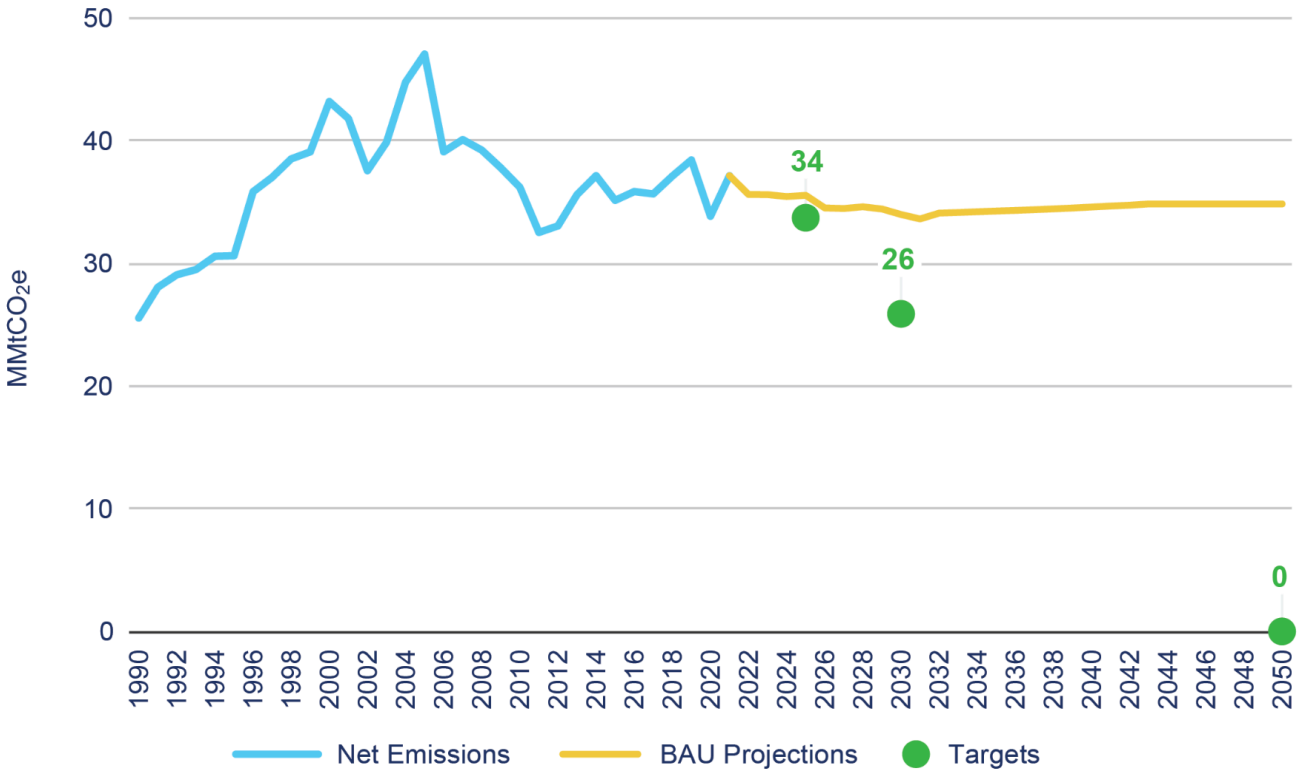

Figure 26. Illustration of historical emissions, projected emissions, and Nevada's GHG targets.[95]

[94] GHG emissions post 2043, the state's current 20-year projection, were held constant.
[95] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.

3.3 Focus Areas and Priority GHG Reduction Measures

3.3.1 How to Read This Section

This PCAP includes six focus areas based on emissions sectors. Each has a set of priority measures.

Table 6. How to read the Focus Area and Priority GHG Reduction Measures section.

Section	Description
Focus Area Overview	High level definitions of each focus area, outlining why the focus area is important to Nevada's GHG emission reduction plans and goals
Emissions Context	Current and projected emissions related to the focus area, illustrating the importance of implementing measures to reduce emissions in this area
Status in Nevada	An overview of the existing status of programs and policies related to the focus area, including what cities, counties, and state level agencies are planning or implementing
Federal Funding	A summary of federal funding available to support measures in the focus area
Community Feedback	Highlights of related community feedback noted during the community engagement process
Authority to Implement	Authority to implement the measures or needed to be obtained to implement them
GHG Emission Reductions	Quantified GHG emission reduction estimates for the measures in the focus area
Transformative Impacts and Co-Benefits	A discussion of the transformative impact and co-benefits, particularly in low income and disadvantaged communities, of implementing the priority measures
Example Programs or Initiatives	Examples of possible combinations of priority measures that could be used to develop applications for CPRG Phase 2 grant funding and/or other funding sources

3.3.2 Focus Area 1: Transportation

Measures in this focus area aim to increase active travel, public transit, and zero emission vehicle adoption in Nevada. This includes incentives for clean fuels, support for capacity building and workforce training, and building infrastructure. These measures will improve air quality and public health by reducing pollution and increasing physical activity. In addition, Nevadans will save money by spending less on fuel and vehicle maintenance and having better access to public transit. Jobs will be created in fields such as construction, manufacturing, and vehicle operations.

3.3.2.1 Emissions Context

In Nevada, transportation emissions peaked in 2007, but became the largest source of GHG emissions in 2015. Transportation is projected to remain the largest emissions sector through 2043. In 2021, emissions from transportation totaled 15.6 $MMTCO_2e$ and accounted for 42% of the state's total gross GHG emissions. These are predominantly carbon dioxide (CO_2) emissions, with methane (CH_4) and nitrous oxide (N_2O) emissions accounting for less than 1.2% of emissions in this sector. More than 57% of transportation sector emissions came from gasoline use in 2021. Diesel accounted for 25%, aviation fuels accounted for 15%, and alternative fuels and lubricants accounted for 2%.

Projections of future emissions in the transportation sector are subject to some degree of uncertainty; shifts in travel patterns following the COVID-19 pandemic may be more or less permanent, federal initiatives such as the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule Part Two and the IRA may have varying effects on vehicle emissions and ZEV uptake, and Clean Cars Nevada[96] may not extend beyond 2025. [97] In light of these uncertainties, NDEP's analysis projects that transportation sector GHG emissions will slightly decrease but largely remain static over the coming decades, reaching 14.4 $MMTCO_2e$ in 2043. Emission reductions due to new federal and state regulations will be offset by expected population and economic growth. [98]

3.3.2.2 Status of Transportation Programs in Nevada

The State of Nevada has made considerable progress in recent years in developing infrastructure to support electric and alternative fuel vehicles, supporting public and private entities' transition to ZEVs, and enhancing alternative modes of travel such as high-speed rail and public transit.

Through a variety of funding sources and programs, electric vehicle charging infrastructure is being deployed across the state, particularly along major corridors. As of 2023, the State invested more than

[96] Clean Cars Nevada incorporates California's Low and Zero Emission Vehicle programs requiring light-duty vehicle manufacturers to adhere to stricter fleetwide GHG emission standards beginning with model year 2025.
[97] Nevada Division of Environmental Protection, "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023, https://ndep.nv.gov/.
[98] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.

$4 million in combined GOE Renewable Energy funds and VW Settlement funds to develop 30 EV charging stations along highways I-80, I-15, US 50, US 93, and US 95. In 2021, SB 448 authorized NV Energy to invest $100 million in EV charging infrastructure by 2024, as described in its Economic Recovery Transportation Electrification Plan. In 2022, the Nevada Department of Transportation (NDOT) developed the Nevada Alternative Fueling Infrastructure Plan to leverage an additional $38 million in funding over the next five years from the federal Infrastructure Investment and Jobs Act (IIJA). This funding will help the state to build EV charging stations approximately every 50 miles along designated corridors within the Interstate Highway System.

In 2023, with the passage of AB 262, the state made it an official policy goal to support and pursue transitioning all publicly owned vehicles to zero emission fleets by 2050. In addition, Nevada established the Clean Trucks and Buses Incentive Program (2023 AB 184), to be administered by NDEP and supported by funds from the federal Carbon Reduction Program (23 U.S.C. § 175). The program, scheduled to begin in 2024, provides vouchers to support replacing older trucks and buses with- medium- and heavy-duty ZEVs. The base incentive for vouchers is dependent on gross vehicle weight rating and further increases when an entity demonstrates meeting other criteria that is designed to help underserved communities.

The state has also made strides to reduce emissions from privately owned vehicles. Clean Cars Nevada was established in 2021, which adopted California's light-duty vehicle emission standards, established through a waiver application allowable under Section 177 of the Clean Air Act (CAA). These standards require manufacturers to meet stricter GHG and criteria air pollutant emissions regulations for new passenger cars and light-duty trucks, and sell a certain percentage of ZEVs each year based on their total fleet production. These standards impact model year 2025 vehicles and motor vehicle engines produced and delivered for sale within Nevada. With the passage of AB 349 in 2021, loopholes were also closed to address emissions from classic cars being driven more than 5,000 miles per year.

Nevada is one of four states that does not provide dedicated funding to support urban transit operations. The state is also statutorily prohibited from operating rail services or spending State revenue on rail expenditures. Inter-urban passenger rail is provided by Amtrak in Northern Nevada on the Overland Route, which connects Reno, Winnemucca, and Elko via the California Zephyr. Most transit trips take place in Clark, Washoe, and Douglas Counties. Nevada's 38 rural transit systems provide trips via vans, shuttles, and on-demand paratransit services.[99]

Federal funding is typically not available to support urban transit operations, however, the federal IIJA will provide $462 million to transit agencies across the country through 2026. This funding has the potential to help the RTC of Southern Nevada, RTC Washoe, the Carson Area Metropolitan Planning Organization (CAMPO)'s and the Tahoe Regional Planning Authority in expanding and electrifying services. Other funding sources include the Federal Transit Administration's Small Starts Program. RTC Washoe County received funding from this program to purchase 4 electric buses in 2012. The full

[99] Nevada Department of Transportation, "One Nevada Transportation Plan" (Nevada Department of Transportation, November 2018), https://www.dot.nv.gov/home/showpublisheddocument?id=17554.

funding gap for transit operations in Nevada over the next ten years is estimated to be nearly one billion dollars, and future funding mechanisms are under review by the legislature.[100]

In early 2024, NDOT received notice that $3 billion of federal funding was approved for the Brightline West Project, a private consortium developing a high-speed rail line to connect Las Vegas and Southern California.[101] The project is projected to reduce VMT and GHG emissions along the I15 Corridor once it opens for passenger service in 2026.

State transportation revenues are also legally restricted from being spent on bicycle and pedestrian facilities unless they are part of a larger roadway project and within highway rights of way. Cities and counties are developing plans and projects to support increased active travel via other sources. For example, in October of 2023, Reno City Council expanded its “micro-mobility network” in downtown Reno with $20 million from RTC Washoe County.[102] All-in Clark County, the county’s Community Sustainability and Climate Action Plan adopted in 2023, set a goal to reduce transportation emissions by investing in 2,020 miles of bicycle and pedestrian network improvements by 2040. The RTC of Southern Nevada currently has multiple plans and initiatives dedicated to active transportation, including a Complete Streets Initiative to improve safety of pedestrians, cyclists, and other road users in and around Las Vegas.

Due to a robust tourism and hospitality industry, airports in Nevada are among the country’s busiest. In 2023, nearly 58 million passengers arrived and departed Las Vegas’ Harry Reid International Airport, breaking pre-pandemic records.[103]Initiatives are underway in North Las Vegas, where the Governor’s Office of Economic Development recently approved $11.7 million in tax abatements for a facility that will produce renewable diesel and sustainable aviation fuel. [104] Similar facilities have been built outside Reno to make sustainable aviation fuel from waste such as textile, wood, paper, residual plastic, and packaging materials. [105]

3.3.2.3 Federal Funding

Funding exists at the federal level to support fleet electrification, improved ZEV charging infrastructure, expansion and electrification of public transit, and active travel (see Appendix B for a complete list). The IRA includes tax credits to incentivize EV purchases. These include the Clean Vehicle Tax Credit and the Tax Credit for Previously Owned Clean Vehicles, the Commercial Clean Vehicles Tax Credit, the Tax Credit for Alternative Refueling Property (i.e. chargers), and Clean Heavy Duty-Vehicle Grants and Rebates. In addition, Environmental and Climate Justice Block Grants and the Neighborhood Access

[100] Virginia Valentine et al. “Nevada Sustainable Transportation Funding Study_Report_Final_Appendix_Optimized_with Letter.Pdf.” Google Docs, December 21, 2022. https://drive.google.com/file/d/1TNw43oB381wx8Hw6_zFXj77sjAAiEAGm/view?usp=sharing&usp=embed_facebook.
[101] US Department of Transportation. “U.S. Department of Transportation Approves $2.5 Billion in Private Activity Bonds Allocation for Brightline West Project.” Accessed January 31, 2024. https://www.transportation.gov/briefing-room/us-department-transportation-approves-25-billion-private-activity-bonds-allocation.
[102] “Reno City Council Approves Downtown ‘Micro-Mobility’ Network,” accessed January 31, 2024, https://thisisreno.com/2023/10/reno-city-council-approves-downtown-mirco-mobility-network/.
[103] “LAS Shatters Annual Passenger Record with 57.6 Million in 2023 | Harry Reid Airport - News,” accessed February 8, 2024, https://news.harryreidairport.com/press-release/las-shatters-annual-passenger-record-with-57-6-million-in-2023/
[104] Noël Fletcher, “Nevada Lands Renewable Diesel Production, Distribution Hub,” Transport Topics, January 31, 2024, https://www.ttnews.com/articles/nevada-renewable-diesel-hub.
[105] “Is Jet Fuel from Waste Finally Ready for Takeoff?,” Waste Dive, accessed January 31, 2024, https://www.wastedive.com/news/waste-jet-sustainable-aviation-fuel-fulcrum-bioenergy-saf/620365/.

and Equity Grant Program can be used to develop EV charging infrastructure and bike and pedestrian facilities in disadvantaged communities.

Funding for transit electrification and modernization from the BIL includes Urbanized Area Formula Grants ($33.5 billion), Rural Area Formula Grants ($4.58 billion) including the Public Transportation on Indian Reservations Program, Capital Investment Grants ($23 billion), State of Good Repair Grants ($23.1 billion), a Public Transportation Innovation Program ($193 million for transit research activities), Technical Assistance and Workforce Development ($62 million), Low- or No- Emission Bus Grants ($5.6 billion), and an Enhanced Mobility for Seniors and Individuals with Disabilities program ($2.2 billion), among other initiatives. Twenty-five billion of funding from the BIL is available via the Federal Aviation Administration to support energy efficiency at airport terminals, among other initiatives. The Sustainable Aviation Fuel tax credit included in the BIL is also aimed at increasing the production of sustainable fuels for aircraft.[106]

3.3.2.4 Review of Authority

The priority measures will be implemented as incentive based programs, which would not require additional authority to implement. NDEP has existing legal authority to apply for and receive grant funding pursuant to NRS 445B.230(2) and the ability to cooperate and contract with other governmental entities is also addressed under NRS 445B.230(3) (authority) and NRS 277.180 (provides authority for contracts between one or more public agencies). Many entities have the authority and have expressed an interest in applying for funding to implement a portion of this work within specific state departments and divisions, cities, counties, Tribes, or corporate settings. NDEP intends to seek funding for measures and will subgrant to other agencies where applicable.

3.3.2.5 Community Engagement Feedback

Community workshops, technical focus groups, and a questionnaire revealed that addressing transportation emissions is a top priority for governments, residents, and businesses across the state. Several participants mentioned they would like to see current programs continue and expand, such as Clean Cars Nevada, the Clean Trucks and Buses Incentive Program, and the Nevada Electric Vehicle Infrastructure (NEVI) Plan. Several participants mentioned existing charging stations need to be repaired and new charging infrastructure must be guaranteed to work properly. Concerns also included the need to increase the capacity of the state's workforce to service ZEVs and install and repair charging infrastructure.

Engagement feedback revealed that LIDACs would benefit from measures that address air quality issues. This includes increasing access to ZEVs, chargers, and e-bikes for personal use, electrifying medium- and heavy-duty vehicles, expanding and electrifying public transit (for example in Tribal communities and to key destinations such as the Tahoe-Reno Industrial Center), and improving bike and pedestrian infrastructure. Measures that received less support included developing high speed rail

[106] Internal Revenue Service. "Sustainable Aviation Fuel Credit | Internal Revenue Service." Accessed January 31, 2024. https://www.irs.gov/credits-deductions/businesses/sustainable-aviation-fuel-credit.

projects. Engagement participants made suggestions for where public and private charging stations should be prioritized (i.e. East Las Vegas), emphasizing the need to first upgrade electricity infrastructure in those areas. To adequately reflect differing needs across the state, engagement participants stressed that both rural and urban communities should be included when implementing measures.

Throughout the development of the PCAP, interested and affected parties ranging from the American Lung Association to the Sierra Club to the American Short Line and Regional Railroad Association submitted specific project proposals for consideration in the PCAP. These included: expanding medium- and heavy-duty vehicle electrification, expanding EV infrastructure, electrifying public fleets including school buses, investmenting in public transit and active transportation, and using urban design and infill development to minimize residents' exposure to busy roads at home and at school.

Table 7: Transportation: List of Priority Measures

1. **Decarbonize fuels:** *This includes aligning, promoting, and incentivizing the production and use of clean transportation fuels, including electricity, green hydrogen, and low carbon sustainable aviation fuel, to reduce ongoing emissions from fossil fuel powered transportation activities.*
T1.1 - Reduce carbon intensity of transportation fuels by incentivizing the manufacturing and sale of alternative technologies such as EVs, e-bikes, hydrogen and alternative fuel vehicles that rely on renewable energy generation and/or battery storage. Incentives may include but are not limited to technical or financial support for developing manufacturing facilities, supply chain coordination or development, tax abatement, siting assistance, and bulk or cooperative purchasing. Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.
T1.2 - Support low carbon sustainable aviation fuel development by developing an incentive program for the production and delivery of renewable fuels to supply airports and aircraft. This could include but is not limited to support for siting, financing, and tax abatements. Low carbon sustainable aviation fuel is typically biofuel made from renewable biomass and waste resources (i.e. agricultural residues, forestry and wood mill waste, municipal and solid waste streams, wastewater treatment sludge, and other fats, oils, and greases), which can reduce life cycle GHG emissions dramatically compared to conventional jet fuel. Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

2. **Build Capacity:** *This includes measures that ensure everyone, and in particular LIDACs, have access to and knowledge about the resources available to participate in the transition to ZEVs, enhanced public transit, and active travel; that the workforce in Nevada will be able to respond to the increasing demand for ZEVs, e-bikes, and low carbon fuels; and that the reductions seen through the projects are available publicly.*

T2.1 - Build technical capacity at public agencies to plan for, procure, and implement ZEVs and charging infrastructure, enhanced public transit, active transportation infrastructure, including training of staff, coordination with other levels of government, supporting workforce development, and communication and outreach campaigns.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T2.2 - Create public databases containing data such as the number/type of ZEVs registered in Nevada and the status of infrastructure development, to enhance transparency and coordination among public agencies, the public, and interested and affected parties. Publicly available data access can ensure all actors are aware of the status of transportation actions in the state and are operating with the same shared understanding.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T2.3 - Enhance workforce, maintenance, and repair capacity to support planning, implementation, repair of new and used ZEVs, and infrastructure including EV chargers and alternative fueling stations. Workforce development activities could include enhancing or creating new training programs, particularly among trades such as construction and electricians, job placement programs, and apprenticeships.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T2.4 – Implement a public outreach and education campaign to encourage individuals and businesses to adopt ZEVs. Outreach can be, but is not limited to, online and in person events, promotions, marketing, and geographic-specific partnerships with community-based organizations targeting diverse and historically underserved populations.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

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3. **Transition to Zero Emission Vehicles:** *This includes all measures associated with transitioning publicly and privately owned vehicles to ZEVs, including incentives, rebates, and the development of carsharing programs.*

T3.1 - Incentivize public fleet electrification (i.e. among state agencies, counties, cities, schools, and public transit authorities) by providing technical and financial support for planning, procuring, and implementing ZEVs in fleets.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T3.2 - Incentivize large commercial fleet electrification (medium- and heavy-duty vehicles) by developing a comprehensive set of programs and incentives to encourage ZEV adoption and vehicle fuel switching. This could include developing an incentive program for clean trucks, planning and implementing battery swapping stations and/or hydrogen fueling stations along the state's freight corridors, and incentivizing higher sales of new medium- and heavy-duty trucks.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T3.3 - Incentivize the adoption of ZEVs by providing rebates for purchases and infrastructure installations. Ensure that ZEV adoption is accessible to LIDACs by partnering with trusted community organizations to promote the incentives and prioritizing applicants from both individuals and businesses in those communities. Rebates should be provided as close to the point of sale as possible, for both used and new ZEVs.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T3.4 – Provide rebates for e-bikes, e-cargo bikes, e-motorcycles, e-scooters to individuals and businesses. Provide incentives particularly for LIDACs and businesses operating in low-income areas to replace old polluting vehicles with these technologies.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T3.5 - Support ZEV carsharing initiatives by developing a comprehensive strategy, including program development, grant and technical assistance, and educational programming, to promote carsharing.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

4. **Develop infrastructure:** *This includes all measures associated with developing supportive infrastructure for ZEVs for public and private vehicle fleets, including charging stations, in addition to public transit, bike, and pedestrian infrastructure.*

T4.1 - Develop public fleet electric vehicle supportive equipment (EVSE) by providing grants and technical assistance for counties and municipalities to develop and implement.

Authority to Implement: Existing. Assembly Bill 262 sets a preference in state purchases for vehicles that minimize emissions and have lower costs. Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide grants and technical assistance to develop public fleet electric vehicle supportive infrastructure. Please see above for NDEP specific authority to acquire and implement federal funding.

T4.2 - Update and expand the NEVI Deployment Plan, targeting network improvements in LIDACs. Align the NEVI plan update with technical assistance and incentive measures to ensure consistency and efficacy of the plan.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T4.3 - Repair existing EVSE and expand the EV charging network with a focus on LIDACs and key tourist destinations, based on updates to the NEVI. Provide technical assistance and funding to support local governments and community organizations with implementation.

Authority to Implement: Key agencies for transportation measures would include State, Local, or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T4.4 - Develop infrastructure to support ZEV medium- and heavy-duty vehicles. Provide technical assistance and funding to support local governments and businesses with implementation. Infrastructure could include development of charging stations, battery swapping stations, and hydrogen fueling stations on both public and private right of way. Technical assistance could include webinars, training, partnerships, inter-agency coordination, and bulk or cooperative purchasing support.

Authority to Implement: Key agencies for transportation measures would include State, Local or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T4.5 - Incentivize EV chargers in new construction by providing funding and technical assistance to local governments.

Authority to Implement: Key agencies for transportation measures would include State, Local or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T4.6 - Fasttrack bike and pedestrian network infrastructure by providing funding and technical assistance to state agencies and local governments. Expand on and address gaps in bicycle, micro-mobility, and pedestrian networks by funding existing city and county plans and initiatives that support network improvement and development of all ages and abilities infrastructure; develop a network of public charging for e-micro mobility; and incentivize micro-mobility facilities and infrastructure for e-bikes that promotes connectivity and longer distance trips.

Authority to Implement: Key agencies for transportation measures would include State, Local or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

T4.7 - Expand public transit in urban and rural areas, with a focus on LIDACs. Expand on and address gaps in existing public transit networks by funding existing city and county plans and initiatives that support network improvement and development of transit projects that promote connectivity, mode shift, and longer distance trips.

Authority to Implement: Key agencies for transportation measures would include State, Local or Tribal, transportation authorities, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3.3.2.6 Quantifying GHG Reductions

Emission reductions in this focus area (Table 8) and co-pollutant reductions (Table 9) were quantified using a spreadsheet tool tailored specifically for the PCAP. This tool integrates comprehensive data sets, including the state greenhouse gas inventory, to calculate emissions reductions that could result from implementation of the priority measures from 2025 to 2050. This approach provides accurate, detailed assessments of the measures' impact on reducing emissions.

Table 8. Projected GHG emission reductions for measures in the Transportation Focus Area.

	Yearly Emissions Reductions ($MTCO_2e$)		**Cumulative Emissions Reductions ($MTCO_2e$)**	
Priority Measure	by 2025	by 2030	2025-2030	2025-2050
1. Decarbonize fuels	This measure will start reducing emissions in 2029.	51,976	77,652	1,117,172
2. Build Capacity	This measure facilitates emissions reductions.			
3. Transition to Zero Emission Vehicles	24,635	701,723	1,938,460	15,830,671
4. Develop infrastructure	This measure will start reducing emissions in 2030.	142,892	857,351	4,709,213
Total	24,635	896,591	2,873,463	21,657,056

Table 9. Projected co-pollutant reductions for priority measures in the Transportation Focus Area.

		Yearly Co-pollutant Reductions (metric tons)		Cumulative Co-pollutant Reductions (metric tons)	
Priority Measure		by 2025	By 2030	2025-2030	2025-2050
1. Decarbonize fuels	No estimate was produced.[107]				
2. Build Capacity	This measure facilitates the co-pollutant reductions.				
3. Transition to Zero Emission Vehicles	VOCs	14.3	303.2	1,014.2	7,080.2
	CO	234.2	5,021.1	16,824.8	117,286.3
	NOx	10.6	327.3	1,088.2	7,634.1
	$PM_{2.5}$	0.6	19.2	63.7	448.0
4. Develop infrastructure	HC	0.0	66.3	482.0	2,258.5
	CO	0.0	1,045.5	7,614.3	35,632.7
	NOx	0.0	22.5	167.0	769.2
	$PM_{2.5}$	0.0	3.3	24.0	113.5
Total	VOCs	14.3	303.2	1,014.2	7,080.2
	CO	234.2	6,066.6	24,439.0	152,919.0
	NOx	10.6	349.8	1,255.2	8,403.3
	$PM_{2.5}$	0.6	22.5	87.7	561.5

The following assumptions were used in calculating the above emission reduction estimates. It should be noted that these assumptions were made to depict a potential pathway for Nevada to achieve its 2025 and 2030 emission reduction goals. Implementation of the transportation priority measures are a means of working towards this scenario and Nevada ultimately meeting its emission reduction goals:

- 150,000 new EVs are registered annually in Nevada by 2030, the charging infrastructure will increase accordingly (1 charging station is available for every 20 EVs by 2030). In the years leading up to 2030, EV registrations will not increase at a steady rate. Rather, there will be an increase in adoption over time with the onset of educational programs, outreach, charging infrastructure, and increased visibility of benefits. Therefore, projects are assumed to scale up over time, resulting in the targets above.
- Public fleets will incorporate 1,000 EVs by 2030. Also, 800 clean heavy duty vehicles will be in use by 2030.
- Bike use grows, replacing vehicle trips, due to the development of bike infrastructure and 200,000 e-bikes are in use by 2030 thanks to rebates.
- A modification in the mode share due to the increase in micro-mobility, aimed at accelerating the development of bike and pedestrian network infrastructure.

[107] The variation in co-pollutant emissions from synthetic alternative fuels, influenced by their diverse types and production techniques, means that not all synthetic fuels guarantee lower emissions of co-pollutants compared to conventional fuels. Given the emerging state of alternative fuel technology and the limited data on co-pollutant emissions, accurately assessing their environmental benefits is challenging. This limitation is the primary reason why co-pollutant emissions were not produced.

- 2% of the state's flights are powered by sustainable aviation fuels by 2030.
- At least 40% of EV registrations, charging installations, and e-bike+ rebates will take place in LIDAC census tracts.

3.3.2.7 Transformative Impact and Co-Benefits for LIDACs

Reducing emissions from transportation provides many direct benefits to all Nevadans. LIDACs will particularly benefit because they are socially and economically disadvantaged and currently overburdened by climate pollution. Research indicates that LIDACs are less able to anticipate, cope with, and recover from the adverse impacts of climate pollution and climate change. [108]

One direct benefit from measures in this focus area is reduced household spending on transportation. This is due to the adoption of low-maintenance electric vehicles, an expansion of public transit services, and increased use of e-bikes. When low income households save money on transportation, they have more money available for housing, food, medicine, education, and savings.

Another direct benefit are improvements in local air quality in rural areas due to reductions in fossil fuel combustion. The adoption of ZEVs and expanded public transit and active travel will reduce criteria air contaminants, ozone, PM 2.5 and diesel emissions. This will improve public health and increase life expectancy, because air pollution worsens diseases such as asthma and the likelihood of premature death. [109] This impact is particularly important in LIDACs where health insurance is generally less accessible.

Noise from vehicles will be reduced due to the adoption of ZEVs and the expansion of public transit, active travel, and carsharing will reduce noise in high-traffic areas. Exposure to high road noise levels is harmful to physical and mental health. [110] This has the potential to impact long term education, income, and employment outcomes, particularly for disadvantaged Nevadans.

Measures in this focus area will promote biking and walking and reduce car trips. These shifts will reduce diesel, ozone, and PM 2.5 emissions, reduce traffic congestion in high-population areas, increase physical activity, and increase social interactions. Measures will also reduce transportation barriers and improve access to primary services, businesses, jobs, and education. This is particularly important in LIDACs that may be underserved or experience underinvestment, meaning jobs and services are not located nearby.

Indirect benefits from measures in this focus area include increased job opportunities. As ZEV adoption increases, more workers will be needed in the electrician and construction trades, and manufacturing. Expanding public transit will increase demand for bus drivers, train conductors, and vehicle fleet maintenance workers. Jobs related to vehicle sales and maintenance, gasoline and diesel fuel sales, and private vehicle sharing and taxis, may be lost over time.

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[108] "Climate Change and Social Vulnerability in the United States - A Focus on Six Impacts," accessed February 8, 2024, https://doi.org/10.1163/9789004322714_cclc_2021-0166-513.
[109] Academy of Science of South Africa et al., "Air Pollution and Health – A Science-Policy Initiative," *Annals of Global Health* 85, no. 1 (December 16, 2019): 140, https://doi.org/10.5334/aogh.2656.
[110] Ana Ndrepepa and Dorothee Twardella, "Relationship between Noise Annoyance from Road Traffic Noise and Cardiovascular Diseases: A Meta-Analysis," *Noise and Health* 13, no. 52 (May 1, 2011): 251, https://doi.org/10.4103/1463-1741.80163.

Reducing emissions from transportation will most directly benefit LIDACs that experience the highest levels of diesel and PM 2.5 pollution, traffic proximity, transportation barriers, and a number of low-income households. Figure 27 shows LIDACs that are in the 90th percentile or above for these categories. [111] This means that the census tract has a higher measurement of a burden than 90% of all other census tracts. Only LIDACs in Reno and Clark County meet this threshold for the burdens shown. LIDACs in East Las Vegas, where percentiles for $PM_{2.5}$ and diesel levels, traffic proximity, and barriers to transportation are highest in the state, will benefit the most from the priority measures in this focus area. LIDACs in eastern parts of Reno, particularly near the airport, experience high levels of PM 2.5 and traffic proximity, and will also benefit from these measures.

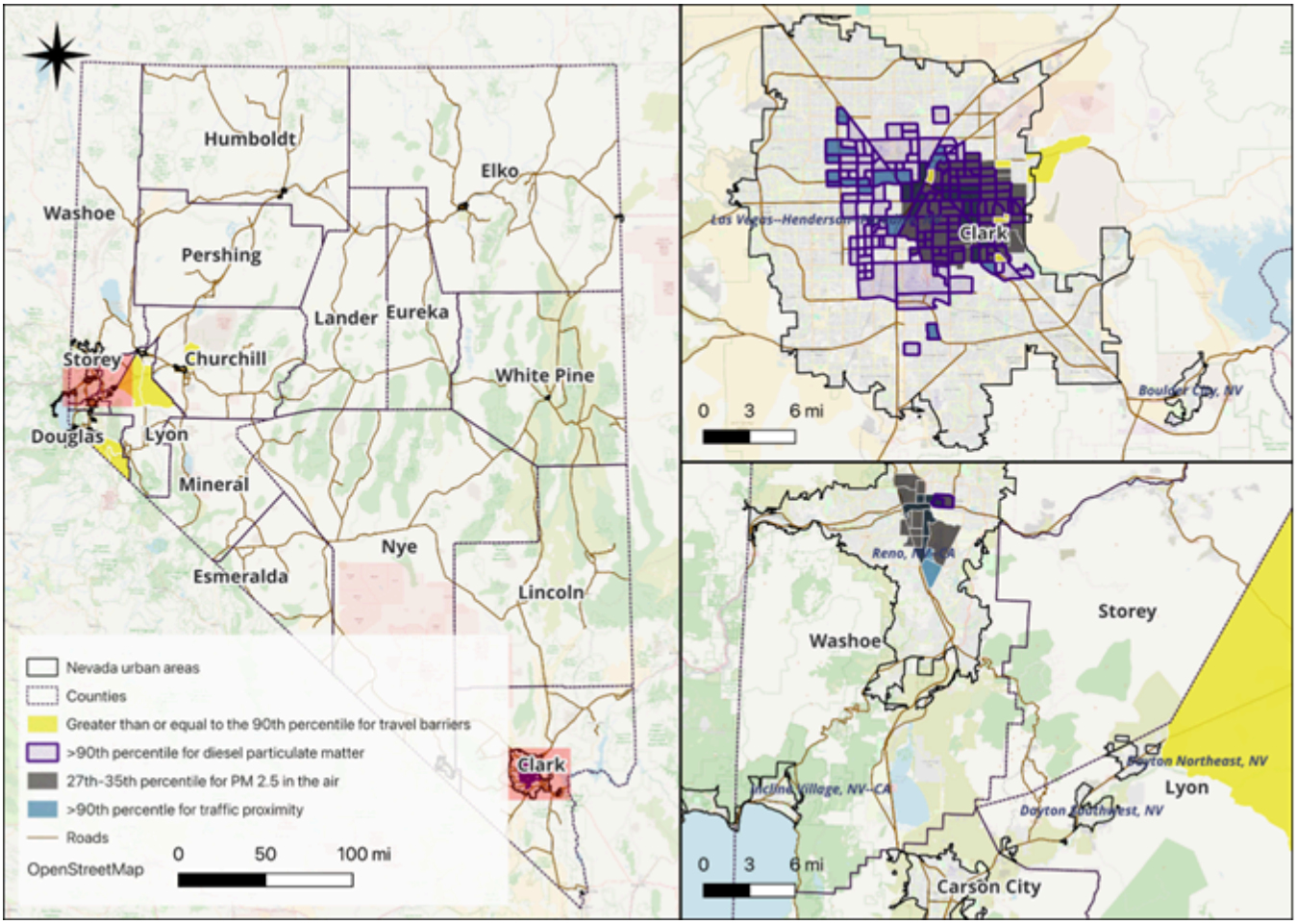

Figure 27. LIDAC census tracts most benefited by measures within the Transportation Focus Area.
Source: Council on Environmental Quality (2022).

[111] No census tracts in Nevada are higher than the 35th percentile for PM 2.5 levels, but LIDACs with relatively higher levels of PM 2.5 pollution will benefit more than other areas from the transportation measures in this PCAP.

3.3.2.8 Example Programs or Initiatives

This section offers examples of how various measures within the Transportation Focus Area can be combined and implemented. Actual implementation may vary.

Table 10. Example programs or initiatives targeting transportation emissions

Description	Priority Measures
Clean Transportation 4 All	
Develop a comprehensive strategy, including program development, grant and technical assistance, and educational programming, to promote clean transportation options for all. Provide incentives particularly for low-income people living in priority areas and businesses operating in low-income areas to replace old polluting vehicles with new, clean transportation.	• T2.1 - Build capacity at public agencies • T2.2 - Create public databases • T2.4 - Implement a public outreach and education campaign • T3.3 - Incentivize the adoption of ZEVs by providing rebates for purchases and infrastructure installations • T3.4 - Provide rebates for e-bikes, e-cargo bikes, e-motorcycles, e-scooters to individuals and businesses. • T3.5 - Support ZEV carsharing initiatives by developing a comprehensive strategy
Nevada Clean Fleets Initiative	
Develop a comprehensive set of programs and incentives to encourage adoption and conversion to clean fleets, including: • Converting state, county, municipal, transit, and large scale commercial fleets to zero-emission, EV, and alternative fuel vehicles; • Updating and repairing existing EV infrastructure; and • Promoting alternative fuel vehicles and EV adoption Encourage and support state agencies, county governments of the five most populous counties, and businesses with largest fleets to convert fleets to zero emission vehicles by 2030, and encourage and support remaining Counties to convert fleets to zero emission vehicles by 2035.	• T2.1 - Build technical capacity at public agencies • T2.2 - Create public databases • T2.3 - Enhance workforce, maintenance, and repair capacity • T2.4 - Implement a public outreach and education campaign • T3.1 - Incentivize public fleet electrification (i.e. among state agencies, counties, cities, schools, and public transit authorities) • T3.2 - Incentivize large commercial fleet electrification (medium- and heavy-duty vehicles) • T4.1 - Develop public fleet electric vehicle supportive equipment (EVSE) • T4.2 - Update and expand the NEVI Deployment Plan, targeting network improvements in LIDACs • T4.3 - Repair existing EVSE and expand the EV charging network with a focus on LIDACs and key tourist destinations • T4.4 - Develop infrastructure to support ZEV medium- and heavy-duty vehicles

Description	Priority Measures
Clean Trucks Incentive Program	
Develop incentive program for clean trucks, plan and develop battery swapping stations and/or hydrogen fueling stations for for medium and heavy-duty trucks along the state's freight corridors; incentivize large commercial fleets to electrify; incentivize higher sales of new medium and heavy-duty trucks; and promote reduction in carbon intensity of all transportation fuels by 2030.	• T1.1 -Reduce carbon intensity of transportation fuels by incentivizing the manufacturing and sale of alternative technologies • T2.3 - Enhance workforce, maintenance, and repair capacity • T3.2 - Incentivize large commercial fleet electrification (medium- and heavy-duty vehicles) • T4.2 - Update and expand the NEVI Deployment Plan, targeting network improvements in LIDACs • T4.4 - Develop infrastructure to support ZEV medium- and heavy-duty vehicles
Supercharge EV Charging	
Develop a statewide ZEV infrastructure plan to incentivize the adoption of ZEV across the state, building on the Nevada Electric Vehicle Infrastructure Deployment Plan. At the same time, provide grants and technical assistance for counties and municipalities to develop and implement ZEV; incentivize EV stations for on-site parking, and target network improvements in select low-income and priority areas.	• T2.1 - Build technical capacity at public agencies • T2.2 - Create public databases • T2.3 - Enhance workforce, maintenance, and repair capacity • Develop public fleet electric vehicle supportive equipment (EVSE) • T4.2 - Update and expand the NEVI Deployment Plan, targeting network improvements in LIDACs • T4.3 - Repair existing EVSE and expand the EV charging network with a focus on LIDACs and key tourist destinations • T4.5 - Incentivize EV chargers in new construction
Sustainable Community Pathways Program	
Expand on and address gaps in existing public transit, bicycle, micro-mobility, car sharing and pedestrian networks by funding existing city and county plans and initiatives that support network improvement and development of all ages and abilities infrastructure; develop a network of public charging for e-micro mobility; and incentivize micro-mobility facilities and infrastructure for e-bikes that promotes connectivity and longer distance trips.	• T2.1 - Build technical capacity at public agencies • T3.4 - Provide rebates for e-bikes, e-cargo bikes, e-motorcycles, e-scooters to individuals and businesses. • T3.5 - Support ZEV carsharing initiatives by developing a comprehensive strategy • T4.6 - Fasttrack bike and pedestrian network infrastructure • T4.7 - Expand public transit in urban and rural areas, with a focus on LIDACs

Description	Priority Measures
Nevada Clean Green Tourism Program	
Enhance the state's reputation for green tourism by planning and implementing the expansion of public transit within the state; incentivizing reductions in the carbon intensity of transportation fuels; developing sustainable aviation fuels near airports; and enhancing seamless EV charging and multi-modal network connections for residents and visitors.	• T1.1 - Reduce carbon intensity of transportation fuels by incentivizing the manufacturing and sale of alternative technologies • T1.2 - Support low carbon sustainable aviation fuel development by developing an incentive program for the production and delivery of renewable fuels to supply airports and aircraft • T2.4 - Implement a public outreach and education campaign • T4.3 - Repair existing EVSE and expand the EV charging network with a focus on LIDACs and key tourist destinations • T4.5 - Incentivize EV chargers in new construction • T4.6 - Fasttrack bike and pedestrian network infrastructure • T4.7 - Expand public transit in urban and rural areas, with a focus on LIDACs

3.3.3 Focus Area 2: Buildings

Measures in this focus area aim to reduce energy use and emissions in both residential and commercial buildings. This includes expanding programs that support pre-weatherization, weatherization, electric upgrades, and retrofits. In addition, measures incentivize making new buildings more energy efficient than current standards. Through these measures, local governments and Tribes will be supported in improving buildings, training workers, and incentivizing residents and businesses in this area.

3.3.3.1 Emissions Context

In Nevada, buildings represent the fourth largest source of emissions by sector. In 2021, emissions from commercial and residential buildings totaled 4.9 $MMTCO_2e$ and accounted for 11% of the State's total GHG emissions. Residential emissions totaled 2.6 $MMTCO_2e$ and commercial emissions totaled 2.2 $MMTCO_2e$. Emissions in this sector are predominantly CO_2, with CH_4 and N_2O accounting for less than 1% of the total emissions. Assuming business-as-usual, and no significant programmatic or policy changes to support efficiency, emissions are projected to increase 0.9 $MMTCO_2e$ above 2021 levels by 2043, for a total of 5.8 $MMTCO_2e$.[112]

3.3.3.2 Status of Building Programs in Nevada

Nevada has programs in place at the state and local levels to support energy efficiency programs in buildings. The measures in this focus area aim to scale up successful existing programs, and develop new programs that address identified gaps.

Nevada adopted the 2021 International Energy Conservation Code (IECC) as its model building energy code (including Electric Vehicle ready appendices) for residential and commercial buildings (ASHRAE Standard 90.1-2016). Although the code is not enforced statewide, local governments are not permitted to adopt less-efficient energy codes.[113]

[112] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.
[113] Nevada's Governor's Office of Energy. "Energy Codes in Nevada," 2021. https://energy.nv.gov/Programs/Building_Energy_Codes/.

In terms of existing residential buildings, Nevada has accessed millions of dollars of federal funding to support energy efficiency upgrades since 2015. This includes $10.8 million from the Department of Energy's (DOE) Weatherization Assistance Program and $4.2 million from the State Energy Program. The funding has been used to support weatherizing 714 households and retrofitting and improving the energy efficiency of 1.4 million square feet of commercial building space in 1,086 buildings. The funding has also supported 332 new permanent jobs.[114]

The Home Energy Retrofit Opportunities for Seniors (HEROS) Program, managed by the GOE, helps people living at the federal poverty level weatherize their homes.[115]

At the local level, counties have adopted plans to support energy efficiency projects as well. One of the main pillars of All-In Clark County, the sustainability plan for the county, calls for smart buildings and development. Scaling up existing efficiency programs by a factor of six in Clark County has the potential to reduce building sector emissions 35% by 2030. [116] Clark County plans to establish a revolving energy fund to use savings from efficiency projects to fund additional climate action. Clark County also plans to develop a commercial and public building benchmarking program and an energy disclosure ordinance for buildings 100,000 sq ft and larger. Similarly, ReEnergize Reno calls on improving the efficiency of commercial, industrial, and multifamily buildings by 20% by 2025. [117] Measures in this focus area support the implementation of these plans.

3.3.3.3 Federal Funding

Several federal funding opportunities currently support energy efficiency in the buildings sector (see Appendix B for a complete list). For residential buildings, existing programs provide support for homeowners and renters, as well as contractor training and workforce development. These include the Homeowner Managing Energy Savings Program, the High-Efficiency Electric Home Rebate Program, the Residential Energy Efficiency Tax Credit, the New Energy Efficient Home Tax Credit, and the Home Energy Efficiency Contractor Training. Additionally, programs like the Environmental and Climate Justice Block Grants, the Green and Resilient Retrofit Program, and the Neighborhood Access and Equity Grant Program have a specific focus on improving buildings in LIDACs. For commercial buildings, programs such as the Solar for All Program, Energy Efficiency and Conservation Block Grant Program, and the Energy Efficient Commercial Buildings Deduction can be used to catalyze energy efficiency projects in Nevada.

[114] US Department of Energy. "State and Community Energy Programs Project Map – Nevada." Energy.gov, 2023. https://www.energy.gov/scep/articles/state-and-community-energy-programs-project-map-nevada.
[115] Nevada's Governor's Office of Energy. "Home Energy Retrofit Opportunities for Seniors (HEROS)," 2021. https://energy.nv.gov/Programs/Home_Energy_Retrofit_Opportunities_for_Seniors_(HEROS)/.
[116] Clark County Department of Environment and Sustainability. "All-In Clark County: Bold Action for A Sustainable Future," 2023. https://allin.clarkcountynv.gov/resources/ID_77/Documents/CC_CSCAP_FINAL.pdf.
[117] City of Reno. "ReEnergize Reno," 2023. https://www.reno.gov/community/sustainability/reenergize-reno/.

3.3.3.4 Review of Authority

The priority measures will be implemented as incentive based programs, which would not require additional authority to implement. NDEP has existing legal authority to apply for and receive grant funding pursuant to NRS 445B.230(2) and the ability to cooperate and contract with other governmental entities is also addressed under NRS 445B.230(3) and NRS 277.180 (provides authority for contracts between one or more public agencies). Many entities have the authority and have expressed an interest in applying for funding to implement a portion of this work within specific state departments and divisions, cities, counties, Tribes, or corporate settings. NDEP intends to seek funding for measures and will subgrant to other agencies where applicable.

3.3.3.5 Community Engagement Feedback

Community workshops revealed that reducing emissions from buildings is a top priority for residents and organizations across the state. Several participants mentioned that many resources are already available for energy efficiency retrofits. However, there was a discussion about the challenges homeowners and small and medium business owners have in accessing these resources. Participants also mentioned they would like to see measures that both improve energy efficiency and scale up renewable energy installations, especially solar. Many participants were already aware of the Nevada Clean Energy Fund and other financing mechanisms and emphasized the importance of continuing to support these programs in the PCAP. Finally, they spoke about the opportunity to develop a Residential Property Assessed Clean Energy program (R-PACE) in Nevada.

Participants recommended that measures address the lack of energy efficiency in older homes through pre-weatherization and weatherization, particularly in LIDACs. Participants explained that there are existing areas with low-moderate income levels and below average access to financial assistance programs, including a lack of funding opportunities for pre-weatherization assistance. They also made suggestions for particular streets and neighborhoods that may be a good fit for community-scale retrofit projects. The need to include both rural and urban communities in implementing measures was emphasized. Others suggested that retrofitting schools and adding rooftop solar installations to them presents a unique opportunity in Nevada, given the number of schools in LIDACs that are in need of upgrading and the state's renewable energy potential.

Additional suggestions of how to design the measures to benefit LIDACs include focusing on multifamily housing and mobile homes; creating workforce development programs in conjunction with the projected increasing demand for weatherization and renewable energy projects; streamlining processes; and developing educational and outreach programs to increase community awareness and offer technical assistance in navigating different incentives and opportunities. Finally, participants noted that housing affordability issues and energy burdens place an undue burden on lower income residents, so measures that could reduce average household fuel costs are particularly helpful.

Table 11: Buildings Actions: List of Priority Measures

1. **Build Capacity:** *These measures ensure the public, in particular LIDACs, have access to and knowledge about t resources available for residential retrofits; that the workforce in Nevada will be able to respond to increased demand for both small- and large-scale energy efficiency and renewable energy projects; and that information about reductions seen through the projects are publicly available.*

B1.1 - Develop an education and outreach campaign that informs residents of existing and upcoming weatherization and residential retrofit programs. Outreach can be, but is not limited to, online and in person events, promotions, marketing, and geographic-specific partnerships with community-based organizations targeting diverse and historically underserved populations.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B1.2 - Work with local secondary and post-secondary schools and clean energy companies to train and develop a skilled workforce to respond to increasing demands in the retrofit and clean energy sector. Workforce development activities could include enhancing or creating new training programs, particularly among trades such as construction and electricians, job placement programs, and apprenticeships.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B1.3 - Develop training programs to enable public agencies to understand the suite of energy efficiency and retrofit opportunities available for their communities. This could include, but is not limited to, staff training, coordination with other levels of government, grant writing support, supporting workforce development activities, and communication and outreach campaigns.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B1.4 - Create a public database containing data such as the number of retrofits performed, the number of new energy efficient buildings, or the number of people employed in jobs related to energy efficiency. The database will enhance transparency and coordination among public agencies, the public, and interested and affected parties. Publicly available data access can ensure all actors are aware of the status of building energy efficiency actions in the state and are operating with the same shared understanding.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

2. **Expand Financing:** *This includes support for and enhancement of existing financing mechanisms for retrofit, weatherization, and assistance programs, as well as exploration of new and alternative funding mechanisms to help meet the sector's goals.*

B2.1 - Expand Nevada Clean Energy Fund by continuing to increase its budget, staffing, and scope of services, with an emphasis on service to LIDACs. Ensure that data from use of the fund is available in publicly accessible formats. Coordinate partnerships between the CLEF and state agencies, local governments, businesses, and community organizations.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B2.2 - Explore the potential of R-PACE to support residents finance pre-weatherization and retrofits. Research and evaluate the success of R-PACE programs in other states. Develop program guidelines for the implementation of R-PACE within the state. Coordinate with workforce development and public agency capacity building.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B2.3 - Explore the potential of alternative financing mechanisms to support lower emission buildings, such as community land trusts, on-bill financing, and a CPRG Revolving Loan Fund. Coordinate state agencies, local governments, businesses, and community organizations and develop a framework for implementation of funding mechanisms appropriate to different community needs. Identify federal funding sources and potential local supplements. Promote the funding opportunities to residents and businesses via public outreach and education campaigns.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3. **Retrofit Buildings:** *These are measures associated with the labor and programmatic aspects of building retrofits, such as design, equipment upgrades, and construction, as well as rooftop solar.*

B3.1 - Develop a public building deep energy retrofit program. This program could prioritize schools located in LIDACs. The program should be holistic and support improvements to basic infrastructure that may be needed prior to energy efficiency upgrades or electrification. Support public agencies, local governments, and school districts with technical capacity building such as guidebooks or training, and bulk or cooperative purchasing. Report on progress in publicly accessible databases.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B3.2 - Develop a statewide residential deep energy retrofit program, prioritizing LIDACs, individually or through a coalition. The program should be holistic and support improvements to basic infrastructure that may be needed prior to energy efficiency upgrades or electrification. Coordinate state agencies, local governments, businesses, and community organizations in planning and executing the program. Promote the program via public outreach and education campaigns, coordinate workforce development efforts, and monitor the program's progress and share data in publicly accessible databases.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B3.3 - Develop a statewide commercial deep energy retrofit program, prioritizing and supporting businesses located in LIDACs. The program should be holistic and support improvements to basic infrastructure that may be needed prior to energy efficiency upgrades or electrification. Coordinate state agencies, local governments, businesses, and community organizations in planning and executing the program. Promote the program via public outreach and education campaigns, coordinate workforce development efforts, and monitor the program's progress and share data in publicly accessible databases.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B3.4 - Convert mobile home power from gas to electric. Work with local governments and mobile home park operators to promote electric equipment that can replace gas space and water heating equipment at the end of its useful life. Provide incentives and rebates for equipment replacement. Coordinate with workforce development training.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B3.5 - Incentivize high efficiency, all-electric new buildings. Work with local governments and the construction industry to identify and support incentives for reducing energy use in new buildings. Consider different incentives for residential, commercial, and industrial buildings. Align incentives across jurisdictions whenever possible. Incentives could include density bonuses, expedited or streamlined permitting, tax abatements, or similar mechanisms. Coordinate with workforce development.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B3.6 - Pair retrofits with onsite renewable energy (rooftop solar). Incorporate the installation of renewable energy at the time of energy efficiency upgrades to maximize the benefits and reduce the number of interventions per building. Provide rebates, tax incentives, or similar benefits to residents and businesses that incorporate renewable energy into retrofits. Coordinate with workforce development and public outreach and education campaigns.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

4. **Transform Communities:** *These measures enable LIDACs to maximize benefits from retrofit projects by empowering local organizations and coalitions. These measures include large-scale site-specific transformative projects that serve as a model of how to improve energy efficiency and renewable energy for other communities across the state.*

B4.1 - Empower community retrofit organizations (i.e. non-profits, co-ops) to participate in the clean energy sector effectively and competitively, while building community capacity. Provide technical assistance in the form of training, webinars, and guidebooks, as well as funding to support operations or expansion of services. Coordinate local governments, community based organizations, businesses, and workforce development efforts to support.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B4.2 - Fund and support a Tribal climate action that can help advance climate projects, set priorities, and identify direct impact of projects on Tribal communities within and outside of Tribal lands. Support the expansion of solar projects on Tribal lands, capitalizing on existing and ongoing projects. Provide coordination and capacity building support as requested.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B4.3 - Target 1-3 LIDACs for complete and holistic low carbon transformation projects. Identify LIDACs which have both the capacity and the desire to undertake community-scale building retrofits and renewable energy development. Coordinate local governments, community organizations, businesses, and residents to build on existing efforts by providing funding, training, and technical support. Ensure that basic infrastructure upgrades are included so energy efficiency and electrification benefits are maximized.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B4.4 - Incentivize EV chargers in multifamily housing. Work with local governments and the construction industry to identify and support incentives for including EV chargers in new construction. Consider different incentives for residential, commercial, and industrial buildings. Align incentives across jurisdictions whenever possible. Incentives could include density bonuses, expedited or streamlined permitting, tax abatements, or similar mechanisms. Coordinate with workforce development.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

B4.5 - Incentivize rooftop solar installations in multifamily housing. Work with local governments and the construction industry to identify and support incentives for incentivizing rooftop solar in new construction. Consider different incentives for residential, commercial, and industrial buildings. Align incentives across jurisdictions whenever possible. Incentives could include density bonuses, expedited or streamlined permitting, tax abatements, or similar mechanisms. Coordinate with workforce development.

Authority to Implement: Key agencies for building electrification measures would include State, Local or Tribal, buildings authorities, energy offices, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3.3.3.6 Quantifying GHG reductions

The quantification of this measure leverages a tailored spreadsheet tool, conceived specifically for the PCAP, to estimate emission reductions. This tool integrates comprehensive data sets, including state greenhouse gas inventory, to calculate emissions reductions from 2025 to 2050. This methodological approach ensures accurate, detailed assessments of the measure's impact on reducing emissions, supporting Nevada's sustainability goals. The following table presents the emission reductions.

Table 12. Projected GHG emission reductions for priority measures in the Buildings Focus Area.

	Yearly Emissions Reductions ($MTCO_2e$)		**Cumulative Emissions Reductions ($MTCO_2e$)**	
Priority Measure	by 2025	By 2030	2025-2030	2025-2050
1. Build Capacity	This measure facilitates emission reductions.			
2. Expand Financing	This measure facilitates emission reductions.			
3. Retrofit Buildings	62,788	602,495	1,778,636	16,443,883
4. Transform Communities	This measure facilitates emission reductions.			
Total	62,788	602,495	1,778,636	16,443,883

Table 13. Projected co-pollutant reductions for priority measures in the Buildings Focus Area.

		Yearly Co-pollutant Reductions (metric tons)		**Cumulative Co-pollutant Reductions (metric tons)**	
Priority Measure		by 2025	by 2030	2025-2030	2025-2050
1. Build Capacity	This measure facilitates the co-pollutant reductions.				
2. Expand Financing	This measure facilitates the co-pollutant reductions.				
3. Retrofit Buildings	CO	19.1	150.7	460.1	4,294.4
	NOx	54.4	547.5	1,622.4	14,499.0
	SO2	5.7	109.9	308.3	2,518.6
	$PM_{2.5}$	1.3	23.0	64.9	534.4
	VOCs	2.9	27.1	81.1	735.6
4. Transform Communities	This measure facilitates the co-pollutant reductions.				
Total	CO	19.1	150.7	460.1	4,294.4
	NOx	54.4	547.5	1,622.4	14,499.0
	SO2	5.7	109.9	308.3	2,518.6
	$PM_{2.5}$	1.3	23.0	64.9	534.4
	VOCs	2.9	27.1	81.1	735.6

The following assumptions were used in calculating the above emission reduction estimates. It should be noted that these assumptions were made to depict a potential pathway for Nevada to achieve its 2025 and 2030 emission reduction goals. Implementation of the buildings priority measures are a means of working towards this scenario and ultimately, Nevada meeting its emission reduction goals:

- The residential buildings achieve the following goals by 2030: 10% of single family and multifamily buildings are retrofitted to 30% energy efficiency, 10% of existing mobile homes will be retrofitted and 50% of new mobile homes are energy efficient, 50% of new single family and multifamily buildings are well insulated, Solar rooftops are added to about 60,000 homes (~5% of homes in the state).
- The non-residential buildings achieve the following goals by 2030: 50% of school and government buildings are retrofitted and have rooftop solar installed and 7% of commercial and industrial buildings are retrofitted.
- All the years leading up to 2030 will not see equal gains in energy efficiency and renewable energy projects. Rather, there will be an increase in adoption over time with the onset of educational programs, outreach, and increased visibility of benefits. Therefore, projects are assumed to scale up over time, resulting in the targets above.
- The installation of heat pumps and upgrading other equipment was not calculated separately from building retrofits because such upgrades would only amplify the overall emissions reductions; however, the extent to which it would is unclear at this moment.
- At least 40% of single family and multifamily housing retrofits will take place in LIDAC census tracts.
- We have assumed that financing for residential energy retrofits will continue, but have not assumed that enabling legislation for Residential PACE has passed in this scenario because further studies need to be undertaken in order to determine the feasibility of the program.
- Like the residential sector, the target above assumes a scaling up of projects in the non-residential sector over time.
- Of the 716 schools in Nevada, the priority for school retrofits will be those in LIDAC communities.
- Solar installations on schools or public buildings are 50 KW.
- The state has already passed Commercial PACE (C-PACE), as have several local jurisdictions in Nevada including Las Vegas, Henderson, Reno, Fernley, Clark County, Pershing County. [118] This scenario assumes that at least a few more jurisdictions will pass C-PACE enabling legislation, catalyzing energy efficiency projects for the commercial sector.
- The 'Transform Communities' measure integrates components from various measures and focus areas. To prevent double counting and ensure accurate emissions accounting, reductions were not separately quantified for this specific measure.

[118] C-PACE Alliance. “Map of C-PACE Programs.” Maps, April 1, 2022. https://c-pacealliance.org/active-cpace-programs/.

3.3.3.5 Transformative Impact and Benefits to LIDACs

Reducing emissions from buildings provides many direct benefits to all Nevadans. LIDACs will particularly benefit because they are socially and economically disadvantaged and currently overburdened by climate pollution. Research indicates that LIDACs are less able to anticipate, cope with, and recover from the adverse impacts of climate pollution and climate change.[119]

Direct benefits include reduced energy bills from upgraded energy appliances and building envelopes. Updated HVAC systems and building envelopes will help residents to cope with wildfires and extreme heat, and maintain more livable temperatures in their homes during power outages. Additionally, moving away from fossil fuels will also directly improve indoor and outdoor quality. This will improve public health outcomes through less exposure to co-pollutants (SO2, NOx, VOCs, and NH3). Rooftop solar will not only reduce energy bills, but also improve energy security. Finally, school upgrades will directly benefit children, an inherently vulnerable population.

Indirect benefits include increased demand for energy efficiency and renewable energy projects. This will spur the creation of training programs and jobs, specifically in construction, manufacturing, and the electrician trade. According to the American Council for an Energy Efficient Economy, initial investments in energy efficiency result in immediate job opportunities, while the savings from reduced energy costs could result in additional investment in other businesses, creating additional jobs.[120] Approximately 33,000 people in Nevada already work in the energy sector, specifically in energy efficiency, battery energy storage, and solar; this industry is well-positioned to scale-up operations.[121] Relatedly, building capacity of nonprofits and community organizations in this sector could result in increased capacity of community organizations to respond to other community needs.

Reducing emissions from buildings will most directly benefit LIDACs that experience the highest levels of housing and energy burdens (costs), and have the largest number of homes without indoor plumbing and/or kitchens. Figure 28 shows LIDACs that are in the 90th percentile or above for these categories. This means that the census tract has a higher measurement of a burden than 90% of all other census tracts. LIDACs in Clark County, Washoe County, Carson City, Lyon County, Mineral County, Esmeralda County, and Nye County have one or more census tracts meeting these thresholds. LIDACs in East Las Vegas and north Reno are in the 90th percentile for 2 or more of these categories, indicating that these are places where residents would most benefit from improved, energy efficient housing.

[119] "CLIMATE CHANGE AND SOCIAL VULNERABILITY IN THE UNITED STATES - A Focus on Six Impacts," accessed February 8, 2024, https://doi.org/10.1163/9789004322714_cclc_2021-0166-513.
[120] American Council for an Energy-Efficient Economy. "How Does Energy Efficiency Create Jobs? Fact Sheet," n.d. https://www.aceee.org/files/pdf/fact-sheet/ee-job-creation.pdf.
[121] Nevada Clean Energy Fund. "The Nevada Energy Landscape." Nevada Clean Energy Fund. Accessed February 2, 2024. https://nevadacef.org/learn.

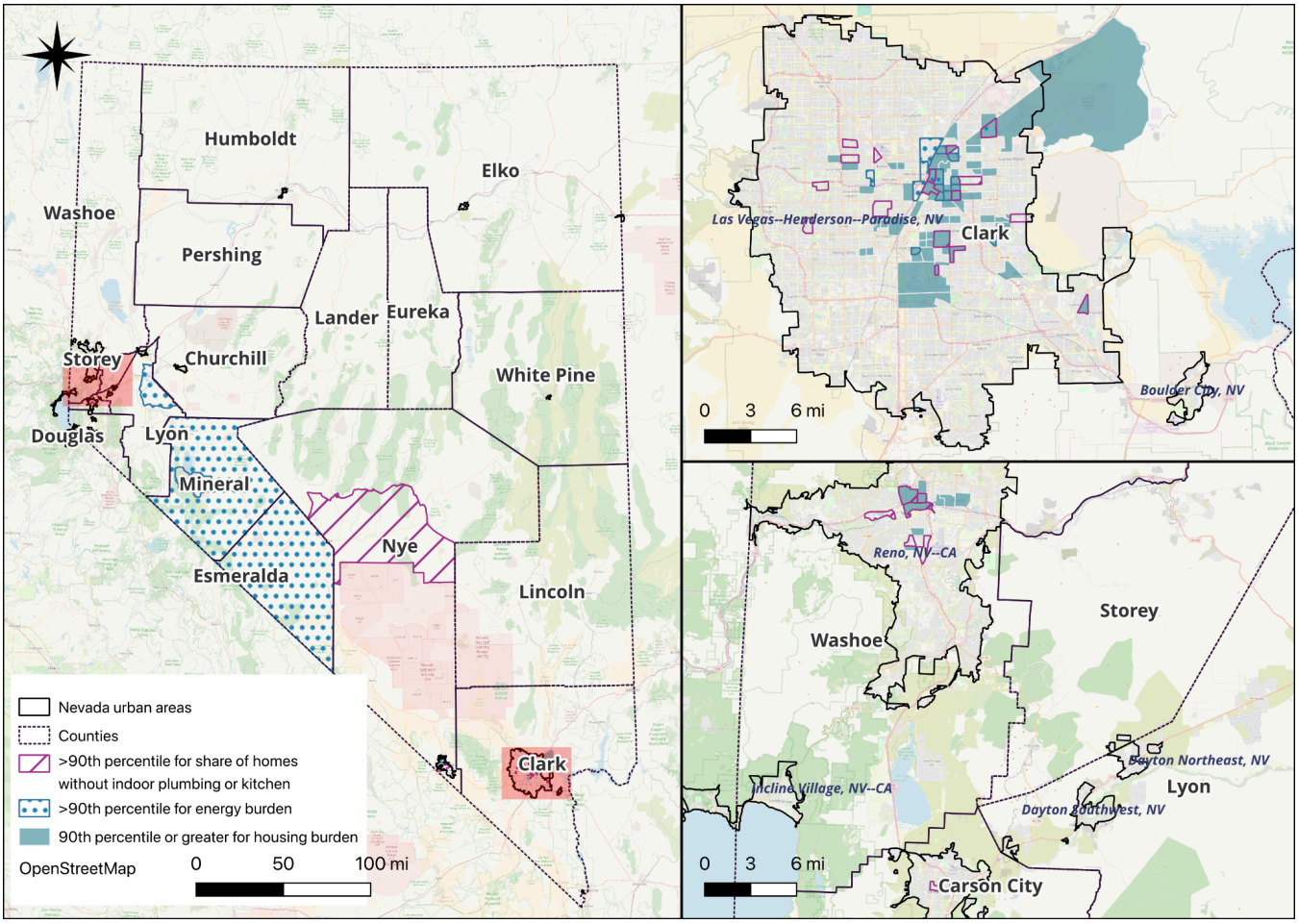

Figure 28. LIDAC census tracts that will most benefit from measures in Focus Area 2: Buildings.
Source: Council on Environmental Quality, 2022.

3.3.3.6 Potential Programs or Initiatives

This section offers examples of how various actions within the Buildings Focus Area can be implemented. Actual implementation may vary.

Table 14. Example programs within Focus Area 3: Buildings.

Description	Actions
Nevada Resilient Homes Program (Residential)	
This is a state-wide residential building efficiency program, prioritizing low-income neighborhoods and/or disadvantaged communities. The program would expand pre-weatherization programs, provide incentives to promote energy retrofits in existing buildings, reduce emissions in new construction, and incentivize full electrification in new buildings, as well as on-site renewable energy generation for existing buildings.	• B1.2 - Work with local secondary and post-secondary schools and clean energy companies to train and develop a skilled workforce to respond to increasing demands in the retrofit and clean energy sector • B2.2 - Explore the potential of R-PACE to support residents finance pre-weatherization and retrofits. • B3.2 - Develop a statewide residential deep energy retrofit program, prioritizing LIDACs, individually or through a coalition. • B3.5 - Incentivize high efficiency, all-electric new buildings • B4.4 - Incentivize EV chargers in multifamily housing
Transform an Entire Neighborhood or Community	
Support the development of a holistic emissions-free and energy-affordable community, including adding key services within walking/biking distance; developing transit infrastructure; housing retrofits; solar generation; and a district energy system. (Examples include: East Las Vegas, Tahoe Basin)	• B3.1 - Develop a public building deep energy retrofit program. This program could prioritize schools located in LIDACs • B3.2 - Develop a statewide residential deep energy retrofit program, prioritizing LIDACs, individually or through a coalition. • B3.6 - Pair retrofits with onsite renewable energy (rooftop solar) • B4.1 - Empower community retrofit organizations (i.e. non-profits, co-ops) to participate in the clean energy sector effectively and competitively, while building community capacity. • B4.3 - Target 1-3 LIDACs for complete and holistic low carbon transformation projects.
Smart Energy Nevada Program (Commercial)	
Launch a state-wide commercial building efficiency program. Expand non-residential building retrofits program and net zero new construction programs, including shifting to airsource or geothermal heat pumps for heating and cooling; incentivizing urban infill, supporting the use of low-carbon materials in new constructions, and expanding energy saving performance contracting.	• B1.4 - Create public databases • B2.3 -Explore the potential of alternative financing mechanisms to support lower emission buildings • B3.3 - Develop a statewide commercial deep energy retrofit program, prioritizing and supporting businesses located in LIDACs • B3.5 - Incentivize high efficiency, all-electric new buildings • B3.6 - Pair retrofits with onsite renewable energy (rooftop solar)

3.3.4 Focus Area 3: Energy System

Measures in this focus area aim to reduce GHG emissions from producing energy and electricity. Measures support skillbuilding and knowledge sharing and encouraging the use of renewable energy and energy storage. This includes incentives for local governments, Tribes, utilities, and industry to develop solar, wind, and geothermal resources, produce green hydrogen and biofuels, and add behind-the meter resources such as batteries. Additional measures incentivize improving the performance of the electricity grid through utility planning, upgrading existing infrastructure, and building new transmission lines. Measures to address emissions from existing fossil fuel power plants include incentives for switching to green hydrogen and/or batteries.

This shift will reduce air pollution, decrease energy costs, create high quality jobs, and stimulate sustainable economic growth, creating environmental and social benefits for all Nevadans.

3.3.4.1 Emissions Context

In Nevada, electricity generation emissions peaked in 2005 and was the largest source of emissions until 2015. Since 2015, emissions from this sector have continued to decrease due to an overall shift from burning coal to more natural gas and renewables. In 2021, emissions from electricity generation contributed to 30% of the state's GHG emissions, totalling 13.7 $MMTCO_2e$, natural gas accounted for 79.2%, coal accounted for 20.7% and petroleum accounted for 0.1%.[122]

By 2030, the sector is projected to account for 24%. This estimation considers all fossil fuel-fired electricity generated in Nevada. [123] However, with the increasing adoption of renewable energy sources and the state's commitment to reducing emissions, a decline in GHG emissions from this sector is projected. The shift towards renewable energy, particularly under the enhanced Renewable Portfolio Standard, is expected to play a key role in achieving the state's emissions reduction goals.

3.3.4.2 Status of Energy Generation in Nevada

Nevada primarily relies on imported fossil energy; the state's energy consumption outstrips its production by sixfold, primarily due to limited local production of natural gas, crude oil, and absence of coal production. In 2022, natural gas powered 56% of the state's electricity generation, the lowest in 17 years. Solar energy, a significant contributor, provided 23% of the total electricity, ranking Nevada sixth nationally in solar generation. Hoover Dam contributed 4% to Nevada's in-state generation. Notably, Nevada produced 24% of the U.S.'s geothermal electricity in 2022, second only to California.[124]

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[122] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.

[123] Not all electricity that is generated in Nevada is consumed in Nevada and not all electricity that is consumed in Nevada is generated in Nevada. In 2021, it is estimated that about 1.976 $MMTCO_2e$ emissions were generated from electricity transmitted out-of-state.

[124] US Energy Information Administration. "Nevada- State Profile and Energy Estimates ," 2023. https://www.eia.gov/state/?sid=NV#tabs-4

Nevada has very favorable conditions for the production of renewable energy with a technical potential for solar, wind and geothermal energy that could cover the state energy demand several times over (see section 2.3.2).

Energy costs in Nevada have risen notably over the years; from September 2001 to September 2023, there was a 200% increase in the retail electricity prices. In the same period, the cost of natural gas delivered to homes surged by 344%, experiencing a particularly sharp rise in 2023.[125] This sits in contrast with the state's potential to produce local renewable energy at relatively low cost and even produce green hydrogen or sustainable fuels using renewable sources that may be boosted by federal incentives included in the The Inflation Reduction Act and Bipartisan Infrastructure Law.

In 2019, the Nevada Legislature passed a law to expand solar energy to low-income customers without requiring them to install their own solar systems. In response, NV Energy recently launched the Expanded Solar Access Program to support community-based solar projects. At the Program's full capacity, the Expanded Solar Access Program has the potential to serve more than 8,700 low-income households and more than 15,000 households that would otherwise be unable to install solar panels due to rental agreements or space constraints.[126]

The Nature Conservancy (TNC) leads the "Mining the Sun" that offers an innovative approach to repurpose former mine lands and brownfields into clean energy hubs, addressing the clean energy siting dilemma. By leveraging degraded lands, this strategy aims to minimize land-use conflicts, capitalize on federal incentives, and utilize existing infrastructure to facilitate renewable energy projects. It promises not only to revitalize these lands but also to benefit communities, landowners, and the environment by significantly contributing to Nevada's carbon reduction goals. TNC estimates that the solar energy generation potential using minefields and brownfield sites in Nevada could reach 20,219 megawatts. This project stands as a testament to the potential of transforming underutilized lands into valuable resources for sustainable development.[127]

3.3.4.3 Federal Funding

Several existing sources of federal funding support measures to decarbonize the energy sector (see Appendix B for a complete list). For example, the Advanced Energy Manufacturing and Recycling Grant Program is aimed at helping small- and medium-sized manufacturers build new or retrofit existing facilities to produce or recycle advanced energy products, specifically in communities where coal mines or coal power plants have closed.[128] The Renewable Electricity Production Tax Credit essentially provides a federal tax credit for electricity generated by qualified renewable energy resources, including electricity generated from landfill gap, open-loop biomass, municipal solid waste resources, and small irrigation power facilities.[129]Similarly, the Internal Revenue Service's Energy Efficient Commercial Building Deduction provides a tax deduction for building owners of energy efficient commercial building

[125] US Energy Information Administration. "Fuel Type 2021-2023, Nevada - Electricity Data Browser," 2023. https://www.eia.gov/electricity/data/browser/#/topic/0?agg=2.
[126] NV Energy. "Expanded Solar Access Program (ESAP)." Accessed February 2, 2024. https://www.nvenergy.com/.
[127] The Nature Conservancy. "Mining the Sun: Benefits of Solar Energy on Former Mine Sites", August 2023. https://www.nature.org/en-us/what-we-do/our-priorities/tackle-climate-change/climate-change-stories/mining-the-sun-solar-energy-former-mine-sites/.
[128] US Energy Office of Manufacturing and Energy Supply Chains. "Advanced Energy Manufacturing and Recycling Grants." Energy.gov. Accessed February 1, 2024. https://www.energy.gov/mesc/advanced-energy-manufacturing-and-recycling-grants.
[129] Environmental Protection Agency. "Renewable Electricity Production Tax Credit Information." Collections and Lists, August 28, 2020. https://www.epa.gov/lmop/renewable-electricity-production-tax-credit-information.

(new and retrofit) properties.[130] The US DOE also has a package of funding opportunities to facilitate the siting, construction/modification, and financing of electric transmission facilities through the Transmission Facilitation Program, the Transmission Facility Financing Program, and the Transmission Siting and Economic Development Grants Program. Other funding, such as the Environmental and Climate Justice Block Grants, the Neighborhood Access and Equity Grant Program, and the Solar for All Grant Program are aimed at benefiting underserved communities while supporting clean energy initiatives.

3.3.4.4 Review of Authority

The priority measures will be implemented as incentive based programs, which would not require additional authority to implement. NDEP has existing legal authority to apply for and receive grant funding pursuant to NRS 445B.230(2) and the ability to cooperate and contract with other governmental entities is also addressed under NRS 445B.230(3) (authority) and NRS 277.180 (provides authority for contracts between one or more public agencies). Many entities have the authority and have expressed an interest in applying for funding to implement a portion of this work within specific state departments and divisions, cities, counties, Tribes, or corporate settings. NDEP intends to seek funding for measures and will subgrant to other agencies where applicable.

3.3.4.5 Community Engagement Feedback

Decarbonizing the energy system received strong support by interested and affected parties. The feedback, gathered through emails, workshops, and a focus group, emphasized the need to address both renewable energy and energy storage initiatives. Specifically, participants mentioned the need to modernize the state's energy grid to handle additional technologies, such as microgrids. Others mentioned incorporating advanced geothermal technologies, recognizing their potential for reliable and clean energy production. A few participants mentioned the possibility of nuclear power to replace natural gas power plants in the long term. Additionally, there was a recommendation to include biofuel production from biomass in the decarbonization of the energy system measure, recognizing its potential for sustainable energy and waste reduction. Concerns were raised about the public perception and licensing processes for rooftop solar installers, suggesting a need for standardization and improved public awareness. Participants also mentioned the different energy profiles between Northern and Southern Nevada, highlighting the need to tailor projects and policies appropriately. With relevance to LIDACs, several participants highlighted the need for training and development in renewable energy sectors to create job opportunities and enhance skills. Additionally, much of the feedback given highlighted the inadequacies in existing electric infrastructure in LIDACs, emphasizing the need for upgrades and equitable access to renewable energy.

Many entities have the authority and have expressed an interest in applying for funding to implement a portion of this work within specific state departments and divisions, cities, counties, Tribes, or corporate settings.

[130] Internal Revenue Service. "Energy Efficient Commercial Buildings Deduction." Accessed February 1, 2024. https://www.irs.gov/credits-deductions/energy-efficient-commercial-buildings-deduction.

Table 15: Energy System: List of Priority Measures

1. **Build Capacity:** *To enhance capacity for decarbonizing the energy system, these measures will focus on training public agency staff in renewable energy, energy storage, grid enhancement, green hydrogen and biofuels technologies, creating a comprehensive public database of renewable energy installations, and developing specialized training programs to bolster workforce skills in maintenance and repair of these technologies. Additionally, it will engage in public outreach and education to increase awareness and support for renewable energy.*

E1.1 - Build technical capacity at public agencies to plan for, procure, and implement renewable energy, energy storage, grid enhancement, green hydrogen and biofuels projects, including training of staff, coordination with other levels of government, supporting workforce development, and communication and outreach campaigns.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E1.2 - Create public databases of renewable energy, energy storage, grid enhancement, green hydrogen and biofuels installations, to enhance transparency and coordination among public agencies, the public, and interested and affected parties. Publicly available data access can ensure all actors are aware of the status of clean energy actions in the state and are operating with the same shared understanding.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E1.3 - Support planning and implementation of new renewable energy, energy storage, grid enhancement, green hydrogen, and biofuel systems. Enhance workforce training, particularly in the maintenance and repair of renewable energy systems including solar panels and batteries. Workforce development activities could include enhancing or creating new training programs, particularly among trades such as construction and electricians, job placement programs, and apprenticeships.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E1.4 - Public outreach and education to encourage communities and businesses to deploy renewable energy, energy storage, grid enhancement, green hydrogen, and biofuels projects. Outreach can be, but is not limited to, online and in person events, promotions, marketing, and geographic-specific partnerships with community-based organizations targeting diverse and historically underserved populations that could benefit from these projects.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

2. **Accelerate renewable energy generation:** *These measures include funding for distributed generation, community solar projects and cooperatives, offering incentives for solar and wind projects that yield enhanced community benefits, promote energy storage solutions, and expanding the Transmission Facilitation Program. In collaboration with utilities, these measures will develop and implement grid modernization plans, prioritizing LIDACs. It will also promote the adoption of smart-grid and behind-the-meter technologies, support the production of green fuels (e.g. biofuels from biomass or synthetic fuels from green hydrogen), and incentivize the development of advanced geothermal energy solutions.*

E2.1 - Fund distributed generation, community renewable projects and renewable cooperatives: Support the development of community energy plans, especially in rural and disadvantaged areas. Provide state, local, and/or tribal-backed loans and grants for community-scale renewable projects (monthly fee to subscribe to the service without living close-by or needing the capacity to install solar panels on their homes or businesses). Support creation of “Solar Gardens” and/or solar cooperatives to help generate electricity for rural and smaller communities.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E2.2 -Incentivize renewable energy and energy storage projects with enhanced community benefits, such as lower cost energy, job creation, economic development, public parks, public buildings, job training programs and/or measures to protect the environment. This could be reached by developing Project agreements that can guarantee economic benefits, ensure accountability, and address environmental justice concerns.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E2.3 - Expand Transmission Facilitation Program adding grants and revolving funds for the development of new transmission lines and upgrading existing transmission as well as the connection of microgrids.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E2.4 - Work with utilities to develop and implement comprehensive grid modernization plans, with a focus on LIDACs. Including resources to assess how much the existing grid can be enhanced using the best available technologies and design new transmission lines.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E2.5 - Incentivize behind the meter and smart-grid technologies, including grants, revolving funds, and community awareness activities, to deploy these technologies with a focus on LIDAC that are electrifying their energy consumption with smart technologies, allowing them to become prosumers.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E2.6 - Incentivize and support green fuel production projects, such as green hydrogen and biofuels. This includes offering grants and revolving funds, investing in research and development to improve green fuel technologies and their efficiency, developing networks of collaboration with industries to connect production with demand for green fuels, and working with LIDAC and other communities to develop projects with enhanced community benefits, such as lower cost energy, job creation, economic development, public parks, job training programs and/or measures to protect the environment.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E2.7 - Incentivize enhanced geothermal; this includes offering grants and revolving funds, investing in research and development to improve enhanced geothermal technologies and their flexibility, and working with LIDAC and other communities to develop projects with enhanced community benefits, such as lower-cost energy, job creation, economic development, public parks, job training programs and/or measures to protect the environment.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3. **Clean the grid:** *These measures focus on repurposing existing fossil fuel-based power stations and incentivizing these plants to retrofit using green hydrogen-based fuels. Additionally, these actions encourage the adoption of energy storage technologies such as Carnot batteries or gravity batteries. This dual approach not only decreases reliance on fossil fuels but also enhances the efficiency and sustainability of the energy grid by optimizing the use of renewable energy sources.*

E3.1 - Incentivize fossil fuel-powered thermal power plants to retrofit to use green hydrogen-based fuels; this includes offering grants, revolving funds and investing in research and development to deploy technologies that could retrofit existing fossil fuel power plants to run with green hydrogen-based fuels, enabling to keep existing jobs and reduce negative impacts to communities around the power plants.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E3.2 - Incentivize adoption of Carnot or gravity batteries for storing surplus green electricity; this includes offering grants and revolving funds and investing in research and development to deploy these technologies, for example, technologies that could retrofit existing fossil fuel power plants to become Carnot batteries.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

4. **Clean Energy Hubs Program:** *These measures center on repurposing former mine lands and brownfields into clean energy hubs, addressing the clean energy siting dilemma. By leveraging degraded lands, this strategy aims to minimize land-use conflicts, and utilize existing infrastructure to facilitate renewable energy projects.*

E4.1 - Identify former mine lands and brownfields and characterize their potential to produce renewable energy, existing transmission capacity nearby and communities.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, land use agencies, energy offices, utilities commissions, environmental agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E4.2 - Design suitable business models for each potential clean energy hub, for each potential clean energy hub, engage with interested and affected parties to explore and codesign a suitable business model that enhances community benefits, such as lower cost energy, job creation, economic development, public parks, job training programs and/or measures to protect the environment.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

E4.3 - Incentivize the implementation of clean energy hubs in former mine lands and brownfields; this includes offering grants and revolving funds to deploy renewable energy and address environmental justice concerns around the site. This could be reached by developing Project agreements that can guarantee economic benefits, ensure accountability, and address environmental justice concerns.

Authority to Implement: Key agencies for energy system measures would include State, Local or Tribal, energy offices, utilities commissions, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3.3.4.4 Quantifying GHG Reductions

The quantification of these measures leverages a tailored spreadsheet tool, conceived specifically for the PCAP, to estimate emission reductions. This tool integrates comprehensive data sets, including state greenhouse gas inventory, to calculate emissions reductions from 2025 to 2050. This methodological approach ensures accurate, detailed assessments of the measure's impact on reducing emissions, supporting Nevada's sustainability goals. The following table presents the emission reductions.

Table 16. Projected GHG emission reductions for Energy System priority measures.

	Yearly Emissions Reductions ($MTCO_2e$)		**Cumulative Emissions Reductions ($MTCO_2e$)**	
Priority Measure	by 2025	by 2030	2025-2030	2025-2050
1. Build Capacity	This measure facilitates the emissions reductions.			
2. Accelerate renewable energy generation	1,389,966	5,999,602	19,874,591	136,316,721
3. Clean the grid	This measure was quantified in measure 2 as a change in grid generation.			
4. Clean Energy Hubs Program	This measure facilitates the emissions reductions.			
Total	1,389,966	5,999,602	19,874,591	136,316,721

Table 17. Projected co-pollutant reductions for priority measures in Energy System Focus Area.

		Yearly Co-pollutant Reductions (metric tons)		**Cumulative Co-pollutant Reductions (metric tons)**	
Priority Measure		by 2025	by 2030	2025-2030	2025-2050
1. Build Capacity	This measure facilitates the co-pollutant reductions.				
2. Accelerate renewable energy generation	NOx	449.1	4,615.6	14,210.4	103,665.0
	SO2	246.9	2,537.9	7,813.6	57,000.1
	$PM_{2.5}$	48.8	502.0	1,545.5	11,274.7
	VOCs	14.9	153.4	472.2	3,445.1
3. Clean the grid	This measure was quantified in measure 2 as a change in grid generation.				
4. Clean Energy Hubs Program	This measure facilitates the co-pollutant reductions.				
Total	NOx	449.1	4,615.6	14,210.4	103,665.0
	SO2	246.9	2,537.9	7,813.6	57,000.1
	$PM_{2.5}$	48.8	502.0	1,545.5	11,274.7
	VOCs	14.9	153.4	472.2	3,445.1

The following assumptions were used in calculating the above emission reduction estimates. It should be noted that these assumptions were made to depict a potential pathway for Nevada to achieve its 2025 and 2030 emission reduction goals. Implementation of the energy system priority measures are a means of working towards this scenario and ultimately, Nevada meeting its emission reduction goals:

- The measure will achieve by 2030 additional 800 MW renewable energy generation with enhanced community benefits and 140 MW in Nevada Tribal Renewable Energy projects.
- The implementation rate of renewable and energy storage projects starts in 2025 with small deployments, considering the time required to build capacity and construct the projects.

Therefore, projects are assumed to scale over time, achieving the targets above. About 90% of the energy installed capacity will be solar and approximately 10% wind with enhanced community benefits.

- To prioritize low-income housing residents and smaller rural communities, positively credit these communities more for using renewable energy. At least 50% of Community Renewable Empowerment will benefit LIDAC census tracts. There is also a possibility of being tied to Lower Income Solar Energy Programs, as per SB 145, that will enable the program to grow more quickly
- The average size of Community Renewable empowerment projects will be 10MW.
- Nevada Tribal Renewable energy projects will have an average size of 20MW, and at least seven will start operations by 2030.
- By deploying renewable energy sources, energy storage projects, upgrading the grid infrastructure, and implementing grid modernization initiatives, the grid is expected to achieve a 59% reduction in GHG emissions by 2030 compared to the GHG projections from the state greenhouse gas inventory. [131] Financial incentives and technical support from federal and state agencies will be critical in facilitating these advancements. Other important solutions were not quantified but could boost the benefits of this measure further, including actions such as incentivizing fossil fuel-powered thermal power plants to retrofit or adopting energy storage systems for storing surplus green electricity.

3.3.4.5 Transformative Impact and Co-Benefits for LIDACs

The decarbonization of the energy system represents a transformative shift for Nevada, focusing on enhancing renewable energy production to reduce energy costs, spur economic development, and create high-quality jobs, particularly benefiting LIDACs through more affordable energy bills and improved air quality. By moving away from fossil fuels, Nevada aims to establish a more resilient and independent energy system, significantly lowering carbon footprint and promoting sustainable practices, reducing environmental justice issues in the State. This initiative is poised to bring about substantial improvements in public health outcomes by reducing exposure to harmful pollutants.

In terms of indirect benefits, an increased deployment of renewable energy, energy storage, grid enhancement, green hydrogen and biofuels projects will induce the creation of training programs and jobs, particularly in the electrician and construction trades and manufacturing. The introduction of renewable energy projects may result in a loss of jobs, especially those related to fossil fuel power plants, but this impact can be mitigated if that infrastructure is retrofitted.

The deployment of renewable energy, energy storage, grid enhancement, green hydrogen and biofuels projects will most directly benefit LIDACs that are located in census tracts that rank greater than or equal to the 90th percentile for energy burden and are low income, totaling 21 census tracts and 3 tribal areas (Las Vegas, Timbisha Shoshone. And Walker River) across five counties with 58,724 residents. LIDACs, especially those in census tracts that rank greater than or equal to the 90th percentile for

[131] Nevada Division of Environmental Protection. “Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043,” 2023. https://ndep.nv.gov/.

poverty and unemployment, will benefit from reductions in energy burden and the new employment opportunities created, as will LIDACs that rank greater than or equal to the 90th percentile for $PM_{2.5}$ exposure levels, as emissions from electricity generation decrease over time. The next figure illustrates that census tracts in East Las Vegas, north Reno, and in Lyon, Mineral, Esmeralda, Nye, and Clark County are at or above the 90th percentile for multiple relevant indicators.

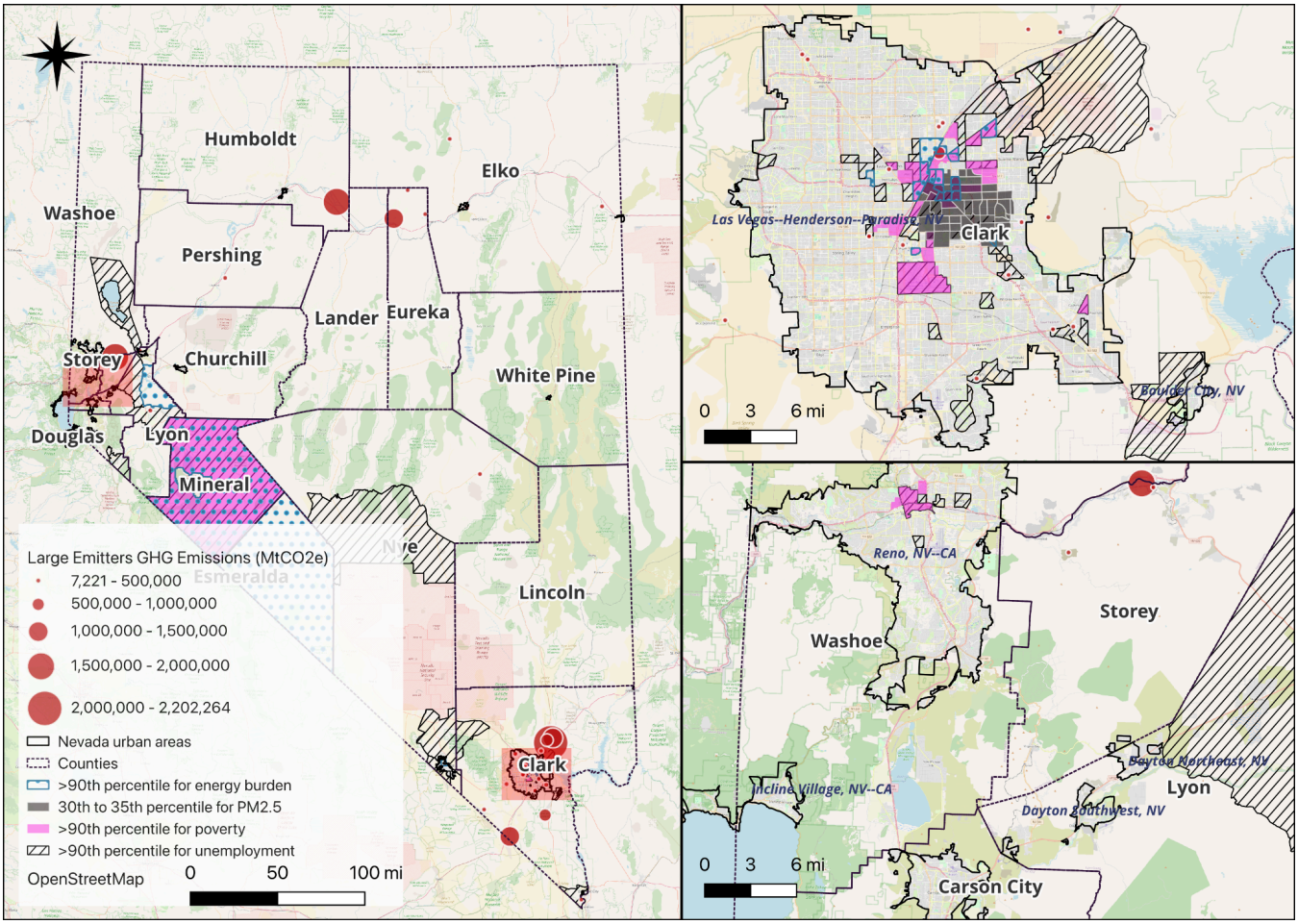

Figure 29. LIDAC census tracts that will most benefit from measures within the Energy System focus area.
Source: Council on Environmental Quality, 2022.

3.3.4.6 Example Programs or Initiatives

This section offers examples of how various measures within the Energy System focus area can be packaged together to develop comprehensive and transformative energy system programs or initiatives across the state.

Table 18. Example programs within Focus Area 3: Energy System.

Description	Actions
Solar Gardens/Solar Cooperative Program	
Support the development of community energy plans by providing state-backed loans and grants for community-scale renewable and energy storage projects. Support the creation of "Solar Gardens"and/or solar cooperatives to help generate electricity for rural and smaller communities.	• E1.1 - Build technical capacity at public agencies • E1.2 - Create public databases of renewable energy installations • E1.3 - Support planning and implementation of new renewable energy, energy storage, grid enhancement, green hydrogen, and biofuel systems. Enhance workforce training, particularly in the maintenance and repair of renewable energy systems including solar panels and batteries. • E1.4 - Public outreach and education • E2.1 - Fund distributed generation, community renewable projects and renewable cooperatives • E2.2 -Incentivize renewable energy and energy storage projects with enhanced community benefits • E2.5 - Incentivize behind the meter and smart-grid technologies
Community-Centered Renewable Empowerment Plan	
Accelerate the state's transition to a renewable energy future by developing incentives and measures to streamline permitting for renewable energy projects; developing training programs for local officials on renewable project approval processes; and incentivizing projects with the highest level of community benefits.	• E1.1 - Build technical capacity at public agencies • E1.2 - Create public databases of renewable energy installations • E1.3 - Support planning and implementation of new renewable energy, energy storage, grid enhancement, green hydrogen, and biofuel systems. Enhance workforce training, particularly in the maintenance and repair of renewable energy systems including solar panels and batteries. • E1.4 - Public outreach and education • E2.2 -Incentivize renewable energy and energy storage projects with enhanced community benefits • E2.3 - Expand Transmission Facilitation Program • E 2.4 - Work with utilities to develop and implement comprehensive grid modernization plans, with a focus on LIDACs. Including resources to assess how much the existing grid can be enhanced using the best available technologies and design new transmission lines. • E2.7 - Incentivize enhanced geothermal

Description	Actions
Modernize Nevada's Transmission Network Program	
Provide financial and technical support to modernize Nevada's grid for future energy demands, including upgrading grid infrastructure and development of high-capacity transmission lines for renewable integration. Capitalize on the Transmission Facilitation Program (TFP) ($2.5 billion revolving fund) for development of new transmission lines; require that utilities develop comprehensive grid modernization plans; and develop programs to support smart-grid and/or behind-the-meter technologies.	• E1.1 - Build technical capacity at public agencies • E1.2 - Create public databases of renewable energy installations • E1.3 - Support planning and implementation of new renewable energy, energy storage, grid enhancement, green hydrogen, and biofuel systems. Enhance workforce training, particularly in the maintenance and repair of renewable energy systems including solar panels and batteries. • E1.4 - Public outreach and education • E2.2 -Incentivize renewable energy and energy storage projects with enhanced community benefits • E2.3 - Expand Transmission Facilitation Program • E2.4 - Work with utilities to develop and implement comprehensive grid modernization plans, with a focus on LIDACs. Including resources to assess how much the existing grid can be enhanced using the best available technologies and design new transmission lines. • E2.5 - Incentivize behind the meter and smart-grid technologies
Retrofitting Thermal Power Plants	
Transforming existing fossil fuel-based thermal power plants offers two sustainable options: (1) Retrofitting to run on green hydrogen, significantly reducing emissions, and (2) Modifying them into Carnot batteries for efficient energy storage and discharge, utilizing surplus green electricity. This dual approach promotes eco-friendly operations and enhances grid stability.	• E1.1 - Build technical capacity at public agencies • E1.2 - Create public databases of renewable energy installations • E1.3 - Support planning and implementation of new renewable energy, energy storage, grid enhancement, green hydrogen, and biofuel systems. Enhance workforce training, particularly in the maintenance and repair of renewable energy systems including solar panels and batteries • E1.4 - Public outreach and education • E2.6 - Incentivize and support green fuel production projects, such as green hydrogen and biofuels • E3.1 - Incentivize fossil fuel-powered thermal power plants to retrofit to use green hydrogen-based fuels • E3.2 - Incentivize adoption of Carnot or gravity batteries for storing surplus green electricity

Description	Actions
Clean Energy Hubs Program	
Repurpose former mine lands and brownfields into clean energy hubs, addressing the clean energy siting dilemma. By leveraging degraded lands, this strategy aims to minimize land-use conflicts, and utilize existing infrastructure to facilitate renewable energy projects.	• E1.1 - Build technical capacity at public agencies • E1.2 - Create public databases of renewable energy installations • E1.3 - Support planning and implementation of new renewable energy, energy storage, grid enhancement, green hydrogen, and biofuel systems. Enhance workforce training, particularly in the maintenance and repair of renewable energy systems including solar panels and batteries. • E1.4 - Public outreach and education • E2.2 -Incentivize renewable energy and energy storage projects with enhanced community benefits • E2.3 - Expand Transmission Facilitation Program • E2.4 - Work with utilities to develop and implement comprehensive grid modernization plans, with a focus on LIDACs. Including resources to assess how much the existing grid can be enhanced using the best available technologies and design new transmission lines. • E2.5 - Incentivize behind the meter and smart-grid technologies • E2.6 - Incentivize and support green fuel production projects, such as green hydrogen and biofuels • E2.7 - Incentivize enhanced geothermal • E4.1 - Identify former mine lands and brownfields and characterize their potential to produce renewable energy, existing transmission capacity nearby and communities • E4.2 -Design suitable business models for each potential clean energy hub, for each potential clean energy hub, engage with interested and affected parties to explore and codesign a suitable business model that enhances community benefits, such as lower cost energy, job creation, economic development, public parks, job training programs and/or measures to protect the environment. • E4.3 - Incentivize the implementation of clean energy hub in former mine lands and brownfields

3.3.5 Focus Area 4: Industry

Measures in this focus area aim to create business opportunities and jobs while lowering production costs, reducing environmental impacts, and enhancing community benefits. Key measures include turning industrial sites and brownfields into clean energy hubs, encouraging renewable energy and green hydrogen production near industry, reducing methane leaks, and promoting technological innovation. This includes supporting innovative projects that reduce GHGs beyond carbon dioxide (e.g., nitrous oxide, hydrofluorocarbons, and perfluorinated compounds) in hard-to-decarbonize industries such as cement manufacturing. Measures will also support the mining industry in transitioning to zero emissions vehicles.

3.3.5.1 Emissions Context

This sector encompasses emissions from various sources within the industrial domain: emissions from stationary combustion of fossil fuels used in industrial settings, emissions from industrial processes (both from manufacturing and from the use or consumption of end products, like ozone-depleting substances or their substitutes), and fugitive emissions from natural gas and oil systems, which include production, flaring, transmission for natural gas, as well as the production, refining, and transportation of oil systems.

In Nevada, industrial GHG emissions are still raising, in 2021, the sector contributed to 16% of the State's annual GHGs emissions, totalling 7.2 $MMTCO_2e$; stationary combustion accounted for 51.8%, industrial processes accounted for 33.5%, and gas and oil accounted for 14.4%.[132]These estimates include CO_2, CH_4, N_2O, and fluorinated gases (which includes HFCs, PFCs, and SF6).

Emissions from Nevada's industrial sector are projected to continuously increase through 2043. It is estimated that emissions will reach 7.6 $MMTCO_2e$ by 2025, 7.7 $MMTCO_2e$ by 2030, and 8.0 $MMTCO_2e$ by 2043. The increase in emissions is attributed to slight but consistent rises in both stationary combustion and industrial process emissions. However, these projections do not factor in the potential impact of the phasedown of ozone-depleting substance substitutes.[133]

3.3.5.2 Status of Industrial Activities in Nevada

Nevada's GHG emissions inventory for the industrial sector includes processes related to multiple economic activities. The industrial sector in Nevada is diverse, reflecting the state's unique geographical and economic landscape. Key activities within this sector include: Mining (Nevada is

[132] Nevada Division of Environmental Protection. “Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043,” 2023. https://ndep.nv.gov/.
[133] Nevada Division of Environmental Protection. “Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043,” 2023. https://ndep.nv.gov/.

a leading producer of gold, silver, and other minerals), Manufacturing (this includes a range of activities, from the production of gaming and slot machines to advanced manufacturing in aerospace, automotive parts, and clean energy technology components), among others (cement manufacturing, lime manufacturing, limestone and dolomite use, soda ash use, urea consumption, ozone depleting substance substitutes use, semiconductor manufacturing, as well as electric power transmission and distribution systems), and fossil fuel industries.

Principal policies guiding the industrial sector in Nevada focus on economic development, innovation, and economic diversification. These policies include economic diversification efforts through organizations like the Governor's Office of Economic Development (GOED).[134] Nevada is working to diversify its economy beyond gaming and tourism by attracting high-tech, manufacturing, and green energy companies. GOED aims to foster a dynamic, innovative, and enduring economy that generates well-paying employment opportunities. Its core mission is to secure high-quality employment for the people of Nevada, guided by goals set in the inaugural State Plan for Economic Development. These goals focus on establishing a unified economic development framework, promoting key industry sectors, increasing international engagement, stimulating innovation, and improving educational and workforce training opportunities to support economic growth.

The Bureau of Mining Regulation and Reclamation (BMRR), within the NDEP, collaborates with various state, federal, and local entities to regulate mining operations. The BMRR has a core mission to protect Nevada's water quality from mining activities and ensure that areas disturbed by mining are restored to conditions that are safe, stable and suitable for productive use after mining has ceased.[135]

Nevada's industrial sector could leverage grants and incentives from the IRA aimed at increasing energy efficiency and electrification. This could reduce operational costs and support the state's goals for reducing greenhouse gas emissions.

The bipartisan Creating Helpful Incentives to Produce Semiconductors (CHIPS) Act provides incentives for $52.7 billion for American semiconductor research, development, manufacturing, and workforce development,[136]Nevada could attract investments in high-tech manufacturing facilities, especially given its strategic location and existing industrial base. This funding could support the implementation of upgrades and new investment projects that reduce PFC emissions (related to semiconductor manufacturing).

3.3.5.3 Federal Funding

There are several federal programs that can contribute to fund actions related to this measure (see Appendix B for a complete list). For example, the Loans Programs Office under the DOE has dedicated funding through the Title 17 Clean Energy Financing Program to repurpose, upgrade, or replace

[134] “Nevada’s State Economic Development Experts.” February 2, 2024. https://goed.nv.gov/ .
[135] Bureau of Mining Regulation and Reclamation (BMRR). “BMRR 445A Mining Regulations: Summary for Reference,” September 3, 2020. https://ndep.nv.gov/uploads/land-mining-docs/20200903_Summary_Codified_Uncodified_445ARegs_2020Update.pdf.
[136] The White House. “FACT SHEET: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China,” August 9, 2022. https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/.

existing energy infrastructure to operate more efficiently with lower emissions.[137] Similarly, the Grid Resilience and Innovation Partnership Program, intended to improve the resilience of the power system to extreme weather events, includes two different funding opportunities. The first is to enhance the reliability and efficiency of the electric power system. The second is to provide financial assistance to state, Tribes, local government, and public utilities to collaborate with electricity sector owners in developing innovative transmission, storage and distribution infrastructure projects.[138] The Advanced Energy Manufacturing and Recycling Grants Program, also through the US DOE, provides grants to small- and medium-sized manufacturers to build new facilities or retrofit existing facilities that produce or recycle advanced energy products. The US DOE's Clean Energy Demonstration Program on Current and Former Mine Land, funded by the Bipartisan Infrastructure Law and Inflation Reduction Act, is dedicated to projects that demonstrate innovative mine land conversion in clean energy projects.[139] Finally, the State of Nevada received an allocation under the Energy Efficiency and Conservation Block Grant Program Formula Grant. Eligible entities can use this funding for projects that cut carbon emissions, improve energy efficiency, and reduce energy use.[140]

3.3.5.4 Review of Authority

The priority measures will be implemented as incentive based programs, which would not require additional authority to implement. NDEP has existing legal authority to apply for and receive grant funding pursuant to NRS 445B.230(2) and the ability to cooperate and contract with other governmental entities is also addressed under NRS 445B.230(3) (authority) and NRS 277.180 (provides authority for contracts between one or more public agencies). Many entities have the authority and have expressed an interest in applying for funding to implement a portion of this work within specific state departments and divisions, cities, counties, Tribes, or corporate settings. NDEP intends to seek funding for measures and will subgrant to other agencies where applicable.

3.3.5.5 Community Engagement Feedback

Community engagement feedback was particularly supportive for measures that decarbonized industrial activities. For example, participants suggested the need for education within the healthcare sector around the environmental impact of anesthetic gases, recommending various educational initiatives. Additionally, there was a call for the implementation of a Refrigerant Incentive Program, aiming to promote the use of environmentally friendly refrigerants. Repurposing former industrial facilities (e.g abandoned mines) to produce or store electricity was also identified as an opportunity. In general, there was support for electrifying industrial energy as much as possible. These suggestions reflect a community-driven approach towards reducing greenhouse gas emissions in this key sector.

[137] US Energy Loan Programs Office. "Title 17 Clean Energy Financing." Energy.gov. Accessed February 1, 2024. https://www.energy.gov/lpo/title-17-clean-energy-financing.
[138] US Energy GRID Deployment Office. "Grid Resilience and Innovation Partnerships (GRIP) Program." Energy.gov. Accessed February 1, 2024. https://www.energy.gov/gdo/grid-resilience-and-innovation-partnerships-grip-program.
[139] US Energy Office of Clean Energy Demonstrations. "Clean Energy Demonstration Program on Current and Former Mine Land." Energy.gov. Accessed February 1, 2024. https://www.energy.gov/oced/CEML.
[140] US Department of Energy. "EECBG Program Formula Grant Application Hub." Energy.gov. Accessed February 2, 2024. https://www.energy.gov/scep/eecbg-program-formula-grant-application-hub.

Many entities have the authority and have expressed an interest in applying for funding to implement a portion of this work within specific state departments and divisions, cities, counties, Tribes, or corporate settings.

Table 19: Industry: List of Priority Measures

1. **Build Capacity:** *To enhance capacity for decarbonizing industrial activities, these measures will focus on several key areas: Building technical capacity within public agencies to effectively manage and guide decarbonization efforts, creating comprehensive public databases that track and showcase clean industrial initiatives across the state, enhancing the workforce's skills in maintenance and repair specifically for clean technology and processes, and engaging in extensive public outreach and education to raise awareness and support for these decarbonization efforts among key interested and affected parties.*

D1.1 - Build technical capacity at public agencies to plan for, procure, and implement clean industrial initiatives (e.g., Green Hydrogen, energy storage, electrification of industrial processes, low emission cement, refrigerant substitution, etc.), including training of staff, coordination with other levels of government, supporting workforce development, communication and developing an outreach campaign.

Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, industrial agencies, economic development agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

D1.2 - Create public databases of clean industrial initiatives, such as: green hydrogen, energy storage, electrification of industrial processes, low-emission cement, and refrigerant substitution, among others.

Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, industrial agencies, economic development agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

D1.3 - Enhance workforce, maintenance, and repair capacity to support planning, implementation of green hydrogen, energy storage, electrification of industrial processes, low-emission cement, and refrigerant substitution initiatives, among others. Workforce development activities could include enhancing or creating new training programs, particularly among trades such as construction, engineering, manufacturing, mechanics, drivers and electricians, job placement programs, and apprenticeships.

Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, industrial agencies, economic development agencies, employment and training agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

D1.4 - Public outreach and education to encourage industries to deploy green hydrogen, energy storage, electrification of industrial processes, low-emission cement, and refrigerant substitution initiatives, among others. Outreach can be, but is not limited to, online and in-person events, promotions, marketing, and geographic-specific partnerships among businesses and communities, engaging with interested and affected parties to explore suitable business models that could enhance community benefits.

Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, industrial agencies, economic development agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

2. **Decarbonize energy intensive industries:** *To accelerate the decarbonization of energy intensive industries this action includes providing incentives to convert former industrial sites and brownfields into hubs for clean energy production, offering incentives for the generation of renewable energy and green hydrogen in proximity to energy-intensive industrial facilities. Additionally, these actions encourage the adoption of clean technologies, focusing on energy efficiency, electrification of industrial processes, and the use of heat batteries. They also incentivize the use of hydrogen-fueled or electric mining trucks and vehicles.*

D.2.1 - Incentivize repurposing former industrial sites and brownfields into clean energy hubs, this includes offering grants and revolving funds to deploy renewable energy, green hydrogen, and energy storage and address environmental justice concerns around the site. This could be reached by developing Project agreements that can guarantee economic benefits, ensure accountability, and address environmental justice concerns.

Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, energy offices, industrial agencies, economic development agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

D2.2 - Incentivize the production of renewable energy and Green H2 near energy intensive industrial facilities. This includes identifying potential industrial areas with the highest potential to transform their energy consumption and supporting the implementation of the projects with grants and revolving funds.
Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, energy offices, industrial agencies, economic development agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

D2.3 - Incentivize the implementation of clean technologies, including energy efficiency and electrification of industrial processes and heat batteries. The support includes offering financial incentives and investing in research and development to deploy these technologies.
Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, energy offices, industrial agencies, economic development agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

D2.4 - Incentivize H2-fueled or electric mining trucks and vehicles by developing a comprehensive set of programs and incentives to encourage ZEV adoption and vehicle fuel switching. This could include developing an incentive program for clean trucks and hydrogen fueling stations.
Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, energy offices, industrial agencies, transportation agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3. **Reduce industrial emissions:** *To reduce industrial emissions in Nevada, this action includes offering incentives for innovative projects in sectors where emissions are hard to reduce, such as cement production, electricity transmission, and refrigerants, focusing on gases like nitrous oxide, hydrofluorocarbons, and perfluorinated compounds. It also emphasizes incentivizing programs for detecting, repairing, and utilizing methane leaks. Additionally, the plan involves providing incentives to holistically transform industrial sites, incorporating sustainable practices and technologies to significantly lower emissions.*

D3.1 - Incentivize innovative projects related to hard-to-electrify sectors (e.g., cement manufacturing) and difficult to reduce GHGs beyond carbon dioxide (e.g., nitrous oxide, hydrofluorocarbons, and perfluorinated compounds) by developing grants that encourage research and the implementation of demonstrative projects. This can include programs that incentivize the manufacturing and market penetration of new refrigerants that have lower global warming potential, reduce emissions of SF6 on electricity transmission, low carbon concrete by using alternative materials and recycling concrete, producing low carbon cement by electrolysis and reduce emissions of N2O related to the use of anesthetic gases.

Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, energy offices, industrial agencies, economic development agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

D3.2 - Reduce methane emissions from industrial activities by leak detection, repair, and utilization systems by developing comprehensive programs and incentives to identify methane leaks in Nevada and develop incentives to control methane emissions from abandoned and operational sites.

Authority to Implement: The Nevada Department of Industry, working with the Nevada Department of Environmental Protection, has the authority to incentivize methane mitigation programs.

D3.3 - Incentivize programs and initiatives that take a holistic approach to transforming industrial sites by developing grants that encourage research and the implementation of demonstrative projects. The holistic transformation of industrial sites can include creating a smart grid to manage energy use, generation, and storage; replacing vehicle fleets with EVs that offer bi-directional energy supplies; utilizing waste and wastewater to produce Renewable Natural Gas; leveraging wastewater heat or industrial heat for space and domestic water heating; initiatives that enhance CO2 utilization for plant growth; improving high-energy process efficiency; and employing thermal energy storage powered by renewables for industrial heat and power.

Authority to Implement: Key agencies for industrial measures would include State, Local or Tribal, energy offices, industrial agencies, economic development agencies, air quality agencies, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3.3.5.6 Quantifying GHG Reductions

The quantification of these measures leverages a tailored spreadsheet tool, conceived specifically for the PCAP, to estimate emission reductions. This tool integrates comprehensive data sets, including state greenhouse gas inventory, to calculate emissions reductions from 2025 to 2050.

This methodological approach ensures accurate, detailed assessments of the measure's impact on reducing emissions, supporting Nevada's sustainability goals. The following table presents the emission reductions.

Table 20. Projected GHG emission reductions for Industrial priority measures.

	Yearly Emissions Reductions ($MTCO_2e$)		**Cumulative Emissions Reductions ($MTCO_2e$)**	
Priority Measure	by 2025	by 2030	2025-2030	2025-2050
1. Build Capacity	This measure facilitates the emissions reductions.			
2. Decarbonize energy intensive industries	This measure will start reducing emissions in 2029.	203,410	260,775	4,329,060
3. Reduce industrial emissions	364	58,106	85,119	1,247,230
Total	364	261,515	345,884	5,576,186

Table 21. Projected co-pollutant reductions for priority measures in the Industrial Focus Area.

		Yearly Co-pollutant Reductions (metric tons)		**Cumulative Co-pollutant Reductions (metric tons)**	
Priority Measure		by 2025	by 2030	2025-2030	2025-2050
1. Build Capacity	This measure facilitates the co-pollutant reductions.				
2. Decarbonize energy intensive industries	CO	0.0	656.1	841.6	13,964.2
	NOx	0.0	748.1	958.6	15,920.4
	SO2	0.0	4.9	6.2	103.3
	$PM_{2.5}$	0.0	40.8	52.3	868.4
	VOCs	0.0	109	140	2,321
3. Reduce industrial emissions	CO	0.5	29.8	50.9	647.2
	NOx	1.8	293.0	427.5	6,287.8
	SO2	0.0	7.5	10.0	159.6
	$PM_{2.5}$	0.0	10.2	14.5	218.8
	VOCs	0.1	5.2	8.7	113.5
Total	CO	0.5	685.9	881.3	14,600.3
	NOx	1.8	1,041.1	1,349.3	22,171.3
	SO2	0.0	12.3	16.2	262.8
	$PM_{2.5}$	0.0	51.0	65.9	1,086.4
	VOCs	0.1	114.3	146.8	2,433.1

The following assumptions were used in calculating the above emission reduction estimates. It should be noted that these assumptions were made to depict a potential pathway for Nevada to achieve its 2030 emission reduction goal. The measures related to this focus area generally produce emission reductions after 2025 because most of these solutions require a longer construction time. Implementation of the industrial priority measures is a means of working towards this scenario and ultimately, Nevada meeting its emission reduction goals:

- The measure will replace 804,011MWh of fossil fuels in energy-intensive industries by 2030: 100 MW Solar and 100 MW Wind dedicated to producing electricity to feed electrolyzers and heat batteries, 27 MW electrolyzers, and 1,000 MWh heat batteries.
- The implementation rate of projects to decarbonize energy-intensive industries through the electrification of thermal and motor uses currently fueled by fossil fuels starts in 2029 and achieves the above goals by 2030.
- The energy-intensive uses are fueled by near-site wind and solar, where electricity is stored in heat batteries or transformed into clean hydrogen to fuel 24/7 industrial activities.
- This project operates under the assumption that a multifaceted approach to energy management within an industrial area can significantly enhance environmental outcomes and operational efficiency. This will primarily benefit LIDAC, which usually lives closer to industrial facilities and is disproportionately impacted by air pollution. By establishing a smart grid capable of alternating between consuming, generating, and storing energy, the project aims to optimize energy use dynamically.
- The replacement of traditional vehicle fleets with electric vehicles (EVs) equipped with bi-directional energy capabilities reduces carbon emissions and integrates vehicles into the energy management system.
- A 15% reduction in greenhouse gas emissions by 2030 is anticipated for both the cement manufacturing sector and the air conditioning and refrigeration sector, based on the National Emissions Inventory of the EPA for Nevada.
- Other necessary solutions were not quantified but could boost the benefits of this measure further. Including actions such as using waste and wastewater to generate Renewable Natural Gas, alongside utilizing waste heat from wastewater or industrial processes for heating, embodies a commitment to resource efficiency and circular economy principles. Introducing CO_2 into plant-growing areas to boost photosynthesis and crop yields further exemplifies the project's holistic approach to leveraging industrial by-products for environmental gain. Low carbon cement production, reduced emissions from methane leaks, programs to replace refrigerants, and emissions from anesthetic gases.

3.3.5.7 Transformative Impact and Co-Benefits for LIDACs

The decarbonization of industrial activities provides significant benefits for Nevada, notably in reducing production costs and spurring economic development through the creation of high-quality jobs in emerging low carbon industries and subsectors. By transforming industrial sites into clean energy hubs, and prioritizing renewable energy and green technologies, this measure not only fosters economic growth but additionally ensures reductions in air, water, and soil pollution, which will particularly benefit LIDACs. This strategic approach not only aligns with environmental goals but also enhances community well-being and economic resilience.

In terms of indirect benefits, an increased deployment of renewable energy, energy storage, energy efficiency, green hydrogen and biofuels projects will induce the creation of training programs and jobs, particularly in the electrician, mechanic and construction trades and manufacturing.

LIDACs in proximity to industrial areas, Risk Management Plan facilities, and Superfund sites will directly benefit from reductions in water pollution and air pollution in the form of $PM_{2.5}$, ozone, and diesel emissions, and increased employment opportunities in renewable energy and low carbon industries. Figure 30 shows that LIDACs that rank at the 90^{th} percentile or higher for these burdens are primarily located in East Las Vegas. Figure 30 also shows that brownfields, mining tailing sites, and large emitters are located across the state, including in relatively close proximity to LIDACs.

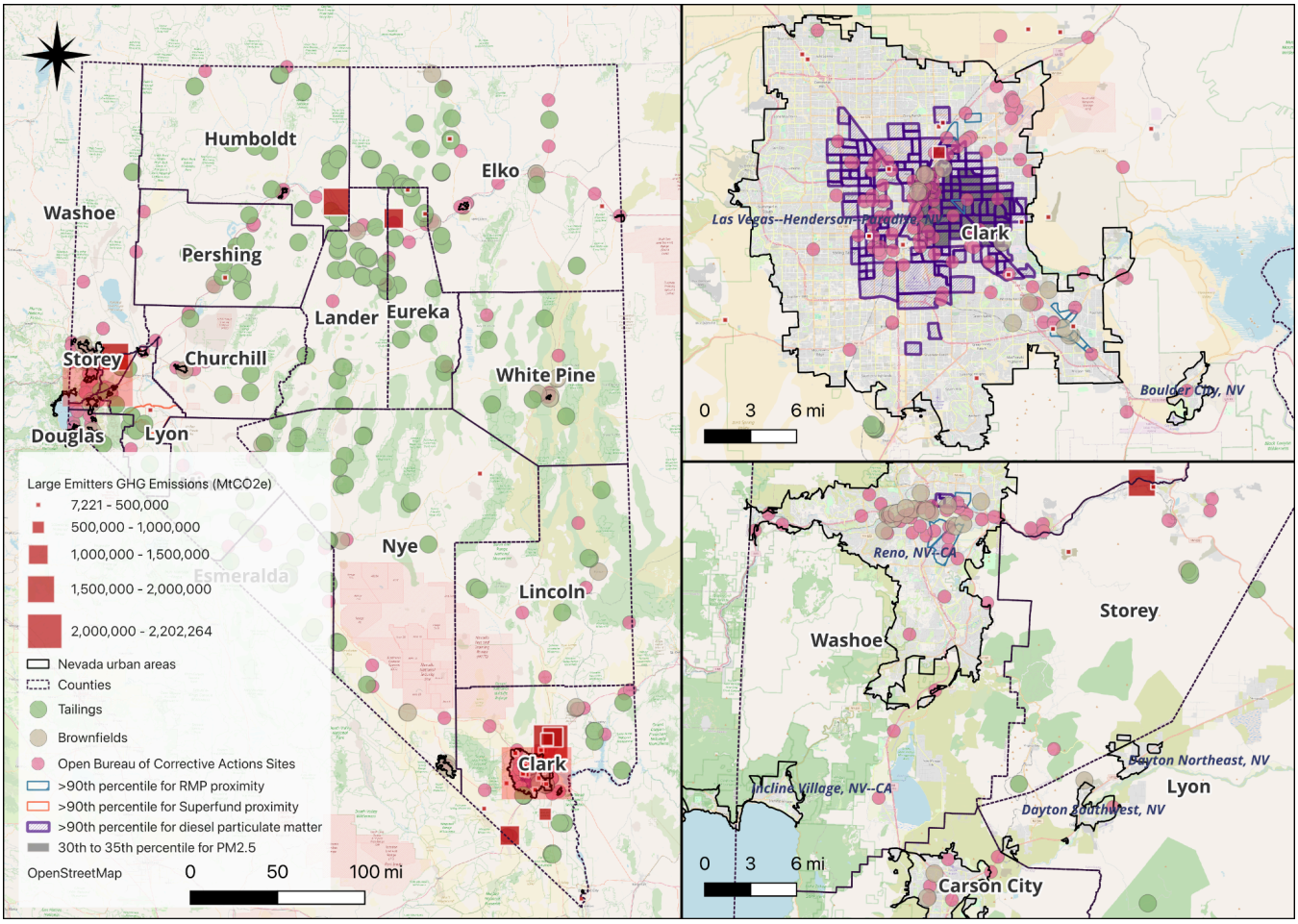

Figure 30. LIDAC census tracts that will most benefit from measures within the Industry focus area.

LIDACs in census tracts that rank at the 90th percentile or higher for Superfund proximity, RMP facility proximity, and diesel levels, as well as 30th to 35th percentile for $PM_{2.5}$ exposure. The locations of large emitters (according to the EPA), open Bureau of Corrective Action sites, brownfields, and tailings from mining activities are also included.

3.3.5.8 Example Programs or Initiatives

This section offers examples of how various measures within Industry focus area can be packaged together to develop comprehensive and transformative industrial decarbonization programs across the state.

Table 22. Potential programs or initiatives within Measure 4: Decarbonize Industrial Activities

Description	Actions
Transform an Industrial Area	
Develop a holistic strategy to transform an industrial site towards greater energy integration and self-sufficiency. Efforts may include creating a smart grid to alternate between using, generating and storing energy in the area; replacing vehicle fleets with EVs; using waste and waste water to produce RNG; using wastewater heat and/or industrial heat to heat spaces and domestic water; piping CO_2 to stimulate plant growth; improving process efficiencies; and using thermal energy storage powered by renewables for industrial heat and power.	I1.1 - Build technical capacity at public agencies I1.2 - Create public databases of clean industrial initiatives I1.3 - Enhance workforce, maintenance, and repair capacity I1.4 - Public outreach and education I.2.1 - Incentivize repurposing former industrial sites and brownfields into clean energy hubs I2.2 - Incentivize the production renewable energy and Green H2 near energy intensive industrial facilities I2.3 - Incentivize the implementation of clean technologies, including energy efficiency and electrification of industrial processes and heat batteries I2.4 - Incentivize H2-fueled or electric mining trucks and vehicles by developing a comprehensive set of programs and incentives to encourage ZEV adoption and vehicle fuel switching I3.1 -Incentivize innovative projects related to hard-to-electrify sectors (e.g., cement manufacturing) and difficult to reduce GHGs beyond carbon dioxide (e.g., nitrous oxide, hydrofluorocarbons, and perfluorinated compounds) by developing grants that encourage research and the implementation of demonstrative projects I3.2 - Reduce methane emissions from industrial activities by leak detection, repair, and utilization systems by developing comprehensive programs and incentives to identify methane leaks in Nevada and develop incentives to control methane emissions from abandoned and operational sites I3.3 - Incentivize programs and initiatives that take a holistic approach to transforming industrial sites T3.2 - Incentivize large commercial fleet electrification (medium- and heavy-duty vehicles) by developing a comprehensive set of programs and incentives to encourage ZEV adoption and vehicle fuel switching. T4.4 - Develop infrastructure to support ZEV medium- and heavy-duty vehicles E1.3 - Support planning and implementation of new renewable energy, energy storage, grid enhancement, green hydrogen, and biofuel systems. Enhance workforce training, particularly in the maintenance and repair of renewable energy systems including solar panels and batteries. E2.5 - Incentivize behind the meter and smart-grid technologies E2.6 - Incentivize and support green fuel production projects, such as green hydrogen and biofuels E3.1 - Incentivize fossil fuel-powered thermal power plants to retrofit to use green hydrogen-based fuels E3.2 - Incentivize adoption of Carnot or gravity batteries for storing surplus green electricity

Description	Actions
Clean Industry Program	
Capitalize on IRA's financial incentives for renewable energy and Green H2 to increase development and implementation of clean technologies including energy efficiency and electrification of industrial processes; heat batteries; and promoting H2-fueled or electric mining trucks and vehicles.	I1.1 - Build technical capacity at public agencies I1.2 - Create public databases of clean industrial initiatives I1.3 - Enhance workforce, maintenance, and repair capacity I1..4 - Public outreach and education I2.2 - Incentivize the production renewable energy and Green H2 near energy intensive industrial facilities I2.3 -Incentivize the implementation of clean technologies, including energy efficiency and electrification of industrial processes and heat batteries. I2.4 - Incentivize H2-fueled or electric mining trucks and vehicles by developing a comprehensive set of programs and incentives to encourage ZEV adoption and vehicle fuel switching.
Industrial Sector Emission Reduction Incentives	
Incentivize changes to activities with high carbon intensity, including routine natural gas flaring and venting, and fugitive methane emissions from new and existing facilities.	I1.1 - Build technical capacity at public agencies I1.2 - Create public databases of clean industrial initiatives I1.3 - Enhance workforce, maintenance, and repair capacity I1.4 - Public outreach and education I3.1 - Incentivize innovative projects related to hard-to-emit sectors (e.g. Cement, electricity transmission, refrigerants, etc.) and GHG (e.g. nitrous oxide, hydrofluorocarbons and perfluorinated compounds). I3.2 - Incentivize methane leak, detection, repair and utilization programs I3.3 - Incentivize programs and initiatives that take a holistic approach to transforming industrial sites

3.3.6 Focus Area 5: Waste

Measures in this focus area incentivize waste diversion, composting, and developing a circular economy. The measures aim to significantly reduce the amount of organic waste and recyclable material that goes to landfills. This includes creating business opportunities for waste processing and the sale of recycled products. Waste diversion will reduce GHG emissions, prolong the life of landfills, and create new jobs and businesses.

3.3.6.1 Emissions Context

In 2021, waste constituted 5.5% of Nevada's total annual greenhouse gas emissions, totalling 2 $MMTCO_2e$; by 2030, the waste sector is projected to account for 6%.[141, 142] In 2021, the state disposed of 3.3 million tons of Municipal Solid Waste (MSW) and 1.8 million tons of Industrial & Special Waste, resulting in a combined total of approximately 5 million tons of waste. In contrast, Nevadans recycled 1 million tons of waste in 2021, 33% of which was organic material.[143] In Clark County, Nevada's most populous county, estimated emissions resulting from solid waste disposal contributed to 12.5% of the county's total greenhouse gas emissions in 2022.[144]

The NDEP recognizes the importance of waste diversion and the development of markets for recycled materials (i.e. the circular economy) in its 2023 Sustainable Materials Management Plan. Since 1991, the State of Nevada has been striving to meet or surpass its recycling rate goal of 25%.[145] These measures aim to contribute to the reduction of waste while significantly diminishing emissions, specifically those of methane gas from organic waste in landfills.

3.3.6.2 Status of Waste Programs in Nevada

Currently, the main method for managing end-of-life products and materials in Nevada is landfilling, primarily due to its low relative cost, excluding environmental and social impacts. To address this, these measures aim to enhance the state's initiatives in waste diversion and the establishment of a circular economy. Presently, the NDEP oversees 98 waste facilities, including landfills, composting facilities, public waste bin sites, and transfer facilities. In Southern Nevada, solid waste regulation falls under the Southern Nevada Health District, while in the North, it is managed by the Washoe County Health District.[146]

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[141] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.
[142] Nevada Division of Environmental Protection. "2022 State of Nevada Sustainable Materials Management Plan," 2022. https://ndep.nv.gov/uploads/land-waste-solid-swmp-docs/2022_Nevada_Sustainable_Materials_Management_Plan_12-14-2022.pdf.
[143] Nevada Division of Environmental Protection. "2023 Recycling and Waste Reduction Report," 2023. https://www.leg.state.nv.us/Division/Research/Documents/RTTL_NRS444A.070_2023.pdf.
[144] Clark County Department of Environment and Sustainability. "All-In Clark County: Bold Action for A Sustainable Future," 2023. https://allin.clarkcountynv.gov/resources/ID_77/Documents/CC_CSCAP_FINAL.pdf.
[145] Nevada Division of Environmental Protection. "2023 Recycling and Waste Reduction Report," 2023. https://www.leg.state.nv.us/Division/Research/Documents/RTTL_NRS444A.070_2023.pdf.
[146]Nevada Division of Environmental Protection. "2022 State of Nevada Sustainable Materials Management Plan," 2022. https://ndep.nv.gov/uploads/land-waste-solid-swmp-docs/2022_Nevada_Sustainable_Materials_Management_Plan_12-14-2022.pdf.

Six counties - Carson City, Clark, Douglas, Elko, Nye, and Washoe - have implemented recycling programs, covering nearly 90% of Nevada's population as of 2020.[147] In 2019, Carson City achieved a 35% recycling rate, partly attributed to its new single-stream recycling and organics collection program. In Douglas City, there is no curbside collection of recyclables, but a successful composting program which contributed to its 57% recycling rate in 2019. Elko County, for example, offers curbside recycling, but it is solely limited to single-family homes.[148]Whereas Washoe County recycles approximately 33% of its waste and is exploring piloting a curbside green waste collection and composting program, as outlined in their Green Recovery Plan.[149]

Finally, Clark County plays a crucial role in influencing the State's recycling rate, primarily owing to its substantial population and the implementation of single-stream collection in 2016.[150] As of 2019, the county has reported a recycling rate of 20% and a household waste diversion rate of 19.7%, with aspirations to elevate it to 40% by the year 2030. To achieve this target, the County intends to assess the feasibility of expanding its residential curbside green-waste recycling program and eliminating organics from its waste stream. The county estimates 11% of the emissions reductions targeted for 2030 will come from diverting organic waste from its landfills.[151]

In 2022, Nevada generated 325,000 tons of organic material, constituting 29% of its recyclables. However, it is crucial to note that not all organic materials were composted. As outlined in the State's 2022 Sustainable Management Plan, there is an emphasis on establishing the groundwork for a more circular and sustainable system. By implementing these initiatives such as source reduction strategies, organic diversion policies, and reuse programs, Nevada aims to achieve its waste sector goals.[152]

3.3.6.3 Federal Funding

There are several federal funding opportunities that can support the waste diversion and the promotion of the circular economy. These include the following grants from the EPA: Solid Waste Infrastructure for Recycling Grants, Consumer Recycling Education and Outreach Grant Program and the Pollution Prevention and Environmental Education Grant Program (see Appendix B for a complete list). The Solid Waste Infrastructure for Recycling program by the EPA provides grants to states and territories, communities, and Tribes and intertribal consortia to improve post-consumer materials management and improve local waste management systems. For example, the Shoshone-Paiute Tribes of the Duck Valley Indian Reservation received a recycling grant through the program which helps maintain their waste transfer station, specialized monofills and a fully run recycling center.[153] The US Department of Agriculture additionally holds a Solid Waste Management

[147]Nevada Division of Environmental Protection. “2022 State of Nevada Sustainable Materials Management Plan,” 2022. https://ndep.nv.gov/uploads/land-waste-solid-swmp-docs/2022_Nevada_Sustainable_Materials_Management_Plan_12-14-2022.pdf.
[148] Nevada Division of Environmental Protection. “Annual Recycling Rate Data,” 2023. https://ndep.nv.gov/nevada-recycles/recycle/reports.
[149] Office of Emergency Management & Homeland Security. “Washoe County Green Recovery Plan,” 2022. https://www.washoecounty.gov/em/files/WC-Green-Recovery-Plan-FINAL.pdf.
[150] Nevada Division of Environmental Protection. “2022 State of Nevada Sustainable Materials Management Plan,” 2022. https://ndep.nv.gov/uploads/land-waste-solid-swmp-docs/2022_Nevada_Sustainable_Materials_Management_Plan_12-14-2022.pdf.
[151] ClarkCounty Department of Environment and Sustainability. “All-In Clark County: Bold Action for A Sustainable Future,” 2023. https://allin.clarkcountynv.gov/resources/ID_77/Documents/CC_CSCAP_FINAL.pdf.
[152] Nevada Division of Environmental Protection. “2022 State of Nevada Sustainable Materials Management Plan,” 2022. https://ndep.nv.gov/uploads/land-waste-solid-swmp-docs/2022_Nevada_Sustainable_Materials_Management_Plan_12-14-2022.pdf.
[153] Environmental Protection Agency. “Recycling Grant Selectees and Recipients.” Announcements and Schedules, August 21, 2023. https://www.epa.gov/infrastructure/recycling-grant-selectees-and-recipients.

Grant for public bodies providing technical assistance and training to reduce or eliminate pollution of water resources and improve planning and management of solid waste sites. However, this assistance is only available in rural areas and towns with a population of 10,000 or less.

3.3.6.4 Review of Authority

The priority measures will be implemented as incentive based programs, which would not require additional authority to implement. NDEP has existing legal authority to apply for and receive grant funding pursuant to NRS 445B.230(2) and the ability to cooperate and contract with other governmental entities is also addressed under NRS 445B.230(3) (authority) and NRS 277.180 (provides authority for contracts between one or more public agencies). Many entities have the authority and have expressed an interest in applying for funding to implement a portion of this work within specific state departments and divisions, cities, counties, Tribes, or corporate settings. NDEP intends to seek funding for measures and will subgrant to other agencies where applicable.

3.3.6.5 Community Engagement Feedback

Insights from community engagement workshops indicate that residents support expanding the state's waste diversion programs. Specifically, residents from both Clark County and Washoe County identified the initiation of yard waste collection as a feasible and easily achievable goal. A Clark County resident expressed a particular interest in expanding their composting program, while a Washoe County resident lamented the lack of any composting capacity in their region. Additionally, opportunities such as food recovery programs and yard waste collection for commercial businesses were suggested. One individual highlighted the need for more recycling programs but acknowledged the perceived challenges of cost-effectiveness due to heating expenses. Overall, there was widespread support for these initiatives.

Table 23: Waste: List of Priority Actions

1. **Build Capacity:** *These actions are designed to promote the state's capacity to divert waste from landfills, with an emphasis on curbside collection of organic waste.*
W1.1 - Develop an education and outreach campaign to help residents understand how to reduce organic waste and compost, learning about waste's relation to greenhouse gas emissions. Outreach can be, but is not limited to, marketing campaigns, at-home pamphlets and geographic-specific partnerships among communities and schools, engaging with interested and affected parties. Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.
W1.2 - Develop a plan for piloting or scaling-up green waste curbside collection and composting at the local government level. Initiatives from Clark and Washoe County could be used as precedents. Piloting could involve, but is not limited to, single-family homes and neighborhoods, while scaling-up would involve the inclusion of apartment buildings and local businesses, as well as enlarging the geographic area of existing waste collection. Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

W1.3 - Support research and development on the circular economy by providing funding and technical assistance to local governments to conduct studies and pilot projects, as well as outreach education programs for residents, business owners and manufacturing industry members. Highlighting concepts such as sharing, leasing, reusing, repairing, refurbishing and recycling existing materials in our production systems.

Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

2. **Reduce emissions through reduction and waste diversion programs:** *These actions support the development of programs for local businesses to divert waste from landfills and create a closed-loop system for materials and products.*

W.2.1 - Encourage local governments to pilot waste diversion and sustainable materials management by providing funding and technical assistance to local governments, as well as helping them develop local composting facilities.

Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

W2.2 - Encourage residents and businesses to reduce waste and replace single-use plastics. Incentivization could include, but is not limited to, participating in the green business certification program for businesses (W2.3).

Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

W2.3 - Incentivize food diversion and recovery programs for businesses of all sizes. Particularly emphasis should go toward food-serving businesses and grocery retailers.

Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

W2.4 - Develop a state-wide green business certification program to incentivize small businesses to participate. Outreach of the green business certification program can include, but is not limited to, local government liaisons for the program and marketing incentives for local businesses (W2.2 and W2.3).

Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

W2.5 - Create a sustainable building materials management toolkit for businesses to understand how to reduce waste from construction, renovation, demolition, and retrofit projects. Outreach of the toolkit can include, but is not limited to, builder's lunch and learn and local business network presentations.

Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

W2.6 - Incentivize methane capture and utilization in waste management facilities and provide funding to conduct studies on the prioritization of specific waste facilities and their capacity for Landfill Gas Capture.

Authority to Implement: Key agencies for waste reduction measures would include State, Local or Tribal, waste management authorities, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3.3.6.6 Quantifying GHG Reductions

The quantification of these measures leverage a tailored spreadsheet tool, conceived specifically for the PCAP, to estimate emission reductions. This tool integrates comprehensive data sets, including state greenhouse gas inventory, to calculate emissions reductions from 2025 to 2050. This methodological approach ensures accurate, detailed assessments of the measure's impact on reducing emissions, supporting Nevada's sustainability goals. The following table presents the emission reductions. In the case of the Waste Focus area; 2025 will be a year for capacity building the program, and therefore no reduction will be observed. Emission reduction efforts are scheduled to start in 2026.

Table 24. Projected GHG emission reductions for priority measures in the Waste Focus Area.

	Yearly Emissions Reductions ($MTCO_2e$)		**Cumulative Emissions Reductions ($MTCO_2e$)**	
Priority Measure	by 2025	by 2030	2025-2030	2025-2050
1. Build Capacity	This measure facilitates the emissions reductions.			
2. Reduce emissions through reduction and waste diversion programs	This measure will start reducing emissions in 2026.	607,951	1,417,645	23,908,057
Total	0	607,951	1,417,645	23,908,057

The following assumptions were used in calculating the above emission reduction estimates. It should be noted that these assumptions were made to depict a potential pathway for Nevada to achieve its 2025 and 2030 emission reduction goals. Implementation of the waste priority measures is a means of working towards this scenario and ultimately, Nevada meeting its emission reduction goals:

- In 2021, Nevada had a recycling rate of 24%.[154] It is assumed that this will increase to a 35% recycling rate by 2030, focusing on LIDAC census tracts.
- The emission reductions quantified are mostly related to the decrease of methane emissions due to the increase on the composting rate.
- Other significant benefits of this policy were not quantified, such as air pollution benefits due to the decrease of the direct emissions of Particulate Matter and Volatile Organic Compounds and the indirect effect on ozone concentrations due to the direct emissions of methane.

3.3.6.7 Transformative Impact and Co-benefits for LIDACs

Waste diversion yields both direct and indirect benefits for the community. Primarily, it plays a role in reducing methane production in landfills, consequently lowering GHG emissions in the atmosphere. Additionally, waste diversion contributes to prolonging the life of landfills and mitigating undesirable aspects like odor in the region. Beyond environmental effects, communities benefit from programs such

[154] Nevada Division of Environmental Protection "2023 Recycling and Waste Reduction Report". 2023. https://www.leg.state.nv.us/Division/Research/Documents/RTTL_NRS444A.070_2023.pdf.

as curbside organic and recycling collection by gaining a deeper understanding of their waste generation. In addition, embracing a shift towards a circular economy fosters sustainable practices, reducing GHG emissions and heightening awareness around product life cycles. This transition not only promotes environmental consciousness but also translates into cost savings for consumers. It incentivizes businesses to innovate and adopt environmentally friendly methods.

Waste diversion programs can provide a number of indirect benefits to LIDACs. These initiatives can create economic opportunities by generating jobs and fostering resource conservation, which is especially beneficial in communities with limited access to resources. Addressing environmental justice concerns, waste diversion programs contribute to healthier surrounding environments and empower residents through education programs and skill-building. Additionally, cost savings and revenue generation from recycling initiatives alleviate financial burdens on individuals and the community. Waste diversion can ensure that all communities, regardless of socio-economic status, have access to and benefit from sustainable waste practices. Overall, these programs enhance community resilience, elevate environmental health, and create more sustainable practices. Figure 31 shows that LIDACs located in Central and East Las Vegas as well as eastern portions of Reno may benefit the most from the implementation of these measures.

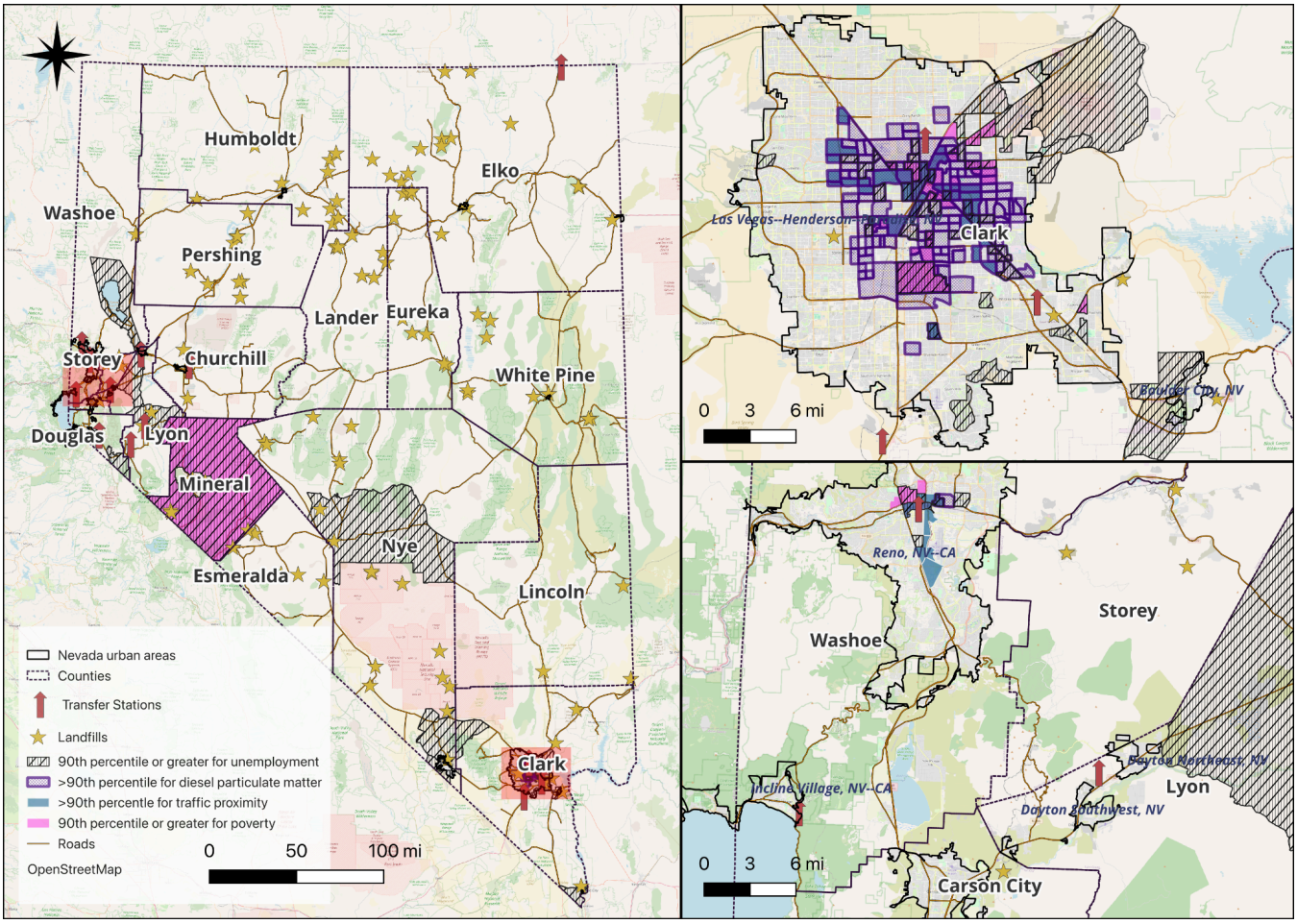

Figure 31. LIDAC census tracts that will most benefit from measures within the Waste focus area.

LIDACs in census tracts that rank in the 90th percentile or higher for unemployment, diesel particulate matter, traffic proximity, and poverty, and the location of transfer stations and landfills within Nevada. Source: Council on Environmental Quality 2022; NDEP.

3.3.6.8 Example Program or Initiatives

This section offers examples of how various measures within the Waste Focus Area can be packaged together to develop comprehensive and transformative programs across the state. Actual implementation may vary.

Table 25. Potential programs or initiatives within Measure 5: Waste.

Description	Actions
Organic Waste Diversion Programs	
Incentivize waste diversion and composting which includes piloting and evaluating the feasibility of scaling up curbside green waste collection and composting. (Precedents include Washoe County and Clarke County).	• W1.1 Develop an education and outreach campaign to help residents understand how to reduce organic waste and compost, learning about waste's relation to greenhouse gas emissions • W1.2 Develop a plan for piloting or scaling-up green waste curbside collection and composting at the local government level • W2.1 Encourage local governments to pilot waste diversion and sustainable materials management • W2.2 Encourage residents and businesses to reduce waste and replace single-use plastics. • W2.3 Incentivize food diversion and recovery programs for businesses of all sizes.

3.3.7 Focus Area 6:
Restore Landscapes and Sequester Carbon

Measures in this focus area promote restoration of and carbon sequestration in degraded landscapes. Related to these sectors is also emissions from wildfires, which is a major issue in the state, as discussed in Section 2.2.3.1. Priority measures include tree planting, ecological restoration, and adaptive reuse of brownfields and former mining sites, as well as capacity building. Measures support ongoing research on how land use, land use change, and the agricultural sector contribute to and potentially reduce GHG emissions. Measures are also included to support work being done in this focus area by Tribes in Nevada. Restored natural lands and urban greenspaces will create additional green spaces and recreational opportunities, increased biodiversity, and improved air and water quality.

3.3.7.1 Emissions Context

Apart from wildland fire emissions, the land use, land use change, and forestry sector was a net GHG emissions sink of 8.3 $MMTCO_2e$ in 2020. Sequestered emissions in 2020 are 1 $MMTCO_2e$ less than 2005, when the sector was a net GHG emissions sink of 9.3 $MMTCO_2e$. While it is difficult to project exactly how emissions from this sector will shift in the coming years, it is expected that more severe droughts and a less consistent snowpack to provide water during the growing season will impact the state's forests. The frequency and intensity of wildland fires is expected to influence this sector as well. Additionally, a 2023 study conducted by the Desert Research Institute to examine the carbon flux potential for natural and working lands in the state found that non-forest ecosystems in Nevada have the potential to sequester a significant amount of carbon, although the impact of the sequestration may be reduced, or even altered, due to flux in precipitation, temperature, and wildfires. A 2022 study by the Nature Conservancy that sought to understand sequestration potential in rangeland soils emphasized the potential of rangeland restoration to increase belowground carbon sequestration.[155]

3.3.7.2 Status of Programs in Nevada

Several ongoing efforts in Nevada prioritize carbon sequestration and green infrastructure development, brownfield redevelopment, and climate-smart agricultural practices. NDEP's existing Brownfields Program includes a revolving loan fund designed to help owners or developers of a previously contaminated site with remediation. Additionally, the program supports municipalities and non-profits who are interested in assessing existing brownfields sites.[156] Given that many of the brownfields in the state are sited within or in close proximity to LIDACs, the brownfields programs are particularly beneficial for those communities. At the municipal level, several efforts are already underway with regards to green infrastructure and carbon sequestration. For example, Reno, which has the oldest Urban Forestry program in the state, is prioritizing low-impact development (LID), green

[155] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.
[156] Nevada Division of Environmental Protection. "Brownfields." Accessed February 2, 2024. https://ndep.nv.gov/environmental-cleanup/brownfields.

infrastructure, and sustainable site development as a means to better manage storm events. The city has made a target of doubling its urban forest canopy to 10% by 2036, and ensuring that 85% of residents live within a reasonable distance from a heat island mitigation feature such as localized cooling through tree canopy cover.[157] Finally, two rural businesses in the state have taken advantage of the USDA's Rural Energy for America Program to help agricultural producers and rural small businesses purchase and install renewable energy systems and make energy efficiency improvements.[158]

3.3.7.3 Federal Funding

A range of federal funding opportunities support the priority actions listed in this measure (see Appendix B for a complete list). For example, the US Forest Service has an Urban and Community Forest Grants Program that funds projects intended to increase equitable access to trees and open space.[159] Additionally, through the US EPA, 48 different packages of federal funding that can be leveraged to support brownfields revitalization,[160] including the Brownfields Grants Program, the Brownfields Job Training Grant Program, and Mine Reclamation Funding.[161] Through the Green Infrastructure Federal Collaborative[162] several federal departments offer funding for green infrastructure projects, from EPA's Green Streets, Green Jobs, Green Towns (G3) Grant Program to FEMA's Building Resilient Infrastructure and Communities Program.[163]

3.3.7.4 Review Authority

The priority measures will be implemented as incentive based programs, which would not require additional authority to implement. NDEP has existing legal authority to apply for and receive grant funding pursuant to NRS 445B.230(2) and the ability to cooperate and contract with other governmental entities is also addressed under NRS 445B.230(3) (authority) and NRS 277.180 (provides authority for contracts between one or more public agencies). Many entities have the authority and have expressed an interest in applying for funding to implement a portion of this work within specific state departments and divisions, cities, counties, Tribes, or corporate settings. NDEP intends to seek funding for measures and will subgrant to other agencies where applicable.

[157] City of Reno. "Sustainability & Climate Action Plan," 2019. https://www.reno.gov/home/showpublisheddocument/82214/637050147692830000.
[158] US Department of Agriculture. "USDA Invests in Climate-Smart Infrastructure for Two Rural Nevada Businesses." Rural Development, December 9, 2021. https://www.rd.usda.gov/newsroom/news-release/usda-invests-climate-smart-infrastructure-two-rural-nevada-businesses.
[159] US Department of Agriculture Forest Service. "Announcing Urban and Community Forestry Funding," April 12, 2023. https://www.fs.usda.gov/inside-fs/leadership/announcing-urban-and-community-forestry-funding.
[160] Environmental Protection Agency. "Bipartisan Infrastructure Law: A Historic Investment in Brownfields." Announcements and Schedules, February 22, 2022. https://www.epa.gov/brownfields/bipartisan-infrastructure-law-historic-investment-brownfields.
[161] Environmental Protection Agency. "Bipartisan Infrastructure Law: A Historic Investment in Brownfields." Announcements and Schedules, February 22, 2022. https://www.epa.gov/brownfields/bipartisan-infrastructure-law-historic-investment-brownfields.
[162] Environmental Protection Agency, OW. "Green Infrastructure Federal Collaborative." Collections and Lists, October 6, 2015. https://www.epa.gov/green-infrastructure/green-infrastructure-federal-collaborative.
[163] Federal Emergency Management Agency. "Building Resilient Infrastructure and Communities," January 31, 2024. https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities.

3.3.7.5 Community Engagement Feedback

Community workshops, technical focus groups, and a questionnaire revealed that sequestering carbon is a secondary priority for participants, as compared to measures for efficiency and renewable energy. Many recognized that carbon sequestration does not necessarily yield the types of transformative and immediate results that the CPRG grant opportunity could provide, particularly within the short time frame before 2030. However, they did feel it was an important visible measure that could help increase community support for the entire program. Suggestions included improving urban forestry measures and revitalizing brownfields. Additionally, some participants also suggested that there needs to be a greater understanding of the market's role in this sector.

Table 26: Restore and Sequester Priority Measures

1. **Build capacity:** *This includes supporting community-based organizations, local governments, and nonprofit sectors with building capacity to address ecological restoration and carbon sequestration challenges, from planning to implementation phases.*
S1.1 - Support community organizations in LIDACs and Tribes with restoration planning and implementation. This can include, but is not limited to support and funding for tree and vegetation planting programs, site identification for maximal carbon sequestration and program development to get community members involved. Authority to Implement: Key agencies for restoration and sequestration measures would include State, Local or Tribal, conservation agencies, forestry divisions, land use agencies, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.
S1.2 - Develop a plan for statewide ecological restoration and carbon sequestration. This can include but is not limited to providing funding and technical assistance to local governments, as well as support in mapping and prioritizing sites for different sized projects. Authority to Implement: Key agencies for restoration and sequestration measures would include State, Local or Tribal, conservation agencies, forestry divisions, land use agencies, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

S1.3 Support research and development in carbon sequestration and restoration projects. This can include but is not limited to providing funding and technical assistance to local governments, aiding with mapping, GHG reduction capacity, knowledge-sharing on various technical projects (ex. green infrastructure and stormwater management) and the understanding of community co-benefits within carbon sequestration (ex. Urban heat island effect mitigation, better water quality).

Authority to Implement: Key agencies for restoration and sequestration measures would include State, Local or Tribal, conservation agencies, forestry divisions, land use agencies, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

2. **Restore and Sequester:** *This includes programs, policies, new technologies, and initiatives that promote ecological restoration and carbon sequestration.*

S2.1 Expand NDEP's Brownfields Program to incentivize carbon sequestration on brownfield sites. This can include, but is not limited to providing funding and technical assistance to local governments, aiding them in the prioritization of brownfields and their different carbon sequestration capacities.

Authority to Implement: Key agencies for restoration and sequestration measures would include State, Local or Tribal, conservation agencies, forestry divisions, land use agencies, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

S2.2 Incentivize ecological restoration projects with enhanced community benefits. This can include, but is not limited to providing funding and technical assistance to local governments and community groups, aiding with mapping, GHG reduction capacity, knowledge-sharing on various technical (ex. green infrastructure and stormwater management) and the understanding of community co-benefits within carbon sequestration (ex. urban heat island effect mitigation, better water quality).

Authority to Implement: Key agencies for restoration and sequestration measures would include State, Local or Tribal, conservation agencies, forestry divisions, land use agencies, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

S2.3 Increase the coverage and health of the tree canopy. This can include, but is not limited to providing funding and technical assistance to local governments and community groups, aiding in developing canopy cover percentage goals, program development for tree planting and awareness on community co-benefits (ex. Reduction of urban heat island effect, better air quality, shade capacity).

Authority to Implement: Key agencies for restoration and sequestration measures would include State, Local or Tribal, conservation agencies, forestry divisions, land use agencies, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

S2.4 Develop climate-smart agricultural practices such as healthy soil practices, efficient water management strategies, integrated pest management, diversification of crop varieties, and adaptive management techniques.[52] This can include, but is not limited to aiding farmers with such practices by providing funding and outreach programs including local workshops and presentations on the above adaptive management techniques.

Authority to Implement: Key agencies for restoration and sequestration measures would include State, Local or Tribal, conservation agencies, forestry divisions, land use agencies, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

S2.5 Support carbon sequestration via green infrastructure, active transportation, renewable energy projects. This can include but is not limited to providing funding and technical assistance to local governments and community groups, including aiding in the program development for green infrastructure, active transportation, and community renewable energy projects.

Authority to Implement: Key agencies for restoration and sequestration measures would include State, Local or Tribal, conservation agencies, forestry divisions, land use agencies, environmental protection agencies, sustainability entities, or planning agencies, all of which have the authority to provide funding to incentivize these types of programs. Please see above for NDEP specific authority to acquire and implement federal funding.

3.3.7.6 Quantifying GHG reductions

The quantification of this measure leverages a tailored spreadsheet tool, conceived specifically for the PCAP, to estimate emission reductions. This tool integrates comprehensive data sets, including state greenhouse gas inventory, to calculate emissions reductions from 2025 to 2050. This methodological approach ensures accurate, detailed assessments of the measure's impact on reducing emissions, supporting Nevada's sustainability goals. The following table presents the emission reductions.

Table 27. Projected GHG emission reductions for priority measures in Restore Landscapes and Sequester Carbon Focus Area.

	Yearly Emissions Reductions ($MTCO_2e$)		**Cumulative Emissions Reductions ($MTCO_2e$)**	
Priority Measure	by 2025	by 2030	2025-2030	2025-2050
1. Build Capacity	This measure facilitates the emissions reductions.			
2. Restore and Sequester	This measure will start reducing emissions in 2030.	29	29	10,074
Total	0	29	29	10,074

The reductions above include the following assumptions:

- The measure will promote ecological restoration and carbon sequestration, achieving 395,000 trees planted by 2030.
- The first 5 year the new restored areas do not capture a significant amount of carbon, but after that the carbon sequestration factor is (metric ton C/hectare/year)[164]
- Other significant benefits of this policy were not quantified, such as climate resiliency, ecosystem services and air pollution benefits.

3.3.7.7 Transformative Impact and Co-Benefits for LIDACs

Developing actions focused on restoring ecosystems and sequestering carbon have transformative impacts and co-benefits. These actions empower community-based organizations, local governments, and the nonprofit sector to tackle ecological restoration and carbon sequestration, enhancing their ability from planning to implementation. The co-benefits include ecosystem services improvement, air decontamination, and a cooling effect through increased greenery and healthier ecosystems. Specifically, expanding ecological restoration and carbon sequestration projects can lead to enhanced biodiversity, improved air and water quality, increased carbon capture, and the promotion of sustainable agricultural practices. Supporting green infrastructure and renewable energy projects contributes to reducing urban heat islands, fostering active transportation, and enhancing community well-being.

[164] Environmental Protection Agency, OAR. "State Inventory Tools, Land-Use Land Use Change and Forestry Module." Data and Tools, August 10, 2017. https://www.epa.gov/statelocalenergy/download-state-inventory-and-projection-tool.

These actions benefit LIDACs and Tribes in Nevada by directly addressing environmental justice and sustainability challenges. By supporting community organizations in these areas with restoration and carbon sequestration projects, the initiatives aim to improve local environmental conditions, enhance access to cleaner air and water, and foster healthier living environments. These efforts not only contribute to mitigating climate change impacts but also empower these communities through increased participation in environmental decision-making, leading to strengthened resilience and improved quality of life. LIDACs and Tribal lands that are close to brownfield sites and that rank in the 90th percentile or above for impervious surfaces and expected agricultural loss due to climate change, stand to benefit from the implementation of these measures.

Figure 32 shows the location of LIDACs that rank at the 90th percentile or higher for potential agricultural loss due to climate change and high levels of impervious cover. These are mostly located in rural counties and urban counties, respectively. These are LIDACs that would most benefit from restore and sequester measures that improve agricultural production on degraded lands or improve landscapes and ecosystems within urban areas. Key landscapes such as agricultural lands, mesquite bosques, desert washes, and Sierra Nevada forests and woodlands are also shown, in addition to Indian Lands (according to the BIA).

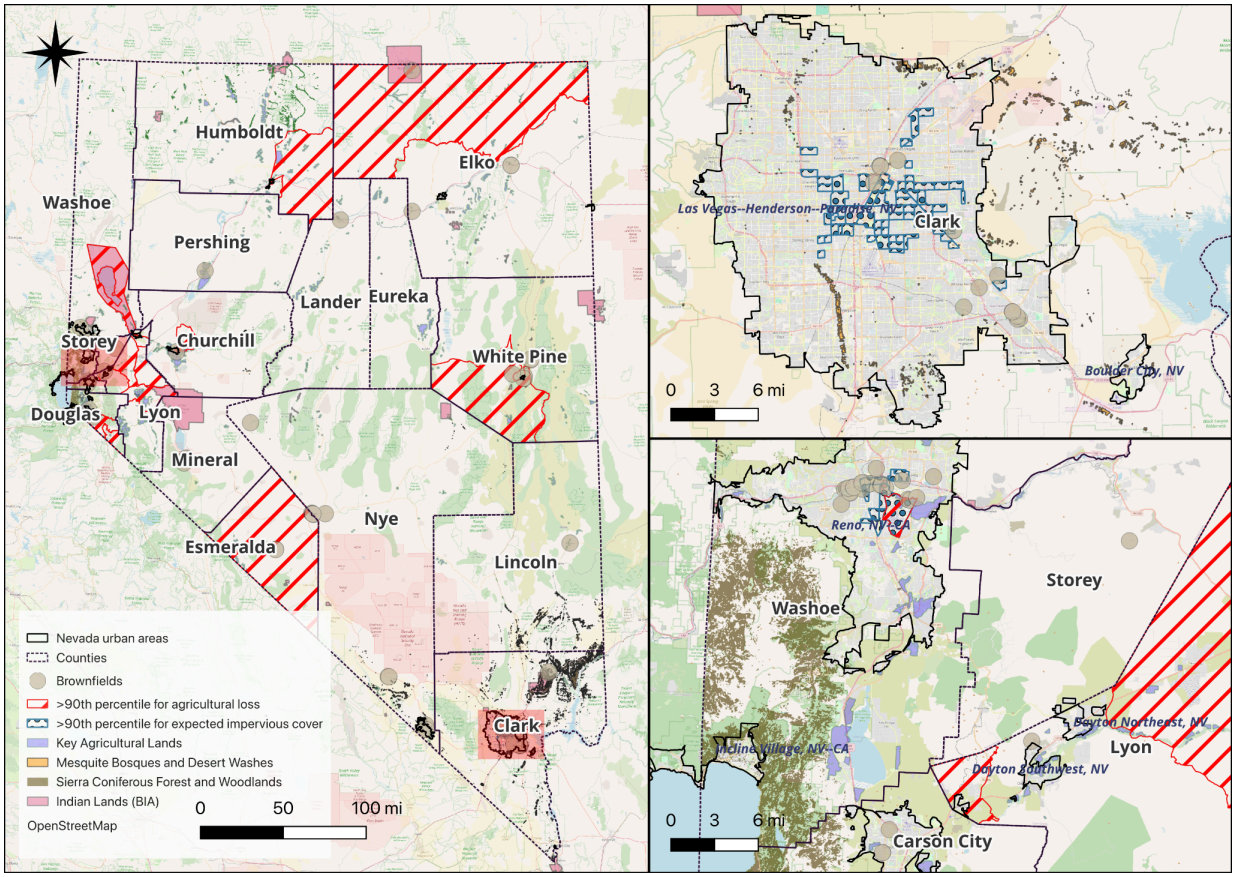

Figure 32. LIDACs benefitting from implementation of measures in the Restore and Sequester focus area.
Source: Council on Environmental Quality, 2022.

3.3.7.8 Potential Programs or Initiatives

This section offers examples of how various actions within the Restore and Sequester Focus Area can be implemented. Actual implementation may vary.

Table 28. Potential programs or initiatives within Measure 6: Restore Landscapes and Sequester Carbon.

Description	Actions
Community-centered restoration and carbon sequestration projects	
Support existing state land conservation goals and ecological restoration programs, and develop new programs on healthy soils, urban forestry, and green infrastructure/adaptive reuse, linking these efforts with active transportation and renewable energy projects where possible.	• S1.1 - Support community organizations in LIDACs and Tribes with restoration planning and implementation • S1.2 - Develop a plan for statewide ecological restoration and carbon sequestration • S1.3 Support research and development in carbon sequestration and restoration projects • S2.4 Develop climate-smart agricultural practices such as healthy soil practices, efficient water management strategies, integrated pest management, diversification of crop varieties, and adaptive management techniques • S2.5 Support carbon sequestration via green infrastructure, active transportation, renewable energy projects
Repurpose brownfields and mines for carbon capture	
Build on NDEP's existing Brownfields Program to incentivize the use of former mines and brownfield sites for CO_2 storage and Incentivize or require ecological restoration or green infrastructure/ adaptive reuse of these sites wherever possible.	• S1.2 - Develop a plan for statewide ecological restoration and carbon sequestration • S2.1 Expand NDEP's Brownfields Program to incentivize carbon sequestration on brownfield sites • S2.5 Support carbon sequestration via green infrastructure, active transportation, renewable energy projects

3.4 PCAP GHG Emission Reductions

The full implementation of all measures within the six PCAP sectoral-level focus areas will reduce GHG emissions within the state over time. A summary of the total emission reductions is shown in Table 29.

Table 29. Summary of GHG emission reductions achieved by PCAP measures.

Focus Area	Reductions by 2025 (MT CO_2e)	Reductions by 2030 (MT CO_2e)	Reductions by 2050 (MT CO_2e)
Transportation	24,635	896,591	993,268
Buildings	62,788	602,495	851,576
Energy System	1,389,966	5,999,602	5,998,085
Industry	364	261,515	261,515
Waste	0	607,951	1,591,893
Restore and Sequester	0	29	2,261
Total	1,477,753	8,368,182	9,698,598

The execution of the PCAP measures will set Nevada on the path to meet the state's emission reduction targets by 2025 and 2030 established in 2019 by SB 254.[165] The implementation rate of the PCAP measures peaked in 2030 after yearly emission reductions will reach a steady state due to CPRG funding running out.Additional efforts associated with the CCAP are expected to empower Nevada to achieve all of its emission reduction objectives, as outlined in Figure 33.

[165] Nevada State Legislature. Bill SB254 Overview, Pub. L. No. 254. Accessed February 2, 2024. https://www.leg.state.nv.us/App/NELIS/REL/80th2019/Bill/6431/Overview.

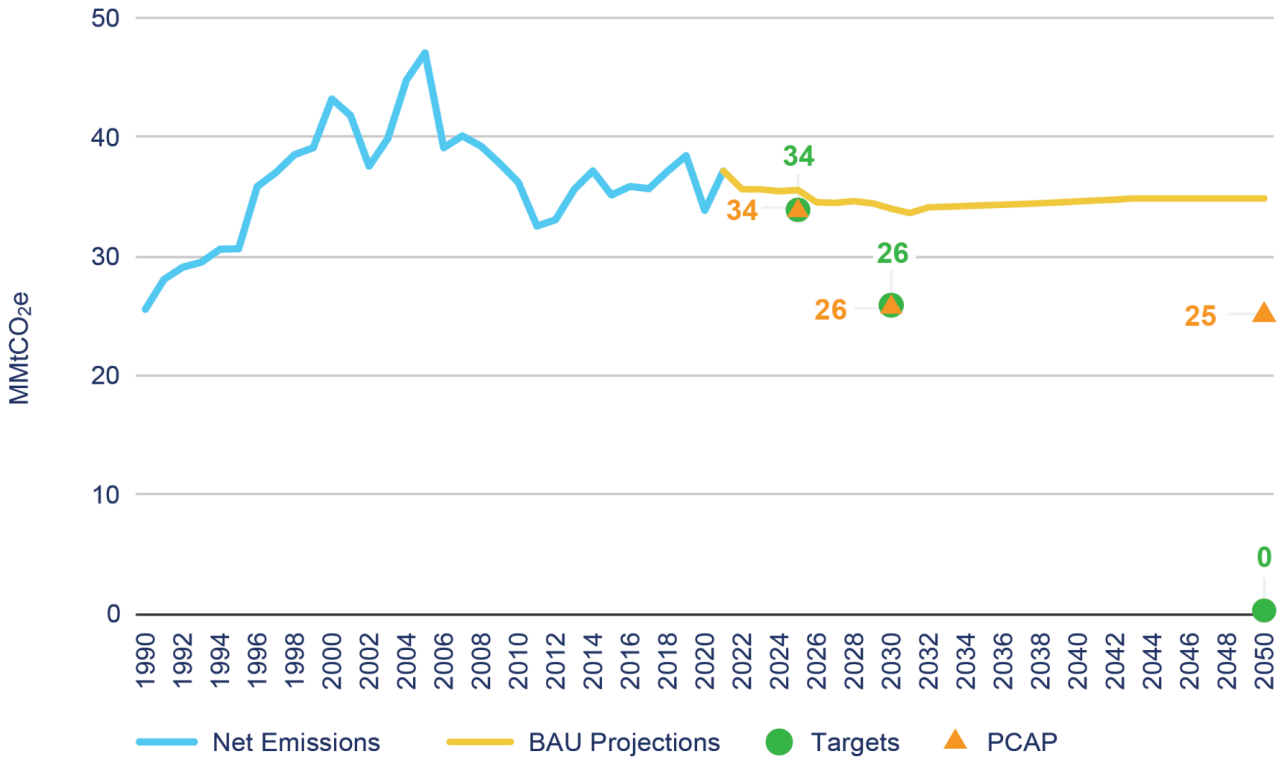

Figure 33. Illustration of historical emissions, projected emissions, Nevada's GHG targets and PCAP emissions[166]

Nevada's actual GHG emissions from 1990 to 2021 (blue line), projected emissions through 2050 assuming business as usual (yellow line), State GHG emission reduction targets (green circles), and projected emissions resulting from the full implementation of PCAP measures (orange triangles).

[166] Nevada Division of Environmental Protection. "Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2043," 2023. https://ndep.nv.gov/.