

Climate Pollution Reduction Grants Program: Implementation Grants General Competition

Funding Opportunity: EPA-R-OAR-CPRGI-23-07

Application Title:	<i>All-In</i> Home and Building Improvement Hub
Type of Application:	Coalition Application
Lead Applicant:	Clark County Department of Environment and Sustainability Marci Henson, (702) 455-3118, mhenson@clarkcountynv.gov
Coalition Members:	City of Boulder City City of Henderson City of Las Vegas City of Mesquite City of North Las Vegas Regional Transportation Commission of Southern Nevada Southern Nevada Water Authority
Funding Requested:	Tier A; \$500,000,000
Brief Description of GHG Measures:	The <i>All-In</i> Home and Building Improvement Hub establish a one-stop shop for home and building improvements that enhance indoor air quality and comfort, increase water and energy efficiency, and reduce utility bills. It will provide residents and businesses with the technical assistance, financial resources, and contractors needed to do the work.
Sector(s):	Residential buildings
Expected Total Cumulative GHG Emission Reductions:	Total cumulative reductions achieved by 2030 are estimated to be 61,964 MTCO ₂ e from direct implementation and 50,502 MTCO ₂ e in indirect impacts. Total cumulative reductions achieved by 2050 are estimated to be 337,717 MTCO ₂ e from direct implementation and 1,050,549 MTCO ₂ e in indirect impacts.
Location(s):	Las Vegas-Paradise-Henderson MSA
Applicable PCAP Reference(s):	The <i>All-In</i> Home and Building Improvement Hub is included as a priority GHG reduction measure within the <i>Las Vegas-Henderson-Paradise MSA PCAP</i> , of which Clark County is the lead organization.

Section 1: Overall Project Summary and Approach

a. Description of GHG Reduction Measures

Clark County (lead applicant) recognizes the urgency of the climate crisis and the need to accelerate action on high impact greenhouse gas (“GHG”) emissions reduction strategies. Understanding this challenge, Clark County launched the *All-In Clark County* initiative in 2020 to take a regional, inclusive approach to planning for a sustainable, resilient future. Building upon the tremendous successes of *All-In*, Clark County led the development of the Las Vegas-Henderson-Paradise Metropolitan Statistical Area (“MSA”) Priority Climate Action Plan (“PCAP”), which identified priority GHG reduction measures for the region. With more than 50% of GHG emissions in the region attributed to energy use in buildings¹ and limited availability of existing programs and incentives to address that energy use, a comprehensive building improvement program yields the greatest opportunity to leverage the Climate Pollution Reduction Grant (“CPRG”) Implementation Program. As Clark County encompasses all the Southern Nevada region that is experiencing severe continued drought, it is also essential from a climate resilience and mitigation standpoint that this program address water conservation in the region.

Proposed GHG Reduction Measures Undertaken: Through the PCAP, Clark County and regional partners identified the need to **advance building efficiency and decarbonization while addressing household energy burdens** via the development a one-stop shop - the *All-In* Home and Building Improvement Hub (the “Hub”). The Hub will establish a nexus for home and building owners to reduce utility bills, increase energy and water efficiency, and enhance indoor air quality and comfort. Additionally, the Hub will enable residents and businesses to pursue comprehensive whole-building retrofits with multiple outcomes and benefits in mind, from energy and water efficiency, to electrification, to health and well-being by providing the technical assistance, financial resources, and contractors needed to do the work. In an effort to continually evaluate program success, participants will be surveyed as part of the close-out process to identify opportunities for improved comfort, physical health, and financial benefits.

Modeled after existing programs such as EnergyFit Nevada and the Philadelphia’s Built-to-Last program², as well as the many variations that began with the US Department of Energy Better Buildings Neighborhood Program³, the Hub will consolidate federal, state, and local incentives to support home and building improvements through a stacking or braiding model. This model refers to the concurrent use of a range of different funding types to accomplish a greater goal. The Hub will match residents with a variety of programs and mechanisms including utility-sponsored incentives programs, federal tax incentives, and other funding or financing sources under development through state-level implementation of the Infrastructure Investment and Jobs Act (“IIJA”) and Inflation Reduction Act (“IRA”) funding. CPRG funds will be used to support the program and fill in gaps in funding, particularly grants to fund upfront costs, services, and staff. Clark County understands that other federal grant funds from IIJA or IRA cannot be used for the building improvement project for which CPRG funds are allocated. Thus, one of the key roles of the Concierge service will be to develop tailored braiding of allowable combinations of funds to fill gaps for the maximum GHG reduction. While additional financial support is expected to be limited based on income or other criteria, Energy Concierges will be available to support all residents and commercial

¹ Clark County (2024). Las Vegas-Henderson-Paradise MSA Priority Climate Action Plan.

²Philadelphia Energy Authority. Built-to-Last Program. <https://philaenergy.org/programs-initiatives/built-to-last/>

³ US Department of Energy, Energy Efficiency & Renewable Energy. Better Buildings Neighborhood Program. <https://www.energy.gov/eere/better-buildings-neighborhood-program/better-buildings-neighborhood-program>

building owners to meet their energy and water savings goals by providing information on all relevant opportunities.

Low-income and disadvantaged communities (“LIDACs”) will be prioritized in outreach/engagement and associated project selection. In addition, it is planned that most of the proposed use of funds (80%) will be designated for providing no-cost retrofits for over 20,000 households with the greatest needs to reduce energy burden. For scale, this would be the equivalent to reaching approximately 20% of the estimated 85,000 owner-occupied households that are below 200% of the Federal Poverty Level.⁴

Tasks, Milestones, and Potential Risks: Given the intended scale of the Hub, design and implementation of the program is a significant undertaking. As such, alternative funds have been requested to support the design and piloting of the program, which is further described in Section 1b. Funding requested through the CPRG program will support program ramp-up and implementation. A summary of the major tasks and milestones identified for both phases are detailed in Table 1.

Table 1. Tasks and Milestones

Program Phase	Tasks/Milestones
Program Design Phase	Evaluate model program designs and develop operational workplan
	Coordination with financial institutions and utilities to identify incentives to be leveraged through the program
	Procurement and setup of CRM software to track program participant information and support ongoing administration and maintenance
	Selection, onboarding, and training of qualified contractors and program leads
	Community engagement to identify candidate households and existing support channels for program onboarding; Development of marketing materials and program collateral
	Administer pilot program, conducting audits and installations with pre-selected pilot households
Program Implementation Phase	Assess programmatic needs to scale up program and design benefit levels and qualification processes to meet GHG and LIDAC benefits objectives
	Community engagement to identify candidate households; Refinement of channels and marketing materials and program collateral based on pilot results
	Launch full program, conducting audits and installations community-wide
	Conduct measurement and verification studies to evaluate program effectiveness
	Semi-Annual Progress Reports
	Detailed Final Report

Potential risks that could disrupt implementation of the Hub, as well as strategies that have been put in place to mitigate those risks are highlighted in Table 2. In terms of impact to GHG reductions, these risks would mostly challenge ramp up for the program which could limit the cumulative benefits that accrue by 2030. However, impact calculations anticipate this dynamic and assume a gradual ramp up with 2025 and 2026 having the lowest anticipated uptake.

⁴ U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. (2020). Low-Income Energy Affordability Data - LEAD Tool - 2018 Update. Retrieved from: <https://www.energy.gov/scep/slsc/lead-tool>

Table 2. Risks and Assumptions

Potential Risks	Strategy in Place to Mitigate Risks
<i>Minimal interest and willingness from residents and businesses to participate in the program.</i>	<ul style="list-style-type: none"> ✓ Clark County is implementing a robust education campaign designed to raise awareness of <i>All-In</i> programs, grow climate literacy, and spark behavior change. ✓ Clark County is currently working with community-based organizations to identify the best outreach strategies to support residents who would benefit from energy and water efficiency incentives that could reduce household energy and water bills. ✓ Throughout the PCAP development the County has been engaging low-income and disadvantaged community members to understand their interest in and the barriers to home improvements. One of the biggest concerns shared throughout the engagement process is the 20-40% increase in electricity and natural gas rates, respectively, in Southern Nevada. Residents are currently very motivated to find ways to reduce their utility bills.
<i>Minimal interest and qualifications from regional contractors to participate in the program.</i>	<ul style="list-style-type: none"> ✓ Clark County has met with relevant workforce stakeholders, including the Southern Nevada Buildings Trades Union and the BlueGreen Alliance, to obtain input regarding workforce development needs and general interest in deep energy retrofit programs. ✓ The County has issued a Request for Information to identify if there are existing local or national organizations that have the required skills and experience to launch and/or operate and market the Hub.
<i>Renters who make up a substantial portion of the LIDAC population may have limited ability to participate.</i>	<ul style="list-style-type: none"> ✓ Landlords and any other building owner would be free to participate in the program and make use of information provided to assist them with finding and assisting with making building upgrades that benefit tenants. ✓ The Hub will create specific collateral that renters could use to inform their landlords of opportunities to address issues they face.

Roles and Responsibilities of Coalition Members: Clark County will administer the Hub in coordination with leadership and staff from participating cities and engaged local agencies, including the Cities of Boulder City, Henderson, Las Vegas, Mesquite, and North Las Vegas, and the Regional Transportation Commission of Southern Nevada and Southern Nevada Water Authority. These regional partners formalized the establishment of the *All-In* Regional Climate Collaborative (“Climate Collaborative”) through a fully executed interlocal agreement in January 2024. Clark County intends to submit a memorandum of agreement (“MOA”), signed by all Coalition participants, by July 1, 2024. Coalition participants will contribute time to support and promote implementation and evaluation of the effectiveness of the program. Example support and promotion activities could include: providing requested data and analysis related to energy and water consumption, conservation programs, renewable energy generation, air quality and other community benefits, and dollar savings; reviewing and commenting on reports, assessments, and other relevant documents; participating in the selection of community partners and contractors; attending Coalition meetings; sharing relevant experiences; reporting on progress, as applicable; actively collaborating and coordinating with Coalition Participants, government and community stakeholders, and community-based partners; hosting or attending community outreach and engagement events; and general marketing and outreach efforts to increase community participation in the program.

Relationship to the PCAP and CPRG Goals: Clark County and the Coalition participants selected this GHG reduction measure - **advance building efficiency and decarbonization while addressing household**

energy burdens - as a priority based on its ability to meet the goals of the CPRG program, including ability to achieve significant near-term GHG reductions, achieve substantial community benefits, particularly in low-income and disadvantaged communities, complement other funding sources, and develop an innovative, replicable, scalable program. The sections that follow leverage existing data and tools to enumerate the significant GHG reduction potential of the Hub (Section 2) and identify geographic areas with the greatest potential to achieve substantial community benefits throughout all of Southern Nevada (Section 4). The relationship with existing funding sources and transformative impact of the program are detailed in Sections 1b and 1c, respectively. The objective is to leverage CPRG funds to create a sustainable program for all of Southern Nevada. As program impacts are demonstrated and documented, the program will build a case for continued support from other potential sources of funding from across diverse levels of government to community foundations and other philanthropy.

b. Demonstration of Funding Need

The successful implementation of a sustainable Hub requires a dedicated and comprehensive funding strategy. While there are several existing incentives and funding opportunities that can be leveraged to support building efficiency and electrification, these existing sources fall short in meeting the financial requirements of launching a comprehensive one-stop-shop that can yield meaningful GHG emissions reductions and community benefits at scale.

Gaps in Funding: The current landscape of energy utility incentives and ratepayer programs in the region are insufficient to support whole-building or whole-home upgrades. According to the American Council for an Energy-Efficient Economy (“ACEEE”) utility scorecards, Southern Nevada utilities fall short in achieving substantial net electricity savings, offering comprehensive energy efficiency programs for low-income residents, and actively engaging with the community.⁵ Additionally, the funding structure for ratepayer programs in Nevada, which primarily rely on an additional charge on customer utility bills without supplementary funding sources, often results in lower-cost, lower-impact upgrades, like lighting efficiency. As a result, there is a historical trend of unintended disinvestment in programs to address building efficiency, with a focus on commercial and industrial sectors rather than addressing the needs of residential and low-income communities.⁶ Substantial, collaborative efforts are required to bridge this gap and redirect resources to address the disparities in utility programs in Southern Nevada.

Additionally, while Nevada has some of the best solar capacity in the country, previous utility policies have made rooftop solar installations a significant financial barrier for most people. The Nevada Clean Energy Fund (“NCEF”) has applied for funding through the Solar for All program to enable affordable, resilient, and clean solar energy for low-income households. If received (notification of potential funding is expected to occur in March 2024), this could be a significant funding stream disseminated through the Hub to address decarbonization and high utility bills.

Additional Sources of Support: There are several federal funding opportunities that may support building electrification and efficiency but are insufficient to achieve the large-scale transformation necessary to this

⁵ ACEEE (2023), Utility Energy Efficiency Scorecard. Retrieved from <https://www.aceee.org/research-report/u2304>.

⁶ Geller, Howard. Southwest Energy Efficiency Project (SWEET). 2018. “Maintaining Strong Utility Energy Efficiency Programs Beyond 2018: Challenges and Prospects in the Southwest”. <https://www.swenergy.org/wp-content/uploads/maintaining-strong-utility-energy-efficiency-programs-beyond-2018-challenges-and-prospects-in-the-s.pdf>

region. Federal incentives (e.g., tax credits)—those existing and made available through IRA—are available to households, however, may not reduce the burden of upfront costs for low-income households. The County has sought alternative funding sources to support the design and pilot of the Hub through the Energy Efficiency and Conservation Block Grant (“EECBG”) program. These funds will support consultant services to design the program; establish Standard Operating Procedures for the Hub to run effectively; verify a pool of qualified contractors; identify and train Energy Concierges; develop a program website, assistance portal, and education program; collaborate with community-based organizations to facilitate outreach and engagement; and coordinate with the building trades union and other professional groups to ensure a robust workforce is ready for this scale of retrofits.

Neither the EECBG nor existing programs can achieve the large-scale transformation needed to scale this program to address the more than 730,000 residential units currently in the region. The EECBG funds will be integral to building a solid foundation for the Hub to operate and to scale. The CPRG funding is being sought to scale-up the program to reach more community members, fill gaps in existing funding stacks to allow for the disadvantaged community members to receive upgrades for zero or subsidized costs, and deliver ongoing administration and marketing of the program. This funding stream is critical to ensure the Hub can continue beyond the initial program development phase and that the region can achieve the level of GHG emissions reductions from building energy use needed to meet the 2030 and 2050 targets.

c. Transformative Impact

Over the last several years, Southern Nevada has experienced significant changes in its climate. Increases in high heat days, extreme precipitation events, wildfires, high winds, and mega drought conditions are impacting the health, economy, and safety of the region. These impacts coupled with increasing utility rates, a high rate of underemployment, and growing housing affordability challenges, have only reinforced the need for the Southern Nevada community to come together to enhance overall sustainability.

While there are numerous examples of jurisdictions and agencies within Southern Nevada taking action to address climate change, there has never been a climate-focused effort truly scaled to encompass the entire region. Through planning efforts over the past five years, it has become apparent that working collectively as a region is a far more effective way to overcome the many challenges that exist, including those associated with water and energy efficiency, clean energy, and decarbonization efforts as noted in the previous section of this application. Many of these challenges also exacerbate inequities. For example, many existing efficiency incentives in the region are distributed as rebates that require upfront payment of project costs, which is a challenge for low-income and disadvantaged households.⁷ Each program also has its own set of criteria and paperwork required, which makes it a time-consuming, administratively burdensome, and complicated process for individual households with limited time and capacity. Additionally, there is little education to encourage adoption of sustainable technologies, including heat pumps, which could be better marketed as “two-way air conditioning” or other terms that would resonate in an environment dominated by cooling needs. This leaves a large gap in awareness of opportunities and willingness or ability of community members to take advantage of programs that do exist.

⁷ Elevate Energy. January 2024. Guidelines for Maximizing the Benefits of Federal Investments in Buildings. <https://www.elevatenp.org/wp-content/uploads/2023-Elevate-report-Guidelines-Federal-Investments-in-Buildings-v7.pdf>

This substantial gap is exactly what the Hub aims to fill. A fully operational and sustainable Hub has the potential to create transformational change in several areas essential to meeting the needs of all community members in Southern Nevada now and into the future.

Clark County has openly referred to and sought guidance from those running similar programs in other regions and states in the design of the Hub. However, there has yet to be an example of a Hub that is functioning sustainably in a regulated energy market environment. Given the urgency of the climate crisis, and particularly the impacts in Southern Nevada, Clark County and its Coalition partners cannot wait for that issue to be addressed. Therefore, the ability of this region to create a sustainably funded program will be a national model for replication by those in similar situations.

Areas of Transformative Impact: The Hub is well suited to demonstrate transformative impact in several key areas:

- **Existing Buildings:** Addressing GHG emissions reductions from existing buildings is one of the largest challenges due to the lack of transparency for individual building emissions and the lack of policy tools available to local governments. The most effective mechanism to address existing building emissions is through incentive programs. Incentive programs for a project like the Hub can take varying forms, including financial assistance, technical support, and streamlined application and permitting processes. This region has seen much success in operating incentive programs for households achieving transformative impact through the Southern Nevada Water Authority (SNWA) programs. SNWA operates one of the largest incentive programs in the nation and has reduced water demand by approximately 15 billion gallons annually through its incentive programs.⁸ Coupling this existing foundation of success with a robust targeted marketing and outreach campaign, the Hub is well positioned to achieve significant reductions in GHG emissions from existing buildings in the short term.
- **Economic Diversification:** Economic diversification has been a priority for Clark County for years and yet the region's economy is still dependent on gaming and tourism. Studies have identified the potential of other industries to grow in Southern Nevada, including emerging and sustainable technologies.⁹ The Hub will support the growth of high-quality job opportunities for a range of skill sets and experience levels within the sustainable energy space. Operation and administration of the Hub alone will directly create many new jobs, from finance and operations experts to grant administrators and customer service representatives to construction managers and IT professionals. Indirectly, the Hub will support an ecosystem of hundreds of partners and contractors that provide marketing and outreach support, home and building assessments, and direct installation of energy conservation measures and verification of outcomes achieved. Expending the bulk of funds as expected could sustain nearly 500 jobs in these trades over the life of the program.¹⁰ The requirements to pay prevailing wages may improve the ability of smaller, often minority-owned businesses to attract more talent and grow.

⁸ SNWA (2024). 2024 Water Resource Plan. <https://www.snwa.com/water-resources/water-resource-plan/index.html>

⁹ Las Vegas Global Economic Alliance (2021). A Comprehensive Economic Development Strategy for Southern Nevada. <https://lvgea.org/wp-content/uploads/2021/08/LVGEA-2021-CEDS.pdf>

¹⁰ Estimated from: Truitt, et al. National Renewable Energy Lab. 2022. "State-Level Employment Projections for Four Clean Energy Technologies in 2025 and 2030. <https://www.nrel.gov/docs/fy22osti/81486.pdf>

- **Housing Affordability:** One of the greatest challenges facing the region is housing affordability, as the cost of housing as a percentage of income has been rising across the region.¹¹ The Hub can support a significant reduction in utility bills, which have risen by up to 40% over the last year. Reducing these monthly costs will free up money for rent and mortgage payments, groceries, and transportation to work. The Hub will prioritize delivering support to residents at risk of losing their homes, due to increased utility costs.
- **Water:** Given its location in the Mojave Desert and the megadrought the region has been experiencing for the last two decades in the Colorado River basin, the region's primary water source, water conservation is essential in Southern Nevada. Through the Southern Nevada Water Authority and its partners, the region is a world leader in water conservation. Per capita water use in Southern Nevada decreased by 51% between 2002 and 2022, even as the population within the area increased by approximately 49% during the same timeframe.¹² To meet projected future demands with a dwindling water supply, continued water savings are critical for a sustainable future. Therefore, identifying additional water savings opportunities will be a primary focus for the Hub, along with energy. Pumping, treating, and conveying drinking water to residents requires significant energy which means that conserving water provides the co-benefit of reducing the region's GHG emissions.

Southern Nevada is at a critical juncture where the CPRG program could help meet the moment to put the region on a different trajectory. Investment in energy efficiency has been limited in recent years creating a backlog of need.¹³ In addition, there are a significant number of homes constructed in the early 2000's that are now coming due for weatherization and other upgrades.¹⁴ Nearly 30% of all the housing in the region was constructed between 2000 and 2009¹⁵ and many of those homeowners will be making decisions that could lock-in another 20 years of fossil fuel dependence and inefficient water use. In the absence of CPRG to rapidly deploy investment in energy efficient technologies at scale, a significant opportunity will be lost. While not incorporated into the calculations for the direct impact of CPRG funds, the potential for transformative change in this region to shift the home improvement industry towards decarbonization by enhancing awareness in the community and developing the appropriate workforce cannot be understated.

Section 2: Impact of GHG Reduction Measures

a. Magnitude of GHG Reductions from 2025 through 2030

With emissions from building energy representing nearly half of regional emissions (12,167,306 MTCO₂e), addressing building efficiency and decarbonization represents an opportunity for significant emissions reductions. Through funding from the CPRG Program, retrofits driven by the Hub are expected to directly

¹¹ US Census (2012-2022). American Community Survey: Selected Housing Characteristics.

¹² SNWA (2024). 2024 Water Resource Plan. <https://www.snwa.com/water-resources/water-resource-plan/index.html>

¹³ Geller, Howard. Southwest Energy Efficiency Project (SWEET). August 11, 2018. Maintaining Strong Utility Energy Efficiency Programs Beyond 2018: Challenges and Prospects in the Southwest. <https://www.swenergy.org/wp-content/uploads/maintaining-strong-utility-energy-efficiency-programs-beyond-2018-challenges-and-prospects-in-the-s.pdf>

¹⁴ U.S. Census Bureau, New Private Housing Units Authorized by Building Permits: 1-Unit Structures for Las Vegas-Henderson-Paradise, NV (MSA) [LASV832BP1FHSA], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/LASV832BP1FHSA>

¹⁵ U.S. Census Bureau. "PHYSICAL HOUSING CHARACTERISTICS FOR OCCUPIED HOUSING UNITS." American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2504, 2021, <https://data.census.gov/table/ACSST1Y2021.S2504?g=050XX00US32003>. Accessed on March 5, 2024.

reduce 113,480 MTCO₂e by 2030 through a combination of energy savings in projects in low-income homes directly funded by the program (61,964 MTCO₂e); energy savings from additional participation in other energy savings programs, stimulated through the program's awareness raising and education (50,502 MTCO₂e), and from reduced energy to supply water conserved through water efficiency measures installed (1,014 MTCO₂e). Calculations to determine the cumulative GHG reduction potential of homes in Clark County are based on a combination of dynamic factors, including:

- The intended scale and speed to ramp up to upgrade homes as quickly as possible;
- Energy savings potential of a range of different retrofit options;
- Expected changes to grid carbon intensity in the near and long-term; and
- The expected life of equipment and upgrades installed directly by the program.

Reduction estimates are believed to be conservative as calculations have been limited to only include projects occurring through CPRG funding, excluding the likely additional benefits that will result from 'braiding' with other federal grant programs. While direct CPRG support is expected to be limited to residential structures, the Hub will be an information resource that also assists commercial building owners in locating and pursuing incentives for improved energy performance, which is another potential benefit not claimed in this application.

Total Homes Impacted: The total number of homes impacted will be dependent on the total award and other factors including the development of additional partnerships. However, this program's overall intent is to deliver targeted and comprehensive home energy upgrades to low income and disadvantaged communities and create a lasting platform to accelerate investment in building efficiency over the long term throughout Southern Nevada. If the full \$500 million is awarded, it is estimated that there will be \$400 million available in implementation dollars, assuming 80% of grant funds are directed to covering comprehensive retrofits within low-income and disadvantaged communities. With that level of funding available for retrofits, approximately 20,844 homes could receive support to cover the costs of appropriate energy and water conservation measures. The remaining 20% of grant funds would be used for project coordination, implementation, and informational support, which is expected to benefit another 2,802 homes annually through indirect support to take advantage of the historic opportunity to improve the efficiency and health of their homes, while leveraging other incentives.

Household Energy Savings Potential: The primary source of data for energy use reduction potential is the National Renewable Energy Lab ("NREL") ResStock, End Use Savings Shapes ("EUSS") dataset.¹⁶ The EUSS dataset allows for developing reduction estimates that capture how the weather of Southern Nevada impacts the effectiveness of energy conservation measures across a range of home typologies and conditions that are likely to exist in the field.

The EUSS dataset provides several pre-defined measure packages for varying levels of weatherization/building envelope measures and electrification. This impact analysis is based on the average energy impact for select measure packages, which produce net energy savings estimates for each retrofit type. Moving away from onsite stationary combustion will result in increased electricity use for

¹⁶ National Renewable Energy Laboratory, "End-Use Savings Shapes Residential Round 1 Technical Documentation and Measure Applicability Logic," https://oedi-data-lake.s3.amazonaws.com/nrel-pds-building-stock/end-use-load-profiles-for-us-building-stock/2022/EUSS_ResRound1_Technical_Documentation.pdf

those components of the building load. However, when paired with comprehensive measures to weatherize homes, enhance building envelopes, and improve cooling efficiency, net electricity use annually can decrease. It is important to note there are possible combinations of measure packages that could increase overall energy use. The home energy assessment phase of each project will screen for those potential situations and adjust recommendations appropriately. Specialists in the Hub will also be knowledgeable of other factors such as the region's limited water resources and avoid recommending evaporative cooling technologies that, despite high energy efficiency ratings, are too water intensive for the region.

For homes receiving direct support and a comprehensive retrofit, program dollars could be spent more effectively by implementing a standard weatherization package rather than the most expensive additions, allowing more homes to be reached. At the same time, it is recognized that there will be a mix of individual actions that participants opt into for a variety of logistical constraints. This analysis assumes that approximately 28% of grant funds will be dedicated to supporting low-income households with a comprehensive decarbonization package, covering the entire cost of upgrades. The remaining 72% of funds will be directed toward providing low-income households with efficiency-first weatherization support that complements other funding sources. For more information on the rationale of this approach, see section 2d.

For homes receiving indirect support it is likely that a range of options will be implemented where some households may seek to only improve the building envelope through weatherization, whereas others may seek to electrify all their equipment. For these homes, an assumed spread of 25% uptake for EUSS Package 2 and 4, 40% uptake for EUSS Package 9, and 10% uptake for EUSS package 10 were utilized. This reflects the kind of support the Hub staff would provide to inform homeowners which measures are most cost-effective, while recognizing that some may choose other combinations. The estimated average energy savings per household for each measure package is included in Table 3 and was calculated using the average household size of 1,974 square feet. Additional details on the EUSS Package Definitions are provided in the attached Technical Appendix.

Table 3. Summary of Measure Package Energy Reduction Potential

Package Type	Average Electricity Savings per Household (kWh)	Average Gas Savings per Household (therms)
Enhanced Envelope (EUSS Package 2)	1,130	64
High Efficiency Heat Pump (EUSS Package 4)	2,194	211
Whole Home Electrification + Conventional Envelope (EUSS Package 9)	2,439	352
Whole Home Electrification + Enhanced Envelope (EUSS Package 10)	2,498	352

Program Ramp Up: With momentum gained in the pilot program supported through EECBG funding, the Hub aims to upgrade 2,084 homes right away in calendar year 2025 using CPRG funds. The annual rate of projects completed will ramp up and peak during program years 2027 and 2028, and then begin to close out prior to the end of 2029, as represented in Table 4.

Table 4. Estimated Ramp Up Schedule for Direct Program Support

	2025	2026	2027	2028	2029
Calendar Year Upgrades Made	2,084	4,169	5,211	5,211	4,169
Year-End Cumulative Upgrades	2,084	6,253	11,464	16,675	20,844

Accounting for Cleaner Electricity: As the number of homes retrofitted and resulting energy savings steadily increase, the rate of emissions from electricity generation is expected to decline in response to a greater share of clean energy contributing to grid electricity generation. The NREL Cambium Model incorporates enacted legislation such as the Nevada Renewable Portfolio Standard¹⁷ and other factors to provide scenarios of future grid carbon intensity. While Cambium provides a range of grid carbon intensity scenarios for this analysis, the “Mid-Case with 95% Decarbonization by 2050” was selected as the primary scenario to be modeled as it aligns best with the outcomes for economy wide GHG reductions sought by the Inflation Reduction Act. Cambium Model exports provide projected emissions factors for all future years through 2050 are applied to changes in electricity use to avoid overestimating GHG reduction potential.

Cumulative GHG Reductions: Annual GHG reductions for each calendar year incorporate the total energy use reductions that result from all prior year retrofits delivered through the program. Cumulative GHG reductions achieved through 2030 represent a sum of each year’s annual reduction for the program period. Annual reductions and cumulative reductions are included in Tables 5 and 6, respectively.

Table 5. Annual GHG Reductions (MTCO₂e / Year)

Participant Type	Energy Source	2025	2026	2027	2028	2029	2030
Direct Installation	Electricity	644	1,790	2,786	3,331	3,702	3,241
	Natural Gas	1,239	3,717	6,815	9,913	12,392	12,392
Indirect Support	Electricity	126	698	1,580	2,110	2,597	2,905
	Natural Gas	309	1,854	4,945	8,035	11,126	14,217
Water Energy	Electricity	118	219	232	191	136	119

* Note totals may not sum perfectly due to rounding

Table 6. Cumulative GHG Reductions (MTCO₂e)

Participant Type	Energy Source	2025	2026	2027	2028	2029	2030
Direct Installations	Electricity	644	2,435	5,221	8,553	12,255	15,496
	Natural Gas	1,239	4,956	11,772	21,685	34,076	46,468
Indirect Support	Electricity	126	823	2,403	4,513	7,110	10,016
	Natural Gas	309	2,163	7,108	15,144	26,270	40,487
Water Energy	Electricity	118	337	569	759	895	1,014

* Note totals may not sum perfectly due to rounding

Permanence: When assessing the future impact of energy conservation measures, it is common to incorporate considerations for the effective useful life of each energy conservation measure. The focus of

¹⁷ Nevada Public Utilities Commission. Renewable Portfolio Standard.
https://puc.nv.gov/Renewable_Energy/Portfolio_Standard/

the Hub will be weatherization measures and improvements to heating, ventilation, and air conditioning (“HVAC”) systems, which have effective useful lives which are longer than the 2025-2030 horizon and all savings are expected to remain intact by 2030.

b. Magnitude of GHG Reductions from 2025 to 2050

Energy saving retrofits implemented by 2030 will continue to have an impact on household energy use well beyond the CPRG program period. In addition, the Hub is intended to become fully self-sufficient by 2030 to at least continue to stimulate additional investments in energy efficiency in perpetuity. Total cumulative reductions achieved by 2050 are estimated to be 337,717 MTCO₂e from direct implementation and 1,050,549 MTCO₂e in indirect impacts for a total of 1,388,266 MTCO₂e.

Direct Impacts: As noted in Section 2a, this program is expected to provide direct implementation of energy efficiency and fuel switching measures to 20,844 homes by the end of 2029. The energy savings delivered to these homes will continue even after the funds have been exhausted. Eventually some of this impact is expected to decline as some of the equipment installed through the program reaches its effective useful life.

Weatherization measures should perform for 30 years, and savings are expected to maintain steady performance. The effective useful life of HVAC and other equipment for decarbonization is assumed to be 12 years.¹⁸ Due to these factors the annual rate of savings from electricity conservation declines from 3,241 to 308 MTCO₂e per year by 2050, while the impact of reduced stationary combustion of natural gas remains constant.

Indirect Impacts: In addition to driving near-term GHG reductions from buildings through the life of the CPRG program, Clark County and the Coalition partners aim to establish the Hub as an ongoing resource to support beneficial electrification and energy and water efficiency. While funding levels may vary, with many complementary funding streams and Clark County actively seeking new ones, the program is expected to drive additional reductions through 2050. For simplicity, the annual number of retrofits is assumed to continue at the same rate and proportion of measures taken through 2050, reaching as up to an additional 56,000 homes over that period.

Permanence: It is expected that the effective useful life of HVAC equipment will begin to decrease savings starting in 2037, which is 12 years after the first installations. By 2040, annual electricity savings are expected to decline by over 2.2 million kWh. However, net savings persist from permanent changes due to fuel switching and durable improvements to building envelopes.

c. Cost Effectiveness of GHG Reductions

Prioritizing cost-effective GHG reductions is an important consideration to ensure the maximum climate benefit of the CPRG program is achieved. The nature of the Hub will focus efforts on low-income communities and offer participants opportunities for substantial household improvements. At this preliminary stage of program design, it is difficult to characterize the range and probability of project cost

¹⁸ Mayernick and Stenger. National Renewable Energy Laboratory. “Overview of the Inflation Reduction Act of 2022 (IRA) Home Energy Rebate Tool. Table 3. <https://www.nrel.gov/docs/fy23osti/86700.pdf>

combinations in detail. However, due to the Hub's nature, it will continuously improve cost effectiveness by adjusting the portfolio of services unlike other projects focused on a single GHG reduction mechanism.

Achieving the desired outcomes of the Justice40 initiative is one factor influencing the cost effectiveness of GHG reductions. Lower-income households have slightly lower energy reduction potential in absolute terms due to smaller house sizes and lower total baseline energy use. As program dollars are focused on assisting as many LIDAC households as possible, there is a tradeoff in potential energy savings.

A key component to extending the cost effectiveness of this program is the fact that it aims explicitly to “braid” CRPG funds with other energy efficiency and water conservation funding sources to deliver the highest level of benefits possible to low-income and disadvantaged communities in Clark County. While care will be taken to avoid combining CPRG funds with other federal incentive programs, there is a significant opportunity to leverage existing utility rebate programs. At the intended implementation level, an additional \$21.4 million in funding from utility rebate programs will extend the program's reach.

As implementation details are finalized, every feasible opportunity to leverage additional resources to improve cost effectiveness will be explored. Assuming a full award of \$500 million and cumulative direct savings of 61,964 MTCO₂e by 2030 achieved with CPRG Program dollars; total cost effectiveness is estimated at \$4,406 per metric ton of CO₂e. This simple metric of GHGs reduced for the investment does not consider societal benefits such as utility cost savings or the social cost of carbon.

d. Documentation of GHG Reduction Assumptions

This section briefly summarizes key assumptions used in the analysis. Additional details are provided in the attached Technical Appendix.

Household Energy Savings Potential: The energy impact of building energy retrofits is based on estimates obtained from the NREL ResStock EUSS.¹⁹ This resource provides the most comprehensive set of energy conservation measure performance values across a range of real-world circumstances that could be matched to a mix of homes in Clark County. Both the modeled baseline and upgrade measure package datasets were filtered to Clark County, Nevada. Results were then filtered to only include all single-family detached and single-family attached homes with natural gas heating fuel and central air conditioning, and to exclude buildings already equipped with ducted heat pump heating types. Average savings for measure packages were derived from a sample of 1,335 model homes meeting those criteria.

Retrofit Cost and Program Reach: The direct reach of the proposed Hub is dependent on the total funding available as well as how those funds could be used most cost effectively across the range of energy conservation measures. The following assumptions and factors underpin the estimated impact specifically associated with the CPRG Implementation Grant:

- The size of the award was assumed to be \$500,000,000.
- The share of the award applied to implementation was assumed to be 80% or \$400,000,000.
- Approximate costs of retrofits were estimated at \$16,950/home for weatherization and \$36,741/home for standard weatherization + whole home electrification. Individual measure costs

¹⁹ National Renewable Energy Laboratory. ResStock End Use Savings Shapes, 2022.1 Release TMY3.
<https://resstock.nrel.gov/datasets>

included in each package were obtained from a compilation of installed measure costs from programs nationwide.²⁰

- Additional funding from NV Energy rebates were assumed to offset implementation costs. The values of the rebates were estimated at \$400/home for weatherization, \$3,400/home for heat pumps, and \$600/home for heat pump water heaters and other appliances.
- The share of implementation funds allocated to each type of retrofit was assumed to be 72% for weatherization and 28% for standard weatherization + whole home electrification in order to support full decarbonization of a targeted share of homes while extending the program's reach with lower-cost weatherization support. This share is based on the relative proportion of households in Clark County identified through the Climate and Economic Justice Screening Tool ("CEJST") as below 200% of the FPL. Note that this split does not imply how income criteria would be used but represents a reasonable split for funds reserved for those households with the greatest need.

Indirect Impacts: The "one-stop-shop" approach to energy and water rebate programs has proven to be effective at driving additional adoption of energy and water conservation measures than just the availability of rebates alone. The estimated magnitude of these effects is based on the use of a "net-to-gross ratio", which balances program free-ridership against spillover and other market effects induced by the program.²¹ It is assumed that the Hub will have wider market effects stimulating energy retrofits across all household types based on the net-to-gross ratio of 1.21, reported in the Market Effects Analysis of the US Department of Energy Better Buildings Neighborhood Program²², which follows a similar model as the intended program design of the Hub. Additionally, by pairing the energy savings with the regionally well-known water conservation incentive program, market penetration is expected to be even higher than assumed here.

The net-to-gross ratio is applied to an estimated current market for home energy savings projects of \$261,568,492 per year. This estimated current market value was derived from the total spending on home improvements within the Las Vegas-Henderson-Paradise MSA (\$1.8 billion / year) by the national share of home improvement spending on energy efficiency projects (15%).²³

The mix of energy conservation measures for indirect households is assumed to take advantage of all project types:

- The education resources of the Hub should guide most participants (40%) to the high impact but cost-effective standard weatherization + whole home electrification package.

²⁰Less et al. Lawrence Berkeley National Labs. August 2021. The Cost of Decarbonization and Energy Upgrade Retrofits for US Homes. Appendix G. https://eta-publications.lbl.gov/sites/default/files/final_walker_-_the_cost_of_decarbonization_and_energy.pdf

²¹ Violette and Rathbun. National Renewable Energy Lab. September 2014. "Estimating Net Savings: Common Practices. Uniform Methods Project, Chapter 17". <https://www.energy.gov/sites/prod/files/2015/01/f19/UMChapter17-Estimating-Net-Savings.pdf>

²² U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. June 2015. "Market Effects of the Better Buildings Neighborhood Program Final Evaluation Volume 5". <https://www.energy.gov/eere/analysis/articles/market-effects-better-buildings-neighborhood-program-final-evaluation-volume>

²³ Joint Center for Housing Studies of Harvard University. 2023. "Improving America's Housing". Excel Data Tables, A-4 & A-5. <https://www.jchs.harvard.edu/improving-americas-housing-2023>

- It is assumed that an equal share (25% each) would take weatherization only or heat pump only measures.
- Lastly, a minority of participants (10%) would move forward with advanced envelope + whole home electrification.

Given the current environment with substantial additional rebates available from other Inflation Reduction Act programs, the indirect impacts could be higher.

Cleaner Electricity: Forward looking projections for grid carbon intensity were obtained from the National Renewable Energy Laboratory's (NREL) 2022 Cambium Model.²⁴ While there are many available scenarios to choose from, this analysis selected the "Mid-Case 95% Decarbonization Scenario". Under this scenario, the projected carbon intensity of electricity in the AZNM eGRID region is 115.5 kg CO₂ per MWh in 2030 and 12.8 kg CO₂ per MWh in 2050.

Permanence: The changes made in typical home energy retrofit projects have an effective useful life of the equipment or weatherization measures resulting in diminishing future savings:

- For measures involving fuel switching, it is possible but unlikely that customers will revert back to combustion-based space conditioning, water heating, and cooking. All reductions associated with reduced stationary combustion are assumed to be permanent.
- Assumption that the impacts for weatherization will last 30 years and the impacts for heat pumps and other equipment is 12 years.²⁵
- Savings adjustments to account for effective useful life were estimated from the performance of a heat pump operating in a highly insulated home as opposed to the pre-weatherization condition of the home.

Section 3: Environmental Results – Outputs, Outcomes, and Performance Measures

a. Expected Outputs and Outcomes

This section describes the environmental outputs and outcomes expected to be achieved through the CPRG grant funding for the Hub. The Hub will support the Environmental Protection Agency's (EPA) Fiscal Year 2022-2026 Strategic Plan by aligning with Goal 1, "Tackle the Climate Crisis"; Objective 1.1, "Reduce Emissions that Cause Climate Change" and Objective 1.2, "Accelerate Resilience and Adaptation to Climate Change Impacts", as well as Goal 4, "Ensure Clean and Healthy Air for All Communities"; Objective 4.1, "Improve Air Quality and Reduce Localized Pollution and Health Impacts" and Objective 4.2, "Reduce Exposure to Radiation and Improve Indoor Air".

The Hub will produce the following types of **outputs** through the grant period:

- Number of home or energy and health assessments;
- Number of weatherization upgrades;
- Number of energy-saving pieces of equipment installed by type;
- Number of staff hired to administer the Hub and support retrofits; and

²⁴ Gagnon, Pieter; Cowiestoll, Brady; Schwarz, Marty (2023): Cambium 2022 Data. National Renewable Energy Laboratory. <https://scenarioviewer.nrel.gov>

²⁵ Mayernick and Stenger. National Renewable Energy Laboratory. "Overview of the Inflation Reduction Act of 2022 (IRA) Home Energy Rebate Tool. Table 3. <https://www.nrel.gov/docs/fy23osti/86700.pdf>

- Percentage of funds distributed to low-income and disadvantaged populations is defined as 200% of Federal Poverty Level.

The Hub is expected to result in environmental, social, and health-related **outcomes** throughout and beyond the grant period, as summarized in Table 7. As the program will use income and other qualifications to guide the level of support offered, these outcomes will be concentrated among LIDACs in the region.

Table 7. Expected Outcomes

Outcome	Quantification
<i>Reduction in cumulative metric tons of GHG emissions</i>	As summarized in Section 2, the Hub will yield direct GHG emissions reductions of 61,964 MTCO ₂ e from 2025 to 2030 and 337,717 MTCO ₂ e from 2025 to 2050.
<i>Lower energy demand and reduced energy bills for residents in LIDACs</i>	Based on current residential energy rates, ^{26,27} annual average cost savings from home efficiency and decarbonization retrofits are estimated at over \$1,000 per year for existing homes using natural gas. In rural areas without natural gas service, where homes rely on inefficient electric heating or propane, the potential savings could be even greater.
<i>Increased resilience to climate change impacts</i>	Weatherization and improved home efficiency help reduce peak demand, easing the grid's burden during periods of prolonged heat. This lowers energy demand, improving the resiliency of Southern Nevada's energy infrastructure, especially in extreme heat events. Water savings and conservation measures will reduce total water use per capita, which will extend the regional water supply and ensure a sustainable water future.
<i>Reduced exposure to criteria air pollutants ("CAPs") and hazardous air pollutants ("HAPs")</i>	If the Hub retrofits 20,844 residential structures by 2030, estimated savings would cut over 7 million therms of natural gas, resulting in reductions in criteria air pollutants: NO _x (36.36 tons), total particulate matter (2.94 tons), SO _x (0.23 tons), and VOCs (2.13 tons); as well as hazardous air pollutants ²⁸ (4.36 tons). ²⁹ On average, each home that eliminates natural gas use would see a reduction of approximately 3.95 pounds of criteria air pollutants and 0.41 pounds of hazardous air pollutants per year.
<i>Increase in high-quality jobs</i>	Based on industry job multipliers ^{30,31} , the program could sustain approximately 497 high skilled jobs annually, with potential multipliers leading to an additional 437 jobs in upstream manufacturing industries and another 445 local service jobs.
<i>Increase in water savings from conservation and efficiency efforts</i>	As the Hub leverages existing water conservation and efficiency rebates, it is assumed that the annual household water savings from implementing water main leak replacement, indoor appliance retrofits, and water smart landscaping

²⁶ NV Energy. Energy Pricing Plans: Standard Electric Rate. <https://www.nvenergy.com/account-services/energy-pricing-plans>. Accessed. 2/22/24.

²⁷ Southwest Gas Corporation (2024), Statement of Rates: Effective Rates Applicable to Southern Nevada Schedules. Retrieved from https://www.swgas.com/1409205269308/10-11A-Statement-of-Rates-SNV---QGC_Eff-1-1-2024.pdf

²⁸ Includes 2-Methylnaphthalene, 3-Methylnaphthalene, 12-Dimethylbenz(a)anthracene, Acenaphthene, Acenaphthylene, Anthracene, Benz(a)anthracene, Benzene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Butane, Chrysene, Dibenzo(a,h)anthracene, Dichlorobenzene, Ethane, Fluoranthene, Fluorene, Formaldehyde, Hexane, Indeno(1,2,3-cd)pyrene, Naphthalene, Pentane, Phenanthrene, Propane, Pyrene, Toluene.

²⁹ Air quality emissions factors sourced from AP 42, Fifth Edition, Volume I Chapter 1: External Combustion Sources.

³⁰ Economic Policy Institute (2019), Updated employment multipliers for the U.S. economy. Retrieved from <https://www.epi.org/publication/updated-employment-multipliers-for-the-u-s-economy/>

³¹ National Renewable Energy Laboratory (2022), State-Level Employment Projections for Four Clean Energy Technologies in 2025 and 2030. Retrieved from <https://www.nrel.gov/docs/fy22osti/81486.pdf>

Outcome	Quantification
	upgrades are 6,560, 18,807, and 17,410 gallons per home per year, respectively. ³² Using these estimates, the Hub is expected to yield cumulative water savings reductions of over 760 million gallons by 2030.

b. Performance Measures and Plan

This section describes the proposed performance measures that will be the mechanism to track, measure, and report progress toward achieving the expected outputs and outcomes for the Hub, as described in Section 3a. Measures and their respective units are documented in Table 8. Measures will be tracked through a customer relationship management (“CRM”) tool, which will track outputs and outcomes at a household level and enable evaluation of progress at a programmatic level. For measures that require additional calculation, including GHG reductions and CAP/HAP reductions, measures will be quantified and disclosed on an annual basis. Post-installation energy savings verification will be conducted for an appropriate sample of participants as part of a comprehensive program evaluation plan.

Table 8. Performance Measures

Measure	Unit
Homes assessed, by demographic or business type respectively	Number of homes
Homes retrofitted, by demographic or business type respectively	Number of homes
Energy and water conservation measures installed by type	Number of measures
Existing financial incentives (e.g., utility rebates, tax credits) leveraged through the program	Number and total value of rebates, credits, etc.
Highly skilled workers trained to meet program needs	Number of trainings and certifications obtained
Jobs supported	Number of total labor hours and labor hours by trade apprentices
Project level and program-wide energy and water savings delivered	MMBTUs or gallons
Project level and program-wide cost effectiveness	MMBTU/\$, MTCO ₂ e/\$, Gallons/\$
Energy or water expenditure reductions delivered through the program	Dollars Saved
GHG reductions delivered through the program	MTCO ₂ e
CAP/HAP reductions delivered through the program	Metric tons
Improved comfort, physical health, and financial condition of participants	Participants ratings

c. Authorities, Implementation Timeline, and Milestones

As this will be a voluntary program providing technical and financial assistance, the County and its partners are fully authorized to move this program forward. Once the program is operational, Clark County can distribute funds for home and building improvements, as done through various other existing programs. Major applications for grant funding require approval by the Clark County Board of Commissioners; it is

³² Water savings estimates provided by the Southern Nevada Water Authority.

expected that the Board of County Commissioners will review and approve this application prior to submission to EPA.

Clark County will administer the Hub in coordination with leadership and staff from participating cities and engaged local agencies—including the Cities of Boulder City, Henderson, Las Vegas, Mesquite, and North Las Vegas, and the Regional Transportation Commission of Southern Nevada and Southern Nevada Water Authority—who have formalized the establishment of the Climate Collaborative through a fully executed interlocal agreement and demonstrated specific support for this grant through an MOA. Participants will contribute time to support and promote implementation and evaluate the effectiveness of the program, with the authority to carry out marketing, outreach, and coordination efforts to increase community participation and secure community partners and contractors.

A detailed implementation timeline, including milestones for completing specific tasks by the end of the grant period are outlined in Table 9.

Table 9. Implementation Timeline and Milestones

Funding Source	Project Activities/Milestones	Schedule
EECBG	Program design tasks, as described in Table 1.	Program design and pilot activities to be completed with EECBG funds through 2025 Q4*
CPRG	Assess needs to scale up program	To be completed during 2024 Q4 and 2025 Q1
	Community engagement to identify candidate households; Refinement of channels and marketing materials and program collateral based on pilot results	Primarily to be completed during 2024 Q4 to 2025 Q2, with ongoing community engagement throughout the period of performance
	Launch full program, conducting audits and installations community-wide	Launch in 2025 Q3 and continue through duration of period of performance
	Semi-Annual Progress Reports	Submitted twice each year during period of performance; schedule for submission to be established by EPA after grant awarded
	Conduct measurement and verification studies to evaluate program effectiveness	To be completed in Q3 and Q4 of 2029
	Detailed Final Report	To be submitted within 120 calendar days of completion of period of performance

*Funds from EECBG will be tracked and expended separately from funds from CPRG over this one-year overlap.

Section 4: Low-Income and Disadvantaged Communities

a. Community Benefits

This section discusses and quantifies, where feasible, the direct and indirect benefits of the Hub to LIDACs, defined in this analysis as communities identified as disadvantaged by CEJST.

Summary of Community Benefits: The Hub will be available throughout the full boundary of Clark County to deliver maximum benefits to both urban and rural communities, however, the immediate near-term

focus for the program will be to reach low-income households. It is intended that the Hub will review and prioritize applications based on income levels, prioritizing lower income households. The location of low-income households overlaps significantly with the areas identified as disadvantaged by CEJST, of which the census tracts are listed in the attached list of census tract IDs. A more detailed summary of expected direct and indirect benefits to LIDACs is included in Table 10.

Table 10. Summary of Benefits to LIDACs

Benefit	Summary and/or Quantification
<i>Reduction in the impact of climate hazards</i>	A reduction in GHG emissions will mitigate global climate change and minimize the impact of climate hazards on the region. This is likely to yield positive benefits for LIDACs, primarily because these communities face disproportionate impacts due to climate change. For example, heat vulnerability in Southern Nevada is highest among populations in the central and eastern valley, communities that are disproportionately people of color and more economically challenged than other parts of the region ³³ ; these communities also overlap with the LIDACs included in the attached list of census tract IDs.
<i>Lower energy demand and reduced energy and water bills for residents in LIDACs</i>	Census tracts with higher energy burden, which have been sourced from CEJST, serve to benefit the most from retrofits and are listed in the attached list of census tract IDs. As seen in Table 10, Federal Poverty Level 0-100% will see the greatest savings as a share of income. As a result, this group will see a significant reduction in average energy burden and see an 8% increase in savings as a share of income. Additionally, with improved water conservation, the region will see reduced water demand and consequently lower water utility bills.
<i>Increased resilience to climate change impacts</i>	By alleviating the burden of high energy expenses, as well as improving the efficiency of homes, low-income households will have additional financial resources for enhancing overall resilience. For example, the ability to afford to cool homes during the summer months will improve resilience against extreme heat.
<i>Reduced exposure to criteria and hazardous air pollutants</i>	The Hub is also likely to yield significant indoor air quality benefits for participants through elimination of natural gas use. An estimation of community-wide reduction in CAPs and HAPs is included in Section 3a. Poor indoor air quality is an issue that is prevalent in LIDAC communities; this can be indicated by assessing rates of asthma prevalence as proxy indicator (see the attached list of census tract IDs).

Table 11 details the current average income and energy burden by FPL, as well as the estimated average annual GHG emissions savings and annual cost savings from households implementing whole-building retrofits.³⁴ Households in the 0-100% FPL would benefit the most from these retrofits in terms of improved energy burden and cost savings relative to income.

³³ Regional Transportation Commission of Southern Nevada (2022). Extreme Heat Vulnerability Analysis. Retrieved from: https://www.rtcnv.com/projects-initiatives/wp-content/uploads/sites/4/2022/10/Extreme-Heat-Vulnerability-Report-UPDATED-2022_AppD.pdf

³⁴ Data provided in Table 10 sourced from CEJST.

Table 11. Estimated Energy Cost Reductions

Federal Poverty Level	Avg. CO ₂ e Savings ³⁵	Avg. Income ³⁶	Current Avg. Energy Burden ³⁷	Avg. Cost Savings ³⁸	Improved Energy Burden	Savings as Share of Income
0-100%	2.6	\$11,651	17%	\$963	8%	8%
100-150%	3.1	\$26,325	7%	\$1,164	3%	4%
150-200%	3.4	\$36,715	5%	\$1,297	2%	4%
200-400%	3.0	\$57,894	3%	\$1,128	1%	2%
400%+	3.1	\$114,557	2%	\$1,148	1%	1%

Avoided Disbenefits: While the Hub aims to provide positive impacts to LIDACs, there are potential disbenefits that are important to consider and address. The potential disbenefits and mitigation strategies to ensure they are avoided are detailed below.

Table 12. Disbenefits and Mitigation Strategies

Disbenefit	Mitigation Strategies
<i>Residents from LIDACs could face barriers in accessing the Hub's services, such as lack of awareness, language barriers, lack of access to digital materials, or limited time to be present for upgrades</i>	<ul style="list-style-type: none"> ✓ The Hub will partner directly with community-based organizations to conduct extensive outreach and educational campaigns in multiple languages and through appropriate communication channels and offer resources to overcome scheduling barriers. ✓ The Hub will provide offline communication channels and in-person assistance opportunities for program registration and information. Communication will be provided in multiple languages, and efforts will be made to hire multi-lingual Energy Concierges.
<i>Even with financial incentives, the upfront costs of home or building improvements could be prohibitive for some households.</i>	<ul style="list-style-type: none"> ✓ The Hub will provide grants to cover upfront costs for households, as feasible, and fill gaps in funding or financing through other programs, available to households in lower income tiers (200% and below or other)
<i>The transformative impact the program may have on the home upgrade industry could lead to job displacement if small contractors and disadvantaged businesses do not have access to sufficient job training to maintain qualifications for evolving technologies and practices.</i>	<ul style="list-style-type: none"> ✓ The Hub will coordinate directly with contractors, labor unions, and professional associations to support training programs to ensure opportunities for skill development.

Tracking Progress: Clark County, through the Hub, will assess, quantify, and report on the benefits and avoided disbenefits outlined in this section on an annual basis. This assessment will be conducted at a

³⁵ Calculated from ResStock, End-Use Savings Shapes TMY3, Package 9. National Renewable Energy Laboratory. ResStock End Use Savings Shapes, 2022.1 Release TMY3. <https://resstock.nrel.gov/datasets>

³⁶ U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy. (2020). Low-Income Energy Affordability Data - LEAD Tool - 2018 Update [data set]. Retrieved from <https://dx.doi.org/10.25984/1784729>.

³⁷ IBID

³⁸ Calculated with current single family retail energy rates from SW Gas and NVE.

County-wide level and within each city's jurisdiction. The performance measures outlined in Section 3 will be tracked to assess benefits and avoided disbenefits.

Additionally, a CRM tool will be used for tracking client intake, timelines of outreach, completion of a full program application, and all other stages of program participation. During the intake process, factors affecting the household, such as utility cost burdens before participating in the program, will be tracked. Hub participants will also be surveyed as part of the close-out process to evaluate benefits and potential disbenefits after receiving services. Through the systematic assessment of clients via surveys and ongoing monitoring of metrics, the Hub's effectiveness can be tracked, and the approach adjusted based on the findings.

b. Community Engagement

Community and stakeholder engagement has been a core pillar of the *All-In Clark County* Initiative. During the *All-In* planning process, more than 150 organizations were engaged via 56 meetings and events, with over 6,000 survey responses. This planning process reached more than 220,000 individuals. The County leveraged and built upon this solid foundation of inclusive and equitable community and stakeholder engagement throughout the development of the PCAP and continues to do so for the comprehensive climate action plan (CCAP) development.

All-In Regional Climate Collaborative: The need for regional collaboration to drive climate action was identified during the development of the *All-In Community Sustainability and Climate Action Plan* and was a core priority for the development of the PCAP. As such, regional partners began officially meeting as group in September 2023 and formalized the Regional Climate Collaborative through an interlocal agreement in January 2024. It was determined that public communication and coordinated community engagement around action on climate change in Southern Nevada would continue under the *All-In* brand.

All-In Education Program: To grow climate literacy and debunk common myths about climate solutions, Clark County and the Climate Collaborative developed a marketing and outreach campaign strategy that will be executed over the next few years. This strategy will leverage the relationships developed with CBOs through the *All-In* process to reach target audiences, particularly LIDACs. Providing a foundation of climate literacy will help to build the necessary community support to implement the plan, adopt climate policies, and to shift behavior to reduce emissions and enhance resilience.

Engagement with Key Stakeholders and Residents: Community feedback gathered during the development of the *All-In Community Sustainability and Climate Action Plan* played a role in the initial need for the Hub. During the planning process, residents and CBOs highlighted the need for establishing programs for low-income and disadvantaged communities to participate in home electrification and efficiency upgrades. In addition to the feedback gathered from the *All-In* process, the County and the Climate Collaborative have hosted a series of one-on-one meetings and focus groups between August 2023 and March 2024 to better understand barriers that residents—particularly low-income residents—face when attempting to retrofit and electrify their homes. This feedback was integrated into this implementation grant narrative to ensure the Hub can be most effective and useful for low-income and disadvantaged communities.

In November 2023, the County hosted a workshop for stakeholders and CBOs to identify priorities from the existing *All-In Community Plan* to carry over into the PCAP and the CCAP. At this workshop stakeholders also discussed opportunities, resources, and barriers associated with implementation of these priority actions, including home electrification and efficiency programs. Individuals from 17 different organizations attended to share their priorities. Also in November 2023, *All-In* team members met with representatives from Chispa (League of Conservation Voters) to discuss barriers to engaging a diverse community in implementation of high impact strategies.

In February 2024, the County hosted a focus group with CHR, Inc., a CBO that has been leading workshops for the Black and mostly low-income community on energy efficiency and clean energy for NV Energy. There were 15 individuals in attendance who participated in a conversation to understand their current priorities and challenges and to share their barriers to keeping their homes healthy, efficient, and affordable. Concerns raised included: rising utility costs, identifying trustworthy contractors, gaps in assistance for low- to moderate-income households who are often left out of income-qualified programs, and the digital divide. An additional focus group is scheduled for March 2024 with Chispa to hold similar discussions with Spanish-speaking residents. To ensure equitable engagement, all focus group participants are provided with a meal and \$50 gift cards as compensation. Additionally, the organizations that helped recruit for and co-host the events were also paid for their time.

In addition, during PCAP development, the County met with the Southern Nevada Building Trades Union (SNBTU) to discuss current and future workforce needs and toured several Joint Apprenticeship Training Centers in the region. Implementing a successful Hub will require a sufficient workforce of tradespeople who have the skills and knowledge needed to electrify and upgrade buildings. The County will continue collaborating with regional trades unions and trades organizations to grow the workforce and provide high-quality jobs for Clark County residents. In March 2024, Clark County and SNBTU co-hosted a listening session with over 25 local contractors understand their current capacity, existing barriers and resource needs of the workforce in order to adequately support them to participate in work through the Hub.

From August 2023 to March 2024, the County has also been meeting with utilities and regional agencies to overcome the barriers identified through stakeholder and community engagement. The County has held a series of meetings with NV Energy to identify synergies with existing utility programs, as well as with the Clark County Department of Social Services to understand existing programs for low-income households that may be weaved into the program.

Engagement During Program Implementation: Meaningful engagement with low-income and disadvantaged communities will be continuously included in the development and implementation of the Hub. Through the following tactics, Clark County will ensure early and consistent inclusion of diverse perspectives:

- Developing an outreach and engagement strategy that prioritizes LIDAC;
- Leveraging the *All-In* Engagement Team, including Climate Ambassadors from different parts of the County, to engage members of their communities through multi-lingual events, presentations, and digital communications;
- Implementing a transparent planning process that is overseen by participants of the Climate Collaborative, who represent the County's five municipalities and two regional agencies;

- Continuing to host focus groups and events with community-based organizations to gather input and feedback on the design and implementation of the Hub;
- Providing both web and printed materials and information about upcoming engagement opportunities in multiple languages and formats, including on the *All-In* and Clark County websites; and
- Opening physical locations for the Hub and/or a mobile Hub for direct engagement with residents in LIDACs within their communities and help bridge the digital divide.

Section 5: Job Quality

In alignment with Executive Order 14082: *Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022*, Clark County is committed to supporting the creation of high-quality jobs. Aligned with the Department of Labor’s Good Jobs Principles, the Hub not only aims to mitigate environmental impacts but also adheres to the principles that prioritize fair wages, safe working conditions, and inclusive economic growth. This section describes the concrete, specific strategies to ensure that the implementation of the Hub generates high-quality jobs with a diverse, highly skilled workforce and support “high road” labor practices.

Implementing comprehensive whole-building retrofits through the Hub is expected to yield an increase in skilled jobs necessary to perform the home and building audits and installations, as well as jobs in upstream manufacturing industries and local service jobs. Beyond building trades workforce development, program administration provides substantial professional growth opportunities in non-profit management. The program aims to fill these roles with CBOs serving the program's beneficiary communities.

Strategies that have been identified to ensure high-quality jobs through implementation of the Hub include:

- Incorporating specific labor and job quality standards into procurement requirements to ensure pre-approved contractors in the program are meeting quality standards;
- Establishing specific certifications and competencies for pre-approved contractors that align with Good Labor Principles and establishing contractor guidelines to ensure that contractors adhere to prevailing wage requirements;
- Partnering with labor unions to ensure adequate training is available for contractors to meet labor and job quality standards;
- Partnering with labor unions and community-based organizations to recruit apprentices from within the communities the program serves; and
- Partnering with organizations to support training programs to bolster skills of contractors and employees of community-based organizations who will administer the program.

Section 6: Programmatic Capability and Past Performance

- Past Performance** – Clark County has demonstrated exceptionally strong collaborative endeavors over the past several years, which includes the successful management of multiple large-scale federal grants and contracts. Table 13 demonstrates specific collaborative experience, led by Clark County, over the past three years. While not exhaustive, these grants highlight the capability and

expertise of Clark County to lead and manage large portfolios of federal, state, city, and private grants with multiple partners and collaborators.

Table 13. Programmatic Capability and Past Performance – Past Three Years

Project Title	Assistance Agreement Number	CFDA	Summary	Sponsor Contact
Identifying and Prioritizing Management Actions that Address Connectivity of Desert Tortoise Populations (\$2,448,000)	1300.CC72.2018	15.235	Studying options, selecting, and prioritizing actions to preserve and connect desert tortoise habitats in Clark County	Robert Wandel Bureau of Land Management (702) 515-5116 rwandel@blm.gov Asst. District Manager
Covered Species Surveys and Refinement of Species Distribution Models (\$400,000)	1300.CC74.2019	15.235	Conduct population surveys of rare, threatened, and endangered species in Clark County and to update and refine species distribution models.	Robert Wandel Bureau of Land Management (702) 515-5116 rwandel@blm.gov Asst. District Manager
Desert Tortoise Monitoring on Translocation Sites (\$442,071)	1300.CC75.2019	15.235	Conduct desert tortoise distribution surveys within tortoise transaction sites in Clark County	Robert Wandel Bureau of Land Management (702) 515-5116 rwandel@blm.gov Asst. District Manager
Evaluating Desert Tortoise Habitat Restoration Methods in the Mojave Desert (\$350,000)	1300.CC76.2019	15.235	Test and evaluate desert tortoise habitat restoration models to improve effectiveness	Robert Wandel Bureau of Land Management (702) 515-5116 rwandel@blm.gov Asst. District Manager
Las Vegas Bearpoppy Conservation at Rainbow Gardens (\$3,878,000)	1300.CC77.2021	15.235	Updating Las Vegas Bearpoppy populations at the Rainbow Gardens Area of Critical Environmental Concern in Clark County.	Bureau of Land Management (702) 515-5116 rwandel@blm.gov Asst. District Manager
Piute-Eldorado Restoration (\$3,763,000)	1300.CC78.2021	15.235	Restores desert tortoise habitat in the Paiute-Eldorado Area of Critical Environmental Concern in Clark County, NV to stabilize and increase tortoise populations.	Robert Wandel Bureau of Land Management (702) 515-5116 rwandel@blm.gov Asst. District Manager
Las Vegas Bearpoppy Conservation at Rainbow Gardens (\$3,878,000)	1300.CC77.2021	15.235	Updating Las Vegas Bearpoppy populations at the Rainbow Gardens Area of Critical Environmental Concern in Clark County.	Bureau of Land Management (702) 515-5116 rwandel@blm.gov Asst. District Manager

b). Reporting Requirements – Clark County is seasoned in grants management and has successfully administered a portfolio of over \$64 million in SNPLMA grants in the past 20 years. With significant expertise in managing grant dollars, Clark County has established comprehensive fiscal policies and procedures to ensure every funder’s unique reporting and compliance requirements are met. Clark County maintains robust internal accounting and control systems that safeguard assets and maintain fiscal security.

Every grant noted in Table 13 was successfully reported on, without delay, issue, or audit from the sponsoring agency. For those projects that are ongoing, there have been no issues with quarterly reporting. Table 14 provides additional detail on interim reporting requirements, final reports, outputs, and other sources of information available in the appendix for verification.

Table 14. Reporting Requirements

Project Title	Reporting Requirements	Final Reports	Outputs/Outcomes
Identifying and Prioritizing Management Actions that Address Connectivity of Desert Tortoise Populations	Quarterly project and financial reporting	In progress	In progress
Covered Species Surveys and Refinement of Species Distribution Models	Quarterly project and financial reporting	In progress	In progress
Desert Tortoise Monitoring on Translocation Sites	Quarterly project and financial reporting	Final close out report and package	Completion of statistical modeling on desert tortoise mark-recapture data for connectivity determination.
Evaluating Desert Tortoise Habitat Restoration Methods in the Mojave Desert	Quarterly project and financial reporting	In progress	In progress
Las Vegas Bearpoppy Conservation at Rainbow Gardens	Quarterly project and financial reporting	In progress	In progress
Piute-Eldorado Restoration	Quarterly project and financial reporting	Final close out report and package	Monitor road use within the areas interfacing with Piute Eldorado Desert Wildlife Management Area

c). Staff Expertise – Clark County develops strong, collaborative relationships with community partners to create integrated systems of communication and implementation, and advocates for systems that are fair and responsive to the diverse needs of the community. This proposed initiative will leverage this expertise and the collective staff experience to steward the program forward. Key staff descriptions are provided below, supplemented in the Other Attachments with full biosketches.

Oversight of the program will benefit from the high-level hands on administrative and supervisory skills of **Marci Henson**. Ms. Henson will assume responsibility for leadership and oversight of the program through

the lead applicant, Clark County. Ms. Henson is the Director of the Department of Environment and Sustainability for Clark County, a position she has held for nearly a decade. In this position, she designs and implements the complex regional environmental programs for the diverse communities of Clark Counties, while building and maintaining highly effective relationships with internal and external stakeholders at the local, regional, state, and federal levels. Her previously held roles demonstrate a deep commitment to Clark County's environmental policy and planning, and she serves as a member on several community advisory committees, technical, and policy workgroups.

Jodi Bechtel is the Deputy Director of the Department of Environment and Sustainability for Clark County. In this role, Ms. Bechtel provides oversight and administrative management of the day-to-day function of departmental programs, including responsibility for approximately \$70 million in federal Southern Nevada Public Land Management act funds to implement conservation programs for threatened and endangered species. With over 20 years of experience in natural resource policy, program administration, and grant development, Ms. Bechtel brings substantial expertise, strategic direction, and administrative skill to the proposed CPRG Implementation program.

Erin Kilduff is the Senior Environmental Specialist in Energy of the Department of Environment and Sustainability for Clark County. With over eight years of experience in energy management, Erin's primary focus is on building relationships with vendors and public agencies in the spirit of designing and developing energy programs in Clark County. Prior to this role, Ms. Kilduff was a Senior Sustainability Consultant for Deloitte Tax and an Energy Manager for the NASA Jet Propulsion Laboratory. For the CPRG Implementation program, Erin will provide day-to-day program implementation and administrative activities.

Annamarie Smith is a Principal Planner for the City of Henderson, leading special projects within the Long-Range Planning Division and managing the Climate Response Initiative Major Opportunity Area under the City's Strategic Plan. Ms. Smith has substantial experience leading and supporting Henderson projects, particularly with large-scale grant proposals, and will provide advisory and oversight expertise to the CPRG program.

Marco Velotta is a Planning Project Manager and Chief Sustainability Officer for Community Development with the City of Las Vegas. Mr. Velotta has over a decade of experience with the City of Las Vegas, specializing in city planning, zoning, community outreach, program management, and grant writing. His position as the Chief Sustainability Officer, overseeing municipal and community renewable energy, green building, and other sustainability efforts will provide invaluable advisory and oversight expertise to the CPRG Implementation program.

Dan Hoover is a Senior Management Analyst for Clark County with substantial expertise in developing, implementing, and managing budgets for the Department of Environment and Sustainability. Mr. Hoover has over 15 years of experience with the county, with over a decade managing and operationalizing grant submissions to the EPA and BLM. His knowledge of draw down reimbursements, grant expenditure requests, and fiscal oversight will support management of the budgetary elements of the CPRG Implementation program.

Section 7: Budget Narrative

This budget narrative includes a detailed overview of the project budget, including an itemized budget table, and discussion of Clark County's approach to ensuring proper management of grant funds. This section is organized by budget category.

a). Personnel - This section outlines the personnel-related costs associated with the *All-In* Home and Building Improvement Hub. Personnel costs cover direct expenses for the salaries of individuals directly engaged in project activities. It is anticipated that successful implementation of this program in the timeline will require Clark County to hire ten full-time positions to manage and operate the program.

Staff Positions: Listed below are the staff positions by title, along with corresponding details for each:

- **Position 1: Program Director**
 - Annual Salary: \$139,800 (5% annual increase)
 - Number of Employees: 1 FTE
 - Percentage of Time Assigned to Project: 100%
 - Total Cost for the Budget Period: \$772,483
- **Position 2: IT Manager**
 - Annual Salary: \$113,250 (5% annual increase)
 - Number of Employees: 1 FTE
 - Percentage of Time Assigned to Project: 100%
 - Total Cost for the Budget Period: \$625,778
- **Position 3: Finance Manager**
 - Annual Salary: \$106,890 (5% annual increase)
 - Number of Employees: 1 FTE
 - Percentage of Time Assigned to Project: 100%
 - Total Cost for the Budget Period: \$590,635
- **Position 4: Program Manager**
 - Annual Salary: \$101,690 (5% annual increase)
 - Number of Employees: 3 FTE
 - Percentage of Time Assigned to Project: 100%
 - Total Cost for the Budget Period: \$1,685,704
- **Position 5: Program Analyst**
 - Annual Salary: \$88,440 (5% annual increase)
 - Number of Employees: 1 FTE
 - Percentage of Time Assigned to Project: 100%
 - Total Cost for the Budget Period: \$488,687
- **Position 6: Engagement Coordinator**
 - Annual Salary: \$85,720 (5% annual increase)
 - Number of Employees: 1 FTE
 - Percentage of Time Assigned to Project: 100%
 - Total Cost for the Budget Period: \$473,657
- **Position 7: Administrative Assistant**
 - Annual Salary: \$65,540 (5% annual increase)
 - Number of Employees: 2 FTE

- Percentage of Time Assigned to Project: 100%
- Total Cost for the Budget Period: \$724,300

b). Fringe Benefits - In accordance with Clark County's compensation structure, fringe benefits constitute an integral component of the overall remuneration provided to employees. This section outlines the percentage allocated for fringe benefits, the basis for computation, and the specific types of benefits included in the proposed fringe rate.

Fringe Benefits Percentage: The fringe benefits percentage utilized by Clark County is 42.49% of total employee salaries and wages.

Types of Included Fringe Benefits: The fringe benefits incorporated within this percentage encompass a range of allowances and services designed to enhance the overall compensation package. Benefit rates consist of the following:

- Group Insurance: 3.52%
- FICA: 1.45%
- PERS: 35.50%
- Unemployment: 0.02%
- Industrial Insurance: 2.00%

c). Travel - Travel costs are categorized based on the nature of the travel, including mileage, per diem, the estimated number of trips (both in-state and out-of-state), number of travelers, and other associated costs. Only expenses incurred by County Personnel are considered within this category.

Out-of-State Travel: The proposed project anticipates that the Project Director will make 2 trips per year throughout the grant period to attend events and conferences across the U.S., as it is intended for the *All-In Home and Building Improvement Hub* to be a replicable model for other regions.

Per diem allowances are budgeted to cover daily subsistence expenses for project-related travel. The per diem rate employed is \$79 per day, and the number of days for which per diem is applicable is 4 days per year. This allocation is intended for expenses related to meals and incidental costs during travel. This is the per diem rate for Washington DC from the U.S. General Services Administration (GSA). The assumed cost of hotel accommodations is \$225 per day (the average GSA rate for hotels for Washington DC), with 4 days per year. The assumed cost of airfare is \$400 roundtrip for 2 roundtrip visits per year. Ground travel for out-of-state trips is assumed to cost \$45 per year per employee, and parking is assumed to cost \$20 per day per employee, with 4 days per year.

Local Travel: The proposed project anticipates a total of 2,800 miles of local travel per year, or an average of 350 miles per year per staff member. This allocation is justified based on Clark County's large size (8,061 square miles). The travel costs account for 8 employees who will engage in project-related travel. The mileage rate is set at \$0.67 per mile, the GSA mileage reimbursement rate for 2024. This estimate includes travel deemed integral to the project's purpose, including travel to partner organizations, project sites, and local events or conferences.

d). Supplies - This section provides a breakdown of the tangible personal property categorized as "supplies" for the proposed project. "Supplies" refer to all tangible personal property other than "equipment," and include the following categories: Office Supplies.

Supplies Categories: Listed below are the categories of supplies to be procured under the project:

- **Category 1: Office Supplies**
 - Description of Supplies: Laptop Computers for new Personnel
 - Estimated Cost: \$2,500 per laptop
 - Total Cost: \$25,000 (assumes 10 new laptops)

e). Contractual - This section outlines the proposed contractual services for the project.

Proposed Contracts: Listed below are the proposed contracts for the project:

Contract 1: Contractor for Operations, Administration, and Marketing

Estimated Cost: \$40,500,000

Scope of Work: Clark County intends to contract with a community-based organization to serve as the lead program administrator to oversee day-to-day operations and administration for the Hub. This organization will effectively serve as the program “Concierge”, performing case management duties. This organization will also lead marketing and outreach for the program, developing messaging and materials to promote interactive engagement with the community and promote the new program.

Proposed Duration: January 2025 - October 2029

Procurement Method: Competitive

Breakdown of Costs: It is assumed that the organization will need to hire or identify 56 full-time personnel to successfully operate and administer the Hub, including an Executive Director, Marketing Director, Marketing Manager, two Marketing support staff, a Customer Success Director, and 50 Concierges. Staff are expected to receive a 5% annual salary increase, the same rate of increase as applied to staff in Personnel. Leveraging program documentation from the existing Energy Trust of Oregon¹, Clark County assumes a 1:1 ratio of staff costs to internal costs for the Program Lead. The expected staff and internal costs are detailed in Table 1. Staff costs include the cost of employee salaries and fringe benefits for staff, while internal costs includes professional services and operating expenses.

Table 1. Staff and Internal Costs for Operations, Administration, and Marketing Contractor

Cost Type	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Staff Costs	\$3,645,000	\$3,847,500	\$4,050,000	\$4,252,500	\$4,455,000	\$20,250,000
Internal Costs	\$3,645,000	\$3,847,500	\$4,050,000	\$4,252,500	\$4,455,000	\$20,250,000
TOTAL	\$6,682,500	\$7,087,500	\$7,492,500	\$7,897,500	\$8,302,500	\$6,682,500

Contract 2: Contract with Program Lead

Estimated Cost: \$49,500,000 for staff and internal costs; \$400,000,000 for project costs

¹ Energy Trust of Oregon (2023). 2024 Annual Budget and 2025-2025 Action Plan. Retrieved from <https://www.energytrust.org/wp-content/uploads/2023/12/2024-Approved-Budget-and-2024-2025-Action-Plan.pdf>

Scope of Work: Clark County intends to contract with an organization to serve as the contractor lead for the program. This organization will have a team of staff dedicated to supervising and coordinating the home upgrades, performing home assessments, and identifying financial resources.

Proposed Duration: January 2025 through October 2029

Procurement Method: Competitive

Breakdown of Staff and Internal Costs: It is assumed that the organization will need to hire or identify 56 full-time personnel, including 8 Project Supervisors, 30 Home Assessors, 12 Project Coordinators, and 6 Financial Coordinators. All staff will be full-time employees and are expected to receive a 5% annual salary increase. The breakdown of staff and internal costs uses a 1:1 ratio, as done under Contract 1. The expected staff and internal costs are detailed in Table 2.

Table 2. Staff and Internal Costs for Program Lead

Cost Type	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Staff Costs	\$4,455,000	\$4,702,500	\$4,950,000	\$5,197,500	\$5,445,000	\$24,750,000
Internal Costs	\$3,712,500	\$3,960,000	\$4,207,500	\$4,455,000	\$4,702,500	\$24,750,000
TOTAL	\$8,167,500	\$8,662,500	\$9,157,500	\$9,652,500	\$10,147,500	\$49,500,000

Breakdown of Project Costs: In order to perform the required analyses for Sections 2, 3, and 4 of this grant narrative, Clark County assumed an average cost of \$16,550 per weatherization project and \$32,541 per whole-home weatherization and efficiency and decarbonization retrofit projects. These costs were sourced from the National Renewable Energy Laboratory's Building Stock Analysis.² Assuming 80% of the grant is dedicated toward project costs, while 20% is reserved for program administration, there is capacity to complete 17,402 weatherization projects and 3,442 whole-home retrofit projects.

f). Other Costs - This section provides details on direct costs that do not fit into the specified budget categories. It includes items such as rental/lease of commercial space.

Description of Other Costs: Listed below are items included in the "Other" category along with sufficient details to determine the reasonableness and allowability of their costs:

- **Lease for Commercial Space**
 - **Purpose:** Clark County will lease commercial space to host 1 primary County-wide Hub location, as well as 5 satellite Hub locations within each of the County's 5 jurisdictions. The purpose of hosting physical locations is to provide opportunities for direct, in-person engagement with program participants. This is particularly valuable in low-income communities where technology barriers may persist, a key concern highlighted during the focus groups held to identify program barriers (see Section 4).

² NREL (2024). ABC Market Guidance for Zero-carbon Aligned Residential Buildings. Retrieved from https://public.tableau.com/app/profile/nrel.buildingstock/viz/ABCMarketGuidanceforZero-carbonAlignedResidentialBuildings_16759824008870/Introduction

- **Estimated Cost:** \$700,000
- **Cost Assumptions:** Assumes a cost of \$35 per square foot per year to lease commercial space, which includes the cost of utilities.

g). Indirect Costs - Clark County Department of Environment and Sustainability's current negotiated Indirect Cost Rate with EPA is 29.95%. This rate expires on June 30, 2024, and the County is in the process of calculating and negotiating a new rate. The current rate has been applied to the cost of personnel, as shown in Table 3.

Table 3. Indirect Costs

Category	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Personnel Costs	\$970,500	\$1,019,025	\$1,069,976	\$1,123,475	\$1,179,649	\$5,362,625
Indirect Costs	\$290,665	\$305,198	\$320,458	\$336,481	\$353,305	\$1,606,106

Technical Appendix – Methodology for Greenhouse Gas Reduction Estimates for CPRG Implementation Grant Application

Las Vegas-Henderson-Paradise Metropolitan Statistical Area

Prepared by:

Clark County Department of Environment and Sustainability
4701 W. Russell Road,
Suite 200
Las Vegas, Nevada 89118

Prepared for:

US EPA Region 9
75 Hawthorne Street
San Francisco, CA 9410

Contents

Introduction	1
Measure Description	1
Analysis Approach	1
Tools and Models	1
<i>NREL ResStock End Use Savings Shapes (EUSS)</i>	1
<i>NREL Cambium Model</i>	2
Calculation Steps	3
Estimating Program Reach	3
Direct Program Participation	4
Indirect Program Participation	4
Household Energy Savings Potential	5
Reference Scenario	6
Uncertainty in Savings Estimates	6
Applying Measure Package Savings Estimates	7
Program Ramp-Up	7
Energy Use Reductions	8
Water Energy Savings	8
Accounting for Cleaner Electricity	8
GHG Reductions	9
Cost Effectiveness	10
Uncertainty Results	10
Permanence	10

Introduction

This appendix is a supplement to the Las Vegas-Henderson-Paradise Metropolitan Statistical Area Implementation Grants General Competition application under the Environmental Protection Agency's (EPA) Climate Pollution Reduction Grant Program (CPRG). This appendix details methodologies, data, sources, assumptions, and results of quantitative assessments performed in support of the All-In Home and Building Improvement Hub measure quantifications of estimated greenhouse gas (GHG) emissions reductions.

Measure Description

The All-In Home and Building Improvement Hub will establish a one-stop shop for home and building improvements that enhance indoor air quality and comfort, increase water and energy efficiency, and reduce utility bills. It will provide residents and businesses with the technical assistance, financial resources, and contractors needed to do the work. This action is meant to drive energy and emissions reductions in two ways that were quantified separately.

Direct impacts include reductions in household energy use that result from installation of energy conservation measures implemented directly with CPRG funds in income-qualifying households.

Indirect impacts are those that result from investments in energy conservation that are induced across Clark County from education and support services available through the Hub to help all residents and businesses navigate the complex landscape of incentives for home energy and other health related improvements.

Analysis Approach

Potential benefits estimated for the All-In Home and Building Improvement Hub are dependent on several key assumptions. Unlike discrete infrastructure projects, the potential reach and subsequent impact of the Hub will be determined by factors such as the total amount awarded, program implementation costs, and details of program design.

GHG Reduction potential and other benefits were estimated from a series of connected calculations:

- 1) Estimate the number of homes that could be upgraded with the requested funding amount.
- 2) Estimate the number of households that could be indirectly supported by the Hub, inducing action through education and other support.
- 3) Estimate the energy impacts of 'measure packages' applied across participating households.
- 4) Estimate reductions in GHGs for each year's reduction in energy use, accounting for changes to grid carbon intensity expected over the short term (2025-2030) and long term (2025-2050)
- 5) Sum annual reductions for cumulative reductions projected for 2025-2030 and 2025-2050.

Tools and Models

The following section summarizes tools used in the analysis to support this grant application.

NREL ResStock End Use Savings Shapes (EUSS)

The primary source of data for energy use reduction potential used is the National Renewable Energy Lab (NREL) ResStock, End Use Savings Shapes (EUSS), Typical Meteorological Year (TMY) datasets for the

state of Nevada¹. This resource contains the results of building energy models testing common measure packages in a comprehensive set of model input parameters describing the US residential building stock in great detail. The EUSS dataset allows for developing reduction estimates that capture how the weather of Southern Nevada impacts the effectiveness of energy conservation measures across a range of home typologies and conditions that are likely to exist in the field. The EUSS dataset provides several pre-defined measure packages for varying levels of weatherization/building envelope measures and electrification (Table 1). This impact analysis is based on the average energy impact for select measure packages, which produce net energy savings estimates for each retrofit type.

Table 1. NREL ResStock EUSS Measure Package Descriptions

ResStock EUSS Measure Package	Description
Package 1: Basic Enclosure	<ul style="list-style-type: none"> - Attic floor insulation - General air sealing - Duct sealing - Drill-and-fill insulation
Package 2: Enhanced Enclosure	<ul style="list-style-type: none"> - Measure Package 1 - Foundation wall insulation and rim joint insulation - Seal vented crawlspaces - Insulate finished attics and cathedral ceilings
Package 4: Heat Pumps, High-Efficiency, Electric Backup	<ul style="list-style-type: none"> - Centrally ducted variable speed heat pump - Ductless variable speed mini-split - Backup heat provided by electric resistance
Package 8: Whole-Home Electrification, High Efficiency	<ul style="list-style-type: none"> - No enclosure measures - High-efficiency heat pump (Measure Package 4) - Heat pump water heater - Ventless heat pump dryer - Electric oven and induction range
Package 9: Whole-Home Electrification, High Efficiency + Basic Enclosure	<ul style="list-style-type: none"> - Measure Packages 1 & 8
Package 10: Whole-Home Electrification, High Efficiency + Enhanced Enclosure	<ul style="list-style-type: none"> - Measure Packages 2 & 8

With a substantial number of model runs representing many possible combinations of conditions, the EUSS dataset is believed to be a better estimate of likely outcomes of home energy efficiency measures. It provides higher confidence than other single point estimates available in the literature or % based changes to energy use.

One limitation faced in applying this tool was the tradeoffs between looking at targeted groups identifiable in the data set, such as low income households, with the need to keep large numbers of model households to derive generalizable results.

NREL Cambium Model

The NREL Cambium Model² provided scenarios for projected emissions intensity of grid supplied electricity applied in future-year GHG reduction estimates. While Cambium provides a range of grid

¹ National Renewable Energy Laboratory. ResStock End Use Savings Shapes 2022.1 Release TMY3.

<https://resstock.nrel.gov/datasets>

² Gagnon, Pieter; Cowiestoll, Brady; Schwarz, Marty (2023): Cambium 2022 Data. National Renewable Energy Laboratory.

<https://scenarioviewer.nrel.gov>

carbon intensity scenarios for this analysis, the “Mid-Case with 95% Decarbonization by 2050” was selected as the primary scenario to be modeled as it aligns best with the outcomes for economy wide GHG reductions sought by the Inflation Reduction Act. The Cambium Model provides outputs using eGRID regions that align with other analyses performed under CPRG. One limitation of Cambium is that it does not provide a continuous year-over-year projection of factors, requiring some interpolation between years.

Calculation Steps

The first step in estimating reduction potential is to evaluate how far requested funding levels could reach if applied in Clark County.

Estimating Program Reach

The target award level for this program is the maximum available under CPRG of \$500 million. Following development of the program implementation budget, it is assumed that 20% of funding (\$100 million) would go towards various support activities including overall administration of the Hub. The remaining 80% of funds (\$400 million) would be reserved specifically for offsetting all costs associated with home energy retrofits and beneficial electrification in low-income households.

The analysis to support this application narrative was performed iteratively testing the impact of different combinations of energy savings potential and likely retrofit costs. The analysis demonstrated that by focusing on lower-cost measures, such as weatherization as opposed to full home decarbonization, the potential number of homes reached with \$400 million changed significantly.

Further, the overall intent of this program is to braid program benefits with as many additional sources of funding available. However, it is recognized that there are limitations on combining funding from multiple Inflation Reduction Act grant programs, notably The Home Electrification and Appliance Rebates³ and Home Efficiency Rebates Programs⁴ from the US Department of Energy. In a review of likely benefits from those programs, it appeared that a larger gap may exist for supporting comprehensive weatherization activities than for appliances and equipment, which provides some guidance for cost effective targeting. Note that energy savings and GHG reductions calculated here for the impact of CPRG do not include savings that would occur from households taking advantage of other IRA grant programs even though doing so will be encouraged for additional measures not covered by the Hub.

Estimating the number of households that can be reached with \$400 million requires an estimate of the costs of different retrofit packages. For this analysis estimated costs of each package were developed from a compilation of installed costs, cataloged by Lawrence Berkeley National Labs⁵, to best match with the components of each of the ResStock Measure Packages. Total households potentially reached by the program was determined by dividing \$400 million across prioritized shares of measures and their costs after local utility administered rebates were accounted for.

³ U.S. Department of Energy. Home Electrification and Appliance Rebates. <https://www.energy.gov/scep/home-electrification-and-appliance-rebates>

⁴ U.S. Department of Energy. Home Efficiency Rebates. <https://www.energy.gov/scep/home-efficiency-rebates>

⁵ Less, et al. Lawrence Berkeley National Labs. August 2021. The Cost of Decarbonization and Energy Upgrade Retrofits for US Homes. doi:10.20357/B7FP4D. https://eta-publications.lbl.gov/sites/default/files/final_walker_-_the_cost_of_decarbonization_and_energy.pdf

Table 2. Final Retrofit Package Costs per Household

ResStock EUSS Measure Package	Initial Cost per Retrofit ⁶	Available Utility Rebate Value ⁷
Package 2: Enhanced Enclosure	\$16,950	\$400 for weatherization
Package 4: Heat Pumps, High-Efficiency, Electric Backup	\$15,069	\$3,400 for SEER 19+ Rated model
Package 9: Whole-Home Electrification, High Efficiency + Basic Enclosure Package	\$36,741	\$400 for weatherization, \$3,400 for SEER 19+ Rated model, \$600 combined incentives for water heater and washer/dryer
Package 10: Whole-Home Electrification, High Efficiency + Enhanced Enclosure Package	\$49,708	

Direct Program Participation

The share of implementation funds allocated to each type of retrofit was assumed to be 72% for weatherization and 28% for standard weatherization + whole home electrification. This split allowed some support for full decarbonization of a targeted share of homes while extending the program's reach with lower-cost weatherization support, which has lower available rebates. The percentages applied reflect the relative proportion of households in Clark County identified through the Climate and Economic Justice Screening Tool (CEJST) as below 200% of the FPL. Note that this split does not imply how income criteria would be used but represents a reasonable split for funds reserved for those households with the greatest need.

With \$400 million of funding reserved to offset costs for direct install retrofit projects, approximately 20,844 homes could receive direct support for implementation of energy conservation measures (Table 3).

Table 3. Households Impacted by Direct Funding

Package Type	Final Cost per Household	Share of Program Funding	Target Households
Enhanced Envelope (EUSS Package 2)	\$16,550	72%	17,402
Whole Home Electrification + Conventional Envelope (EUSS Package 9)	\$32,541	28%	3,442

Indirect Program Participation

While the Hub will provide targeted direct assistance to low-income and disadvantaged communities to offset home improvement costs; resources to help all residents and building owners navigate the many potential incentives offered by other federal programs as well as local utility incentives is expected to create an uptick in the overall level of investment in energy retrofits above the current rate.

The “one-stop-shop” approach to energy rebate programs has proven to be effective at driving additional adoption of energy conservation measures than just the availability of rebates. The estimated magnitude of these effects is based on the use of a “net-to-gross ratio”, which balances free ridership

⁶ Less, et al. Lawrence Berkeley National Labs. August 2021. The Cost of Decarbonization and Energy Upgrade Retrofits for US Homes. doi:10.20357/B7FP4D. https://eta-publications.lbl.gov/sites/default/files/final_walker_-_the_cost_of_decarbonization_and_energy.pdf

⁷ NVEnergy. Home Energy Saver Rebates. <https://www.nvenergy.com/save-with-powershift/home-energy-saver> Accessed 3/6/2024.

against spillover and other market effects induced by the program.⁸ This analysis uses the net-to-gross ratio of 1.21, reported in the Market Effects Analysis of the US Department of Energy Better Buildings Neighborhood Program,⁹ which follows a similar model as the intended program design of the Hub.

The net-to-gross ratio of 1.21 was applied to an estimated current market for home energy savings projects within Clark County of \$261,568,492 per year. This value was derived from the total spending on home improvements within the Las Vegas – Henderson – Paradise MSA (\$1.8 billion / year) by the national share of home improvement spending on energy efficiency projects (15%).¹⁰ The subsequent impact is a \$54,929,383 net market annual increase in spending.

The mix of energy conservation measures for indirect households is assumed to take advantage of all project types as these selections would be more of a function of household preferences than Hub administrative decisions to maximize cost effectiveness. However, the education resources of the Hub should guide spending to the high-impact but cost-effective whole home electrification + conventional weatherization package (EUSS Package 9). The final share of spending is summarized in Table 4.

Under these participation splits – and assuming that the Hub increases market spending by \$54,929,383 applied to the relative costs of different packages, approximately 2,802 additional households will implement energy conservation measures every year, resulting in the additional retrofits detailed in Table 4. This level of increased activity is modeled to continue annually as the program is expected to become self-sustaining by the end of the CPRG implementation funding cycle.

Table 4. Annual Households Impacted by Indirect Assistance

Package Type	Estimate Share of Market Spending	Number of Participating Households
Enhanced Envelope (EUSS Package 2)	25%	830
High Efficiency Heat Pump (EUSS Package 4)	25%	1,177
Whole Home Electrification + Conventional Envelope (EUSS Package 9)	40%	675
Whole Home Electrification + Enhanced Envelope (EUSS Package 10)	10%	121

Household Energy Savings Potential

The energy impact of building energy retrofits is based on estimates obtained from the NREL ResStock EUSS datasets for the state of Nevada.¹¹ This resource provides the most comprehensive set of energy conservation measure performance values across a range of real-world circumstances that could be matched to mix of homes in Clark County. The measure packages included in this assessment are detailed in Table 1. Datasets for each measure package analyzed were filtered to only those that

⁸ Violette and Rathbun. National Renewable Energy Lab. September 2014. “Estimating Net Savings: Common Practices. Uniform Methods Project, Chapter 17”. <https://www.energy.gov/sites/prod/files/2015/01/f19/UMPCChapter17-Estimating-Net-Savings.pdf>

⁹ U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. June 2015. “Market Effects of the Better Buildings Neighborhood Program Final Evaluation Volume 5”. <https://www.energy.gov/eere/analysis/articles/market-effects-better-buildings-neighborhood-program-final-evaluation-volume>

¹⁰ Joint Center for Housing Studies of Harvard University. 2023. “Improving America’s Housing”. Excel Data Tables A-4 & A-5. <https://www.jchs.harvard.edu/improving-americas-housing-2023>

¹¹ National Renewable Energy Laboratory. ResStock End Use Savings Shapes 2022.1 Release TMY3. <https://resstock.nrel.gov/datasets>

matched input variables selected to best reflect the homes that would be likely candidates for retrofit support. These include:

- In Clark County, Nevada; to account for local weather conditions.
- Single-family detached or single-family attached buildings; to avoid mixing savings estimates from multi-unit apartment complexes with different equipment and performance characteristics.
- Use natural gas for heating fuel; to avoid mixing savings from all-electric baseline homes.
- Central AC is present; to avoid diluting energy savings of efficiency measures with impacts of adding air condition where it did not previously exist.
- Excluding buildings with ducted heat pump heating types; to avoid diluting energy savings with low impacts to homes already equipped with high efficiency heat pumps.

These filters resulted in a dataset of 1,335 combinations of other home characteristic inputs and model results. It is worth noting that these filters will exclude model homes with characteristics that likely do exist in Clark County, however a key aspect of the concierge service is to ensure that funded energy conservation measures are only going into the homes where the existing conditions would lead to energy savings as a result of the retrofit.

Reference Scenario

While not explicitly modeled under a business-as-usual forecast, the approach utilizing the ResStock EUSS datasets implies a reference scenario defined by homes continuing to operate according to their baseline (pre-retrofit) efficiency. Savings estimates for each of the retrofit packages were obtained by matching baseline energy use to post-retrofit energy use by building model IDs. Thus, savings are estimated for each of the EUSS Measure Packages in each of the 1,335 model homes in the dataset relative to its baseline performance.

Uncertainty in Savings Estimates

Although this action is intended to primarily target low-income households, the average savings values used in this analysis reflect the mean savings across all households matching the filters specified above. Early iterations of the analysis explored different savings levels by Federal Poverty Level (“FPL”) classifications included in each model input values. Separating savings by income resulted in relatively low numbers of observations within each set, particularly the low-income divisions of interest. The ResStock EUSS Technical Documentation recommends using annual results that include 1,000 models or more.¹² Since there were only 161 records between the 0-100% and 100-150% FPL, a decision was made to utilize the complete sample size of 1,335 modeled home records. Using a larger sample size reduced the standard deviation for savings estimate by an average of 8% across all measure packages. These improvements increased the confidence in use of the average savings values from across the complete dataset.

Multiple attempts were made at assessing uncertainty utilizing the filtered EUSS dataset. Minimum and maximum values from across the set of modeled homes were applied in full impact calculations as well as ranges developed by adding and subtracting the standard deviation from the mean savings all model results. Unfortunately, due to the characteristics of the data set, the results of these exercises did not

¹² National Renewable Energy Laboratory. ResStock EUSS Technical Documentation https://oedi-data-lake.s3.amazonaws.com/nrel-pds-building-stock/end-use-load-profiles-for-us-building-stock/2022/EUSS_ResRound1_Technical_Documentation.pdf

yield meaningful insights for uncertainty. The boundaries provided by both approaches did not result in scenarios that would be likely in real world conditions, as it is highly unlikely that anywhere near all homes impacted by the project would perform at either the high or low end of the savings estimates.

With a large sample size of 1,335 homes, the average savings rates for each measure package should be representative of the expected outcomes of implementing different measure packages. Final savings estimates for each are summarized in Table 5. Results for the impacts of uncertainty assessments using the approach of average savings +/- one standard deviation are included in the estimate of total GHG reduction potential.

Table 5. Average Energy Reduction Potential of ResStock Measure Packages for 1,335 model homes

ResStock Measure Package	Annual Electricity Savings per Household (kWh)	Annual Gas Savings per Household (therms)
Package 2: Enhanced Enclosure	1,130	64
Package 4: Heat Pumps, High-Efficiency, Electric Backup	2,194	211
Package 9: Whole-Home Electrification, High Efficiency + Basic Enclosure Package	2,439	352
Package 10: Whole-Home Electrification, High Efficiency + Enhanced Enclosure Package	2,498	352

Applying Measure Package Savings Estimates

Raw outputs from ResStock reported savings in kWh for all energy types and gas results were converted to therms. Energy savings for each fuel type were normalized to terms of savings per square foot based on the ResStock input building area, “in_sqft” field for each 1,335 model homes, allowing them to be applied to a generic Clark County household to estimate program savings.

The estimated average annual energy savings per households for each measure package (Table 5) was calculated by applying the average savings per square foot by the average household size of 1,974 square feet, derived from the Clark County Property Tax Assessor Database.

Program Ramp-Up

It is recognized that some time will be needed to get up to speed. An assumed ramp-up schedule was devised to spread program activities as even as possible across the period. With momentum gained in the pilot program supported through EECBG funding, the Hub aims to upgrade 2,084 homes in calendar year 2025, 10% of the 5 year target. The annual rate of projects completed will ramp up and peak during program years 2027 and 2028, and then begin to close out prior to the end of 2029, allowing for additional time for final project evaluations. The ramp up schedule and associated changes are provided in Table 6.

Table 6. Estimated Ramp-Up Schedule for Direct Program Support

	2025	2026	2027	2028	2029
Share of Target Reached Each Year	10%	20%	25%	25%	20%
Calendar Year Upgrades Made	2,084	4,169	5,211	5,211	4,169
Year-End Cumulative Upgrades	2,084	6,253	11,464	16,675	20,844

Indirect Impacts Ramp Up

It is expected that the indirect impacts of the program will ramp up to their full impact much more quickly as they are driven primarily by information availability and other light-touch services than what is required for arranging direct installation of measures. This analysis assumes 10% of the indirect impact potential is reached in year 1, 50% in year 2, and 100% every year thereafter. Unlike direct-impact households, it is expected that The Hub will at a minimum continue to exist as an information resource and continue to drive home energy above the current market rate. The cumulative reductions of these homes are included in the estimates for 2050 reduction potential as a representation of the transformative impact The Hub is expected to bring to the region.

Energy Use Reductions

Target households for each measure package were multiplied by the ramp-up schedules for direct installations and indirect support, respectively, to determine the number of households retrofitted in each year. The average energy reduction potential of the ResStock measure packages were applied to the annual target households to estimate incremental use savings. These incremental savings were aggregated such that annual reductions for each calendar year incorporate the total energy use reductions that resulted from all prior year retrofits.

Water Energy Savings

In addition to energy savings, direct installation recipients will get a full compliment of water saving rebates provided by the Southern Nevada Water Authority (SNWA). By 2030, individual retrofit savings estimates provided by SNWA will add up to 152 million gallons of water saved annually.

Table 7. Water Conservation Measure Savings

Retrofit Type	gal/home/year	% of homes Applicable
Water Main Leak Replacement	6,570	2.5%
Indoor Savings for Appliance Retrofits	18,907	100%
Outdoor Water Savings from WSL	17,410	100%

Water savings are expected to translate to energy savings in the water distribution system. Using an SNWA internal benchmark of 6.76 MWh / Million Gallons, cumulative power savings could total 6,168 MWh. This would result in an additional 2030 cumulative GHG savings of 1,014. Note that additional water savings are not modeled beyond this date due to uncertainty around future water energy intensity.

Accounting for Cleaner Electricity

Forward looking projections for grid carbon intensity were obtained from the National Renewable Energy Laboratory's (NREL) 2022 Cambium Model.¹³ While there are many available scenarios to choose from, this analysis selected the "Mid-Case 95% Decarbonization Scenario". Cambium Model exports provide projected emissions factors for target years through 2050 (Table 8). Under this scenario, the projected carbon intensity of electricity in the AZNM eGRID region is 115.5 kg CO₂ per MWh in 2030 and 12.8 kg CO₂ per MWh in 2050. A linear decrease was assumed to estimate emissions factors for interim years

¹³ Gagnon, Pieter; Cowiestoll, Brady; Schwarz, Marty (2023): Cambium 2022 Data. National Renewable Energy Laboratory. <https://scenarioviewer.nrel.gov>

between those provided by Cambium. Annual emissions factors were applied to estimated changes in electricity use to avoid overestimating GHG reduction potential.

Table 8. Cambium Model Electricity Emissions Factors

	2024	2026	2028	2030	2035	2040	2045	2050
kg CO ₂ per MWh	246.6	212.7	148.4	115.5	66.6	48.8	41.3	12.8

GHG Reductions

Annual electricity savings were multiplied by the respective Cambium Model projected emissions factor to determine CO₂ annual emissions savings from electricity use. Annual natural gas savings were multiplied by standard EPA emissions factors¹⁴ for CO₂, CH₄, and N₂O to determine emissions savings from natural gas use. The Global Warming Potentials (GWP) from the IPCC Fifth Assessment Report (AR5)¹⁵ were applied to CH₄ and N₂O to estimate total emissions savings in MTCO₂e.

Annual GHG reductions for each calendar year incorporate the total energy use reductions that result from all prior year retrofits delivered through the program. Cumulative GHG reductions achieved through 2030 represent a sum of each year's annual reduction for the program period. Annual reductions and cumulative reductions are included in Table 9 and Table 10, respectively. Additional details for 2050 cumulative reductions can be found in the attached calculation workbook.

Table 9. Annual GHG Reductions (MTCO₂e / Year)

Participant Type	Energy Source	2025	2026	2027	2028	2029	2030
Direct Installation	Electricity	644	1,790	2,786	3,331	3,702	3,241
	Natural Gas	1,239	3,717	6,815	9,913	12,392	12,392
Indirect Support	Electricity	126	698	1,580	2,110	2,597	2,905
	Natural Gas	309	1,854	4,945	8,035	11,126	14,217
Water Energy Savings	Electricity	118	219	232	191	136	119

*Note totals may not sum perfectly due to rounding

Table 10. Cumulative GHG Reductions (MTCO₂e)

Participant Type	Energy Source	2025	2026	2027	2028	2029	2030
Direct Installations	Electricity	644	2,435	5,221	8,553	12,255	15,496
	Natural Gas	1,239	4,956	11,772	21,685	34,076	46,468
Indirect Support	Electricity	126	823	2,403	4,513	7,110	10,016
	Natural Gas	309	2,163	7,108	15,144	26,270	40,487
Water Energy Savings	Electricity	118	337	56	759	895	1,014
Total							113,480

*Note totals may not sum perfectly due to rounding

¹⁴ U.S. Environmental Protection Agency (EPA). Emission Factors for Greenhouse Gas Inventories (2021). https://www.epa.gov/system/files/documents/2023-04/emission-factors_sept2021.pdf

¹⁵ Intergovernmental Panel on Climate Change (2014). IPCC Fifth Assessment Report (AR5).

Cost Effectiveness

Total 2030 cumulative GHG reduction of 113,480 MTCO₂e was divided by \$500 million to arrive at a cost effectiveness estimate of \$4,406/MTCO₂e reduced.

Uncertainty Results

The results of uncertainty estimates using +/- one standard deviation in energy savings from the EUSS data set result in 2030 cumulative savings ranging from 11,325 to 220,739 MTCO₂e, and 2050 cumulative savings from 212,394 to 2,510,853 MTCO₂e

Permanence

When assessing the future impact of energy conservation measures, it is common to incorporate considerations for the effective useful life of each energy conservation measure. The focus of the Hub will be weatherization measures and improvements to heating, ventilation, and air conditioning (“HVAC”) systems, which have effective useful lives which are longer than the 2025-2030 horizon and all savings are expected to remain intact by 2030.

The changes made in typical home energy retrofit projects have an effective useful life of the equipment or weatherization measures resulting in diminishing future savings.

- For fuel switching measures, unlikely that customers will revert back to combustion-based space conditioning, water heating, and cooking. Impacts are assumed permanent.
- Assumption that the impacts for weatherization will last 30 years and the impacts for heat pumps and other equipment is 12 years.¹⁶
- Savings adjustments to account for effective useful life were estimated from the performance of a heat pump operating in a highly insulated home as opposed to the pre-weatherization condition of the home. This value was determined by sampling EUSS Package 4 impacts within homes that were already fully electric and with high levels of insulation and other weatherization features.

Applying the impact of effective useful life followed methods utilized in other analysis using EUSS datasets, with some simplification for the sake of spreadsheet modeling. For equipment related savings, 1/2 of the savings were removed in the first year of its effective useful life and the remaining savings removed in the following year.

These adjustments begin in 2037, 12 years after the implementation of measures in 2025. For the discrete electrification actions that occur from direct-impacts, the end result is nearly half of the aggregate electricity savings from Package 9 improvements are subtracted from long term savings.

Adjustments for effective useful life are more significant among the indirect program beneficiaries that continue to install energy conservation measures beyond 2025. By 2041, 12 years after the maximum level of implementation is reached, 2.2 million kWh are subtracted from each year’s annual savings as older equipment wears out from 12 years prior.

¹⁶ Mayernick and Stenger. National Renewable Energy Laboratory. “Overview of the Inflation Reduction Act of 2022 (IRA) Home Energy Rebate Tool. Table 3. <https://www.nrel.gov/docs/fy23osti/86700.pdf>

Detailed Budget Table

BUDGET BY YEAR							
COST-TYPE	CATEGORY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Direct Costs	Personnel						
	Program Director @ \$139,800/yr, 1 FTE, with 5% annual salary increase	\$ 139,800	\$ 146,790	\$ 154,130	\$ 161,836	\$ 169,928	\$ 772,483
	IT Manager @ \$113,250/yr, 1 FTE, with 5% annual salary increase	\$ 113,250	\$ 118,913	\$ 124,858	\$ 131,101	\$ 137,656	\$ 625,778
	Finance Manager @ \$106,890/yr, 1 FTE, with 5% annual salary increase	\$ 106,890	\$ 112,235	\$ 117,846	\$ 123,739	\$ 129,925	\$ 590,635
	Program Manager @ \$101,690/yr, 3 FTE, with 5% annual salary increase	\$ 305,070	\$ 320,324	\$ 336,340	\$ 353,157	\$ 370,814	\$ 1,685,704
	Analyst @ \$88,440/yr, 1 FTE, with 5% annual salary increase	\$ 88,440	\$ 92,862	\$ 97,505	\$ 102,380	\$ 107,499	\$ 488,687
	Engagement Coordinator @ \$85,720/yr, 1 FTE, with 5% annual salary increase	\$ 85,720	\$ 90,006	\$ 94,506	\$ 99,232	\$ 104,193	\$ 473,657
	Administrative Assistant @ \$65,540/yr, 2 FTE, with 5% annual salary increase	\$ 131,080	\$ 137,634	\$ 144,516	\$ 151,741	\$ 159,329	\$ 724,300
	TOTAL PERSONNEL	\$ 970,250	\$ 1,018,763	\$ 1,069,701	\$ 1,123,186	\$ 1,179,345	\$ 5,361,244
	Fringe Benefits						
	Full-time Employees @ 42.49% of salary	\$ 412,259	\$ 432,872	\$ 454,516	\$ 477,242	\$ 501,104	\$ 2,277,992
	TOTAL FRINGE BENEFITS	\$ 412,259	\$ 432,872	\$ 454,516	\$ 477,242	\$ 501,104	\$ 2,277,992
	Travel						
	Travel for Program Director to attend conferences and events:						
	Airfare - \$400 roundtrip @ 2 roundtrip per year	\$ 800	\$ 800	\$ 800	\$ 800	\$ 800	\$ 4,000
	Hotel - \$225 per day @ 4 days per year	\$ 900	\$ 900	\$ 900	\$ 900	\$ 900	\$ 4,500
	Per Diem - \$79 per day @ 4 days per year	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 1,580
	Taxi - \$45 per year	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 225
	Parking - \$20 per day @ 4 days per year	\$ 80	\$ 80	\$ 80	\$ 80	\$ 80	\$ 400
	Mileage for local travel (2,800 miles per year at \$0.67/mi)	\$ 1,876	\$ 1,876	\$ 1,876	\$ 1,876	\$ 1,876	\$ 9,380
	TOTAL TRAVEL	\$ 4,017	\$ 4,017	\$ 4,017	\$ 4,017	\$ 4,017	\$ 20,085
	Supplies						
	10 Laptop Computer @ \$2,500 each	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ 25,000
							\$ -
	TOTAL SUPPLIES	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ 25,000
	Contractual						
	Contractors to conduct concierge responsibilities and home upgrades (includes staff and internal costs only).	\$ 16,200,000	\$ 17,100,000	\$ 18,000,000	\$ 18,900,000	\$ 19,800,000	\$ 90,000,000

	Contract for 17,402 home weatherization projects. Assumes average cost of \$16,550/project.	\$ 28,797,000	\$ 57,594,000	\$ 72,009,050	\$ 72,009,050	\$ 57,594,000	\$ 288,003,100
	Contract for 3,442 whole-home weatherization and efficiency retrofit projects. Assumes average cost of \$32,541/project.	\$ 11,194,104	\$ 22,388,208	\$ 28,017,801	\$ 28,017,801	\$ 22,388,208	\$ 112,006,122
	TOTAL CONTRACTUAL	\$ 56,191,104	\$ 97,082,208	\$ 118,026,851	\$ 118,926,851	\$ 99,782,208	\$ 490,009,222
	OTHER						
	Leases for commercial space to host 1 primary hub location and 5 satellite hubs throughout communities. Assumes \$35/sf per year, including utilities.	\$ 140,000	\$ 140,000	\$ 140,000	\$ 140,000	\$ 140,000	\$ 700,000
	TOTAL OTHER	\$ 140,000	\$ 140,000	\$ 140,000	\$ 140,000	\$ 140,000	\$ 700,000
	TOTAL DIRECT	\$ 57,742,630	\$ 98,677,860	\$ 119,695,084	\$ 120,671,295	\$ 101,606,674	\$ 498,393,543

Indirect Costs	Indirect Costs						
	Clark County Negotiated Rate of 29.95%	\$ 290,590	\$ 305,119	\$ 320,375	\$ 336,394	\$ 353,214	\$ 1,605,692
	TOTAL INDIRECT	\$ 290,590	\$ 305,119	\$ 320,375	\$ 336,394	\$ 353,214	\$ 1,605,692

TOTAL FUNDING		\$ 58,033,220	\$ 98,982,979	\$ 120,015,460	\$ 121,007,689	\$ 101,959,887	\$ 499,999,236
----------------------	--	---------------	---------------	----------------	----------------	----------------	----------------

**MEMORANDUM OF AGREEMENT
TO COLLABORATE ON
A COMPETITIVE GRANT THROUGH THE
U.S. ENVIRONMENTAL PROTECTION AGENCY’S CLIMATE POLLUTION
REDUCTION GRANTS PROGRAM**

This Memorandum of Agreement (hereinafter “Agreement”) is made and entered into this _____ day of _____, 20__ (the “Effective Date”), by and between Clark County, the City of Boulder City, the City of Henderson, the City of Las Vegas, the City of Mesquite, the City of North Las Vegas, the Regional Transportation Commission of Southern Nevada, and the Southern Nevada Water Authority, which are political subdivisions of the State of Nevada (“Coalition Participants” or, collectively, the “Coalition”). This Agreement sets forth the responsibilities and commitments of the Coalition Participants to collaboratively pursue a competitive grant through the Climate Pollution Reduction Grants (“CPRG”) program, administered by the United States Environmental Protection Agency (“EPA”) and subsequently implement the greenhouse gas (GHG) reduction measures outlined in the Coalition’s CPRG Implementation grant application(s).

RECITALS

WHEREAS, the Coalition Participants intend to work collaboratively to further the actions developed in the Priority Climate Action Plan (PCAP) and the subsequent Comprehensive Climate Action Plan (CCAP), as required through the CPRG Planning grant.

WHEREAS, the Coalition Participants have an existing interlocal agreement to collaborate on the All-In Community Sustainability and Climate Action Plan through a Regional Climate Collaborative in Southern Nevada, which complements the CPRG requirements and focuses on four priority goal areas:

- a. Foster Convening and Capacity Building: Coordinate strategies and actions, share lessons, discuss challenges, build partnerships, and receive expertise from others to build upon our current understanding and capacity for addressing climate change through our organizations.
- b. Deliver Regional Public Education and Outreach: Coordinate on a regional approach to public education and stakeholder engagement on issues related to climate planning and actions.
- c. Take Action on Climate Solutions: Produce and house regional and downscaled climate data, perform analyses to make better informed decisions, commission necessary research from academia and research organizations, and track regional progress toward climate goals. Develop models and plans, policies, and joint projects that result in a more coordinated regional response to climate change.
- d. Share and Leverage Resources: As appropriate and as authorized by each Participating Entity, share financial, human, and technological resources to further the shared goals of the region, including applications for new funding opportunities that yield regionally beneficial outcomes.

WHEREAS, the 2022 Inflation Reduction Act (IRA) established the CPRG program, which provides funds in two distinct but related phases:

- a. Planning grants: \$250 million for states, U.S. territories, municipalities, air pollution control agencies, tribes, and groups thereof to develop plans to reduce GHGs. On behalf of the participating entities of the existing Regional Climate Collaborative of

Southern Nevada, Clark County applied for and received \$1 million on August 1, 2023, to develop the PCAP and CCAP to allow the region to be eligible for the implementation grants.

- b. Implementation grants: \$4.6 billion for competitive grants to eligible applicants to implement GHG reduction programs, policies, projects, and measures (collectively, “GHG reduction measures,” or “Measures”) identified during a CPRG planning grant. EPA anticipates awarding 30 to 115 grants ranging between \$2 million and \$500 million under this general competition.

WHEREAS, the Coalition Participants have identified a Measure consisting of financial incentives and funding for residential and commercial building upgrades and improvements that enhance indoor air quality and comfort and increase water and energy efficiency, and for providing residents and businesses with technical assistance, financial resources, and contractors needed to accomplish the work (“Building Improvement Hub”).

WHEREAS, the Coalition Participants intend to apply for an implementation grant for the Building Improvement Hub project that will benefit the entire region in the amount of up to \$500 million. Coalition Participants may apply for additional implementation grant(s) that further the Priority Climate Action Plan.

WHEREAS, entities eligible to apply for an implementation grant include lead organizations that were direct recipients of CPRG planning grants.

WHEREAS, Clark County’s Department of Environment and Sustainability is a direct recipient of a CPRG planning grant and will be the lead applicant for the CPRG implementation grant (“Lead Applicant”).

WHEREAS, the CPRG general competition for implementation grants is designed to enable states, municipalities, tribes, and territories to achieve the following goals:

- a. Implement ambitious GHG reduction measures that will achieve significant cumulative GHG reductions by 2030 and beyond;
- b. Pursue measures that will achieve substantial community benefits (such as reduction of criteria air pollutants and hazardous air pollutants), particularly in low-income and disadvantaged communities;
- c. Complement other funding sources to maximize these GHG reductions and community benefits;
- d. Pursue innovative policies and programs that are replicable and can be “scaled up” across multiple jurisdictions; and
- e. Incentivize eligible applicants to apply for funding together as a Coalition to implement GHG reduction measures regionally, across multiple municipalities, state boundaries, or even state and tribal boundaries.

WHEREAS, ensuring equitable distribution of the positive outcomes associated with implementation of the GHG reduction measures from the PCAP and/or the CCAP requires a solid foundation of regional collaboration.

NOW, THEREFORE, for good and valuable consideration, the sufficiency of which is hereby acknowledged, the Coalition Participants agree as follows:

AGREEMENT

1. The Lead Applicant, Clark County, accepts full responsibility for the performance of the Coalition on the proposed project and commits to being accountable to the EPA for effectively conducting the full scope of work as proposed in the grant application, and ensuring proper financial management of the CPRG Implementation grant funds.
2. The Coalition Participants that are also subrecipients, acknowledge they are subject to the same federal requirements as the Lead Applicant for the proper use of EPA funding and successful project implementation.
3. The Coalition Participants are committed to fulfilling their respective roles and responsibilities, as outlined in this Agreement, to successfully implement the GHG reduction measures described in the application.
4. The Coalition Participants commit to support and promote implementation of the Building Improvement Hub. Examples of support and promotion activities that are expected to be provided by Coalition Participants may include, but shall not be limited to:
 - a Providing requested data and analysis related to energy and water consumption, conservation programs, renewable energy generation, air quality and other community benefits, social equity and climate vulnerability, dollar savings, and other related data;
 - b Reviewing and commenting on reports, assessments, and other relevant documents;
 - c Participating in the identification and selection of community partners and contractors;
 - d Attending Coalition meetings;
 - e Sharing relevant experiences;
 - f Reporting on progress to Lead Applicant to share with EPA;
 - g Actively collaborating and coordinating with Coalition Participants, government and community stakeholders, and community-based partners;
 - h Hosting or attending community outreach and engagement events;
 - i General marketing and outreach efforts to increase community participation in the Building Improvement Hub program, including posting on Coalition Participant websites, social media channels, newsletters, community centers, public hearings, and meetings;
 - j Sharing resources and educational information for complementary services (e.g. transit, water conservation programs) that may benefit target populations; and
 - k Further actions the Coalition Participants determine to be necessary to fulfill the CPRG grant requirements.
5. The Coalition's operating model may include monthly meetings, quarterly reporting to EPA, semi-annual reporting to the Coalition Participants' respective Boards and Councils, and regular online community updates on progress and implementation of the Building Improvement Hub. Upon award of the grant, the Coalition Participants will develop project-specific operational policies and procedures that formalize the operating model.

6. This Agreement becomes effective the date on which all Coalition Participants have approved and executed this Agreement. The Effective Date shall be inserted in the first paragraph of this Agreement upon full execution by the Coalition Participants.
7. This Agreement may be amended or terminated only upon mutual written agreement of the Parties.
8. The term of this Agreement is the period of performance for the grant award, which is expected to be from October 1, 2024 to October 1, 2029, or five years after the estimated project start date for awards, unless the term is extended by unanimous consent of all Coalition Participants upon thirty (30) days' notice. The Parties acknowledge that funding of this Agreement is dependent upon the grant award, accordingly, if necessary funds to continue with the Agreement are not allocated, this Agreement shall terminate at the expiration of the appropriated funds as provided herein.
9. If unforeseen circumstances arise, not explicitly addressed in this Agreement, Coalition Participants agree to engage in good faith discussions and negotiations to reach a mutually acceptable resolution, taking into consideration the objectives and spirit of this Agreement.
10. This Agreement may be signed in one or more counterparts and all counterparts taken together shall constitute a signed Agreement. Each copy of the Agreement signed by an authorized signatory may be deemed an original.

IN WITNESS WHEREOF, the Coalition Participants have executed this Memorandum of Agreement by their duly authorized representatives.

[SIGNATURES ON FOLLOWING PAGES]

Clark County:

By: _____

Tick Segerblom, Chair

Date of Commission Action: _____

Attest:

By: _____

Lynn Marie Goya

County Clerk

Date

Approved as to Form:

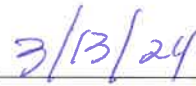
Steven Wolfson

District Attorney

By:  _____

Catherine Jorgenson

Deputy District Attorney

 _____

Date

City of Boulder City:

By: _____

Joe Hardy, Mayor

Date of City Council Action: _____

Attest:

By: _____

Tami McKay

City Clerk

Date

Approved as to Form:

By: _____

Brittany Walker

Date

City of Henderson:

By: _____

Michelle Romero, Mayor

_____ Date

Date of City Council Action: _____

Attest:

By: _____

Jose Luis Valdez

_____ Date

City Clerk

Approved as to Form:

By: _____

Nicholas G. Vaskov

_____ Date

City Attorney

Approved as to Funding:

By: _____

Maria Gamboa

_____ Date

Director of Finance

Approved as to Content:

By: _____

Lisa M. Corrado

_____ Date

Director of Community Development
and Services

City of Las Vegas:

By: _____

Carolyn G. Goodman, Mayor

Date of City Council Action: _____

Attest:

By: _____

LuAnn D. Holmes, MMC

City Clerk

Date

Approved as to Form:

By: _____

John S. Ridilla

Deputy City Attorney

Date

City of Mesquite:

By: _____

Allan S. Litman, Mayor

Date of City Council Action: _____

Attest:

By: _____

Julie Goodsell

Deputy City Clerk

Date

Approved as to Form:

By: _____

Brian Pack

City Attorney

Date

City of North Las Vegas:

By: _____

Pamela Goynes-Brown, Mayor

Date of City Council Action: _____

Attest:

By: _____

Jackie Rodgers

City Clerk

Date

Approved as to Form:

By: _____

Micaela R. Moore

City Attorney

Date

Regional Transportation Commission of Southern Nevada:

By: _____

M.J. Maynard, Chief Executive Officer

Date of Board Action: _____

Attest:

By: _____

Marin Dubois

Government Affairs Supervisor

Date

Approved as to Form:

By: _____

Attorney

Date

Southern Nevada Water Authority:

By: _____

Marilyn Kirkpatrick, Chair

Date of Board Action: _____

Approved as to Form:

By: _____

Greg Walch

General Counsel

Date



SOUTHERN NEVADA WATER AUTHORITY™

100 City Parkway, Suite 700 • Las Vegas, NV 89106
MAILING ADDRESS: P.O. Box 99956 • Las Vegas, NV 89193-9956
702-862-3400 • snwa.com

February 8, 2024

Marci Henson
Clark County Department of Environment and Sustainability
4701 W. Russel Road, Suite 200
Las Vegas, NV 89118

Subject: Letter of Intent - Intention to Request Approval from the Southern Nevada Water Authority's Board of Directors to Sign the Memorandum of Agreement

Dear Ms. Henson,

I am writing to formally express the Southern Nevada Water Authority's (SNWA) intent to bring the Memorandum of Agreement (MOA) for collaboration on a competitive grant through the U.S. Environmental Protection Agency's Climate Pollution Reduction Grants Program to our Board of Directors for approval by May 23, 2024, after the submittal deadline for the implementation grant.

SNWA is committed to joining the Coalition Participants in pursuing the Climate Pollution Reduction Grants Program and actively supporting the implementation of greenhouse gas reduction measures, particularly focusing on the *All-In* Home and Building Improvement Hub project. We acknowledge the importance of regional collaboration outlined in the MOA and are dedicated to contributing to the objectives of the project.

We are confident that our participation will contribute to the success of the project and the attainment of the outlined goals. We look forward to our collective efforts in addressing climate change challenges in Southern Nevada.

Sincerely,

Zane L. Marshall
Director, Water Resources

SNWA MEMBER AGENCIES

Big Bend Water District • Boulder City • Clark County Water Reclamation District • City of Henderson • City of Las Vegas • City of North Las Vegas • Las Vegas Valley Water District

List of Census Tract IDs for Communities Affected by GHG Reduction Measures

Census tracts identified as disadvantaged
Data Source for All Tables: CEJST

GEOID10
32003000101
32003000103
32003000105
32003000106
32003000107
32003000108
32003000109
32003000201
32003000203
32003000301
32003000302
32003000401
32003000402
32003000403
32003000510
32003000513
32003000514
32003000515
32003000516
32003000517
32003000518
32003000519
32003000520
32003000521
32003000522
32003000523
32003000524
32003000525
32003000526
32003000527
32003000528
32003000600
32003000700
32003000800
32003000900
32003001004
32003001100
32003001200
32003001300
32003001401
32003001402
32003001501
32003001502
32003001607
32003001608
32003001609
32003001610
32003001611
32003001612
32003001613
32003001707
32003001708
32003001710
32003001711
32003001712
32003001713
32003001715
32003001716
32003001718
32003001801
32003001803
32003001804
32003001901
32003001902
32003002000
32003002201
32003002203
32003002204
32003002206
32003002207
32003002302
32003002403
32003002404
32003002405
32003002406
32003002501
32003002504
32003002505
32003002506
32003002603
32003002604
32003002605
32003002706
32003002707

Census Tracts with Energy Burden Greater Than 3%

GEOID	Energy Burden (%)
32003004301	6
32003000301	5
32003000302	5
32003000521	5
32003000523	5
32003000524	5
32003001614	5
32003003800	5
32003004302	5
32003004601	5
32003005818	5
32003007801	5
32003000106	4
32003000108	4
32003000401	4
32003000402	4
32003000403	4
32003000513	4
32003000515	4
32003000516	4
32003000518	4
32003000519	4
32003000522	4
32003000525	4
32003000526	4
32003000528	4
32003000600	4
32003001401	4
32003001402	4
32003001501	4
32003001502	4
32003001607	4
32003001608	4
32003001615	4
32003001715	4
32003002201	4
32003002404	4
32003002822	4
32003002941	4
32003002948	4
32003002954	4
32003002965	4
32003003428	4
32003003430	4
32003003500	4
32003003616	4
32003003700	4
32003004000	4
32003004200	4
32003004401	4
32003004402	4
32003004500	4
32003004602	4
32003004707	4
32003004709	4
32003004710	4
32003004712	4
32003004911	4
32003004912	4
32003004920	4
32003004921	4
32003005005	4
32003005006	4
32003005703	4
32003005902	4
32003006001	4
32003006201	4
32003007100	4

Census Tracts with Asthma Prevalence Greater than 75%

GEOID10	Current asthma among adults aged greater than or equal to 18 years (percentile)
32003000302	0.96
32003003500	0.95
32003006001	0.92
32003003700	0.91
32003000523	0.9
32003002404	0.89
32003004712	0.89
32003003800	0.89
32003004713	0.89
32003000600	0.88
32003002605	0.88
32003004402	0.88
32003000301	0.88
32003000528	0.87
32003002406	0.85
32003004703	0.85
32003003430	0.85
32003005010	0.85
32003004709	0.85
32003000401	0.83
32003000521	0.83
32003003427	0.83
32003003616	0.83
32003006201	0.83
32003005421	0.83
32003005438	0.82
32003003617	0.82
32003004602	0.82
32003005818	0.82
32003004921	0.8
32003005005	0.8
32003001501	0.8
32003004301	0.8
32003004710	0.8
32003002603	0.79
32003000402	0.79
32003000522	0.79
32003000525	0.79
32003003431	0.79
32003004715	0.79
32003005200	0.79
32003007200	0.79
32003007800	0.79
32003004302	0.79
32003004601	0.79
32003004707	0.79
32003005006	0.79
32003004000	0.77
32003000201	0.77
32003000516	0.77
32003007100	0.77
32003003644	0.77
32003001607	0.77
32003000513	0.77

Census tracts identified as disadvantaged
Data Source for All Tables: CEJST

32003005200
32003005336
32003005421
32003005422
32003005423
32003005438
32003005439
32003005607
32003005612
32003005614
32003005615
32003005702
32003005703
32003005704
32003005705
32003005809
32003005818
32003005905
32003006001
32003006201
32003006202
32003006800
32003006900
32003007100
32003007200
32003007800

Census Tracts with Energy Burden Greater Than 3%

Census Tracts with Asthma Prevalence Greater than 75%

MARCI D. HENSON

4701 W. Russell Rd., Las Vegas, Nevada 89118
702.455-3118 mhenson@clarkcountynv.gov

SUMMARY

- Highly experienced natural resource executive with outstanding public administration and supervisory skills.
- Expert at designing and implementing complex regional environmental programs to achieve regulatory compliance and environmental goals.
- Adept at interpreting, analyzing and translating complex technical, scientific, legal and regulatory documents and able to quickly assess and communicate impacts & opportunities to the organization.
- Proven collaborator, highly skilled at building effective working relationships with internal and external stakeholders, including local, state and federal officials.
- Trusted ambassador of organizational interests on community advisory committees, technical and policy working groups.

PROFESSIONAL EXPERIENCE

Clark County, Nevada

Clark County is the 22nd-largest county in the United States and provides extensive regional services to more than two million citizens and 46 million visitors a year, as well as municipal services to over 1 million residents in the unincorporated area.

Director, Department of Environment and Sustainability (October 2015 to present)

In this position, my responsibilities include directing Clark County's vision for a sustainable community that improves quality of life, supports economic security, and protects the environment. My portfolio includes directing the County's regional air quality programs, administering the Clark County Multiple Species Habitat Conservation Plan, and leading the County's sustainability and climate action initiatives.

Assistant Director and Administrator of the Clark County Multiple Species Habitat Conservation Plan (October 2013 to September 2015)

In this position, my responsibilities were to administer day-to-day functions of a comprehensive planning program to provide current and long-range planning services to promote a vibrant economy, reduce environmental impacts and conserve natural resources. I also directed all aspects of the Clark County Multiple Species Habitat Conservation Plan (MSHCP), which provides regional compliance with the federal Endangered Species Act (ESA).

Planning Manager (October 2007 - October 2013)

In this position, my responsibilities were to manage the Clark County Desert Conservation Program and administer all aspects of the MSHCP. I also served as trusted adviser to Clark County and the cities of Las Vegas, North Las Vegas, Henderson, Mesquite, and Boulder City on biological and natural resource issues.

Assistant Planning Manager (April 2005 - October 2007)

Senior Management Analyst (August 2002 - April 2005)

Las Vegas Valley Water District

The Las Vegas Valley Water District (LVVWD) is a not-for-profit water utility that provides water to more than one million customers in the City of Las Vegas and unincorporated areas of Clark County, Nevada.

Environmental Planner II (May 2001 - August 2002)

Environmental Biologist (July 1999 - May 2001)

Assistant Conservation Program Coordinator (January 1998 - July 1999)

Lockheed Martin Environmental Services

Lockheed Martin is a global security and aerospace company that employs 116,000 people worldwide and is mainly focused on the research, design, development, manufacture and integration of advanced technology systems, products and services.

Image Analyst (June 1997 - January 1998)

Education

Oregon State University

Bachelor of Science, Natural Resources - Specializing in Water Utilization and Conservation

Member Alpha Zeta honorary professional society for natural resources.

Western Governors University

Master of Science, Management & Leadership

PROFESSIONAL PROFILE

- Management-level professional with more than 20 years of experience in natural resource policy, program administration, and grant development, and over 13 years of supervisory experience.

EDUCATION AND CERTIFICATIONS

- ❖ Master of Public Administration, University of Nevada, Las Vegas, 2006
- ❖ Bachelor of Arts in Anthropology, University of Nevada, Las Vegas, 1997
- ❖ Certificate in Contract Administration, George Washington University (ESI International), 2008
- ❖ Certificate in Non-Profit Management, University of Nevada, Las Vegas, 2000

PROFESSIONAL EXPERIENCE

Clark County Department of Environment and Sustainability, Clark County, NV

Deputy Director (*January 2019 to present*)

Provide oversight and administration for day-to-day functions of departmental programs: implementation of climate and sustainability actions, promoting economically, environmentally, and socially sustainable living practices and reducing carbon emissions, regional air quality management and pollution control program, and regional compliance with the Endangered Species Act.

- Receive and manage ~\$70 million in federal Southern Nevada Public Lands Management Act funds to implement conservation actions for threatened and endangered species.
- Successfully developed the first regional Sustainability and Climate Action Plan for Southern Nevada, outlining energy efficiency and clean energy priority actions and updating the areas regional greenhouse gas emissions inventory.
- Provide oversight to federal Environmental Protection Agency grants for air quality monitoring grants.

Texas Department of Transportation, Environmental Affairs Division, State of Texas

Director – Natural Resource Management Section (*February 2014 to January 2019*)

Managed and administered the Natural Resource Management (NRM) Section, which provides oversight and technical assistance to TxDOT districts and divisions pertaining to biological, ecological, and water resources in the context of development and implementation of transportation projects and statewide programs.

- Provide oversight to federal highway funded projects related to natural resource development and environmental clearance.
- Assist other TxDOT Districts and Divisions in developing strategic and operational plans, policies, regulations, guidance, training, procedures, and with problem resolution.
- Consult and coordinate with local, state, and federal governmental agencies, and other stakeholders, including obtaining environmental permits and regulatory approvals.

Clark County, Nevada

Senior Environmental Specialist/Senior Management Analyst – Desert Conservation Program (*March 2005 to January 2014*)

Responsibilities were directly related to managing Clark County's Multiple Species Habitat Conservation Plan (MSHCP) and incidental take permit, issued in compliance with the U.S. Federal Endangered Species Act.

- Performed program management analyses, including evaluating effectiveness of program policies, developing alternatives for consideration, and establishing new programs, processes and procedures.
- Developed and tracked biennial programmatic budgets and grant administration.
- Led contract and project management efforts, including directing the work of MSHCP staff members, developing and reviewing requests for proposals and scopes of work, writing contracts and interlocal agreements, monitoring contract/project compliance, responding to amendment requests, and evaluating project activities and effectiveness.

Senior Planner – Water Quality Program (*January 2003 to March 2005*)

Responsible for managing compliance with the federal Clean Water Act and Nevada Revised Statutes.

- Developed an annual work plan and budget for the program.
- Developed Requests for Proposals and Scopes of Work for Water Quality Management Plan(s) development, and selected, managed and tracked consultant work. Also performed technical writing and editing of plans.

SAIC (formerly Science Applications International Corporation)

Public Involvement Specialist (*2000 to 2002*)

Provided direct support of the U.S. Department of Energy, National Nuclear Security Administration Nevada Operations Office (NNSA/NV). My responsibilities directly related to the Environmental Management Program.

- Organized and coordinated public meetings, workshops, conferences, and special events.
- Developed a wide variety of communications products including planning documents, fact sheets, press releases, articles, posters, presentations, and displays.

Conservation District of Southern Nevada (CDSN)

District Coordinator (*July 1998 to September 2000*)

Assistant District Coordinator (*July 1997 to July 1998*)

- Managed, coordinated, and implemented District operations and programs.
- Researched opportunities for grant funding, prepared proposals, administered contracts, including project tracking and reporting.

ERIN KILDUFF

ENERGY & SUSTAINABILITY MANAGER

PERSONAL SUMMARY

Sustainability professional with 8 years of experience in energy management and strategic sustainability planning. Energy specialist focused on building relationships with vendors and public agencies.

RELEVANT EDUCATION

Brown University
Bachelor of Arts
Environmental Studies | Class of 2014

CAREER SUMMARY

AREAS OF EXPERTISE

- State and federal regulatory reporting
- Utility budgeting
- Public speaking and technical presentations
- Microsoft Excel and project management software
- Sustainability outreach and planning

Senior Environmental Specialist in Energy

Las Vegas, NV

Clark County Department of Environment and Sustainability

May 2023 - Present

Draft applications and Notices of Intent for upcoming Department of Energy, Environmental Protection Agency, and private grants. Research and identify new and expanded energy incentives within the Bipartisan Infrastructure Bill and the Inflation Reduction Act. Design and develop energy programs in collaboration with community partners.

Senior Sustainability Consultant

Las Vegas, NV

Deloitte Tax

November 2021 - November 2022

Researched and identified new and expanded energy programs and incentives within the Bipartisan Infrastructure Bill and the Inflation Reduction Act. Consulted for clients pursuing energy projects with tax incentives, including carbon capture and utilization projects, renewable energy and hydrogen production projects, and electric vehicle sales and purchasing initiatives.

Energy Manager

Pasadena, CA

Caltech - NASA Jet Propulsion Laboratory

May 2019 - June 2021

Managed federal reporting for onsite energy and water consumption at the NASA Jet Propulsion Laboratory. Supported onsite energy projects, including energy efficiency upgrades, renewable energy deployment, and electric vehicle charging station installations. Obtained LEED certification and multiple ENERGY STAR certifications for NASA Jet Propulsion Laboratory buildings. Implemented an automated billing software system for the Jet Propulsion Laboratory utility accounts. Developed an hours of operation load shedding program for the Jet Propulsion Laboratory site. Presented to the Association of Women in Water, Energy, and Environment.

Energy Services Associate

Pasadena, CA

Caltech

November 2016 - November 2018

Oversaw energy efficiency projects for the California Institute of Technology's green revolving fund, including lighting upgrades, constant volume to variable air volume building conversions, and data center aisle containment. Prepared the Caltech Energy Conservation Investment Program Annual Report.

Environmental Project Manager

Santa Monica, CA

Cypress Creek Renewables

March 2015 - April 2016

Managed environmental diligence contracts with 10+ environmental contractors for over 250 utility-scale solar projects. Researched and applied environmental guidelines and statutes, as described in the National Environmental Policy Act and the United States Army Corps of Engineers regulations.

ANNAMARIE SMITH

240 S Water St., MSC 115 | Henderson, NV 89015 | 702.267.1526
annamarie.smith@cityofhenderson.com

PROFESSIONAL EXPERIENCE

Principal Planner

City of Henderson | Henderson, Nevada

2022-Present

Lead special projects within the Long Range Planning Division. Manage the Climate Response Initiative Major Opportunity Area under the City's Strategic Plan. Supervise professional staff. Administer consultant contracts.

Senior Planner

City of Henderson | Henderson, Nevada

2020-2022

Led the development and implementation of various planning projects as it pertains to city and department priorities. Developed and managed planning-related contracts. Coordinated with federal, state and regional partners.

Planner II

City of Henderson | Henderson, Nevada

2018-2020

Co-authored Together, We Can: A Primer for Recovery, a COVID-19 Recovery Action Plan, recognized by the American Planning Association as the 2021 Resilience & Sustainability Award winner. Assisted with implementation of the Henderson Strong Comprehensive Plan.

Planner I

City of Henderson | Henderson, Nevada

2016-2018

Conducted in-depth research projects. Participated in numerous public engagement activities. Maintained an online presence for local planning initiatives.

EDUCATION

Environmental Studies

Bachelor of Arts | University of Nevada, Las Vegas

2016

GRANT EXPERIENCE

- Project Team Member | U.S EPA FY22 Brownfields Community-Wide Assessment Grant
- Assistant Project Manager | USDA FY21 Farm to School Implementation Grant
- Project Team Member | U.S. EPA FY16 Brownfields Community-Wide Assessment Grant
- Project Team Member | 2016 Robert Wood Johnson Invest Health Strategies for Healthier Cities
- Project Team Member | 2015 U.S. EPA Local Foods, Local Places Technical Assistance

Marco N. Velotta, AICP, LEED Green Assoc.

Planning Project Manager - Chief Sustainability Officer

mvelotta@lasvegasnevada.gov 702.229.4173

Education

University of Nevada, Reno
August 2006 – May 2008
Master of Science - Land Use Planning Policy
Thesis: Plan Implementation Evaluation in Nevada

University of Nevada, Reno
August 2006 – May 2008
Bachelor of Science – Geography
Minor in Mathematics

Valley High School
Graduate – Class of 2002

Work Experience

City of Las Vegas, NV
July 2008 – Present

- 2022 – Present: Planning Project Manager / Chief Sustainability Officer – Community Development
- 2017 – 2022: Sr Management Analyst – Planning
- 2015 – 2017: Management Analyst II – Planning
- 2010 – 2015: Management Analyst I – Administrative Services
- 2008 – 2010: Technician / Specialist – Planning

Projects and Duties:

- Project Manager: City of Las Vegas 2050 Master Plan
- Chief Sustainability Officer: oversee municipal and community renewable energy, energy efficiency, GHG emissions, green building, urban forestry, water conservation, recycling, and alternative transportation efforts. Manage the City's solar, energy efficiency, and electric vehicle charging projects
- Project Manager: Special Area Plans – East Las Vegas, La Madre Foothills, Kyle Canyon, Charleston
- Project Manager: Long Range Planning and 2050 Plan implementation including, LVMC Title 19.07 – Transit Oriented Development, LVMC Title 19.17
- Coordination of regional planning efforts: Southern Nevada Regional Planning Coalition, Southern Nevada Strong
- Project Manager: municipal and regional climate mitigation and adaptation efforts
- Project Manager: City of Las Vegas LEED for Cities (Gold) Certification
- Grant writing and management: ARRA, IIJA, IRA, USDA Community Forestry, state grants, and private grants (~\$80 million in combined activity)
- Nevada Legislature: support legislative team in Carson City on planning and sustainability bills (75th – 82nd Legislative sessions, 2009 – present)

Certifications & Memberships

- AICP – American Institute of Certified Planners - 2013
- American Planning Association – Nevada Chapter
 - Professional Development Officer (2013 – Present)
- LEED Green Associate – Green Building Certification Institute - 2012

Skills

- City planning, zoning, and planning processes
- Community outreach and public speaking
- State and Local government presentations (regional boards, City planning commission, City Council, legislative committees)
- Program management
- Policy and analysis
- Lobbying, bill drafting, and legislative activity
- Grant writing
- Geographic Information System / ArcGIS and ESRI suite
- Adobe Creative Suite
- Spanish (Read/Write/Speak – Moderate)