

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.

Clark County is home to over 730,000 residential structures and over 800 million square feet of commercial space¹. The energy use from these homes and buildings accounts for nearly 50% of the region’s GHG emissions². Given the limited availability of existing programs and incentives to address energy consumption, it was determined by the MSA stakeholders that a comprehensive building improvement program yields the greatest opportunity to deliver the outcomes sought by the Climate Pollution Reduction Grant (“CPRG”) Implementation Program. As Clark County is in the Mojave Desert, it is also essential from a climate resilience standpoint that the program addresses water conservation alongside energy conservation.

Proposed GHG Reduction Measures Undertaken: In the PCAP, Clark County and regional partners identified the need to **advance building efficiency and decarbonization while addressing household energy burdens** via the development of 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 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, staff will perform comprehensive measurement and verification of program measures and 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 program,³ as well as the many variations that began with the US Department of Energy’s Better Buildings Neighborhood Program,⁴ 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 incentive 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 launch the residential portion of the program focused on LIDACs by covering upfront costs,

¹ Clark County, Nevada. Clark County Assessor’s Office. 2024.

² Clark County (2024). Las Vegas-Henderson-Paradise MSA Priority Climate Action Plan.

³Philadelphia Energy Authority. Built-to-Last Program. <https://philaenergy.org/programs-initiatives/built-to-last/>

⁴ 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>

services, and staff and to fill funding gaps from other programs. Clark County understands that other federal grant funds from IIJA or IRA cannot be used for improvement projects for which CPRG funds are allocated.

Low-income and disadvantaged communities (“LIDACs”) will be prioritized in the outreach and engagement activities of the Hub. In addition, it is planned that the majority of the funds (80%) will be designated for providing no-cost retrofits for over 20,000 households with the greatest need to reduce household energy burden. For scale, this would be the equivalent to approximately 20% of the estimated 85,000 owner-occupied households that are below 200% of the Federal Poverty Level.⁵

Tasks, Milestones, and Potential Risks: The *All-In Home* and Building Improvement Hub is an innovative solution that will yield significant, cumulative GHG reductions while also achieving substantial community benefits. Over the last three years, there has been a dramatic increase in household energy burden and housing costs in Southern Nevada. Due to this increase and the growing need for support, the Hub is poised to drive transformational change. It is estimated that this initial launch of the Hub could improve more than 20,000 homes, primarily within LIDAC areas. Given the extensive reach required of the Hub, design and implementation of the program will be a significant undertaking. As such, additional funds have been requested to support the initial design and piloting phase of the program, which is further described in Section 1b. Funding requested through the CPRG program will support the implementation of the program throughout the region and the expansion of benefits to include additional GHG reduction measures, such as whole-building electrification and air quality improvements. A summary of the major tasks and milestones is provided in Table 1.

Table 1. Tasks and Milestones

Program Phase	Tasks/Milestones
Program Design Phase	Evaluate the results of the initial pilot project and refine the operational workplan accordingly
	Coordination with financial institutions and utilities to identify incentives to be leveraged through the program
	Procurement process to identify the Lead Program Operator and the Construction Lead
	Setup administrative systems and processes to track program expenditures and outcomes.
	Initiate the hiring process for new County staff
	Coordination with trades unions and other workforce development partners
Program Implementation Phase	Assess programmatic needs to scale up the program and establish qualification processes to meet the needs of LIDAC communities and ensure GHG reductions
	Community engagement to identify candidate households; Refinement of channels and marketing materials and program collateral based on pilot results
	Launch full program, conducting assessments and installations community-wide
	Conduct measurement and verification studies to evaluate program effectiveness
	Semi-Annual Progress Reports
	Detailed Final Report

⁵ 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>

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.

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 partnering with community-based organizations to identify the best outreach strategies to support residents who would most 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 Unions 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"> ✓ Once the Hub has established clear criteria to ensure LIDAC renters are receiving the benefits of improvements, landlords and any other building owners would be eligible to participate in the program to perform energy and water conservation upgrades that benefit their tenants. ✓ The Hub will create specific outreach materials that renters can use to inform their landlords of opportunities to address household efficiency issues.

Roles and Responsibilities of Coalition Members: Clark County will oversee the administration of the Hub on behalf of the *All-In* Regional Climate Collaborative (“Climate Collaborative”), which includes the Cities of Boulder City, Henderson, Las Vegas, Mesquite, and North Las Vegas, the Regional Transportation Commission of Southern Nevada, and Southern Nevada Water Authority. These regional partners formalized the establishment of the Climate Collaborative and this grant application through an interlocal agreement and a memorandum of agreement (“MOA”), respectively. Coalition participants will contribute time to support and promote implementation and evaluate the program's effectiveness. Example 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 County-wide 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 from the development of an *All-In* Home and Building Improvement 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 potential 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.

b. Demonstration of Funding Need

The successful implementation of a sustainable Hub requires a dedicated and comprehensive funding strategy. While there are several existing incentive 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.⁶ Additionally, the funding structure for ratepayer programs in Nevada, which primarily relies on an additional customer utility bill charge without supplementary funding sources, often results in lower-cost, lower-impact upgrades. As a result, there is a historical trend of unintended disincentives to implement energy efficiency upgrades and a focus on commercial and industrial sectors rather than residential and low-income communities.⁷ 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 highest solar irradiance in the country, previous utility policies have made rooftop solar installations a significant financial barrier for most residents. 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

⁶ ACEEE (2023), Utility Energy Efficiency Scorecard. Retrieved from <https://www.aceee.org/research-report/u2304>.

⁷ 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>

is expected to occur in spring 2024), this could be another significant funding stream braided for dissemination through the Hub to address decarbonization and high utility bills.

Additional Sources of Support: There are several federal funding opportunities that will support building electrification and efficiency but are insufficient to achieve the large-scale transformation necessary in this region. Federal incentives (e.g., tax credits)—those existing and made available through IRA—are available to households, but these may not reduce the burden of upfront costs for low-income households. The County has sought alternative funding sources to pilot the energy conservation and electrification branch of the Hub through the Energy Efficiency and Conservation Block Grant (“EECBG”) program. These funds will support efforts such as the initial design of the program; establish Standard Operating Procedures for the Hub to run effectively; identify 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 unions 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 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 its 2030 and 2050 GHG reduction 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 costs, 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.⁸ 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.

⁸ 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>

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.

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.

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.⁹ 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.¹⁰ 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.¹¹ The requirements to pay prevailing wages may improve the ability of small businesses to attract more talent and grow.
- **Housing Affordability:** One of the greatest challenges facing the region is housing affordability. The cost of housing as a percentage of income has been rising across the region.¹² The Hub can support a significant reduction in utility bills, which have risen and put a strain on many

⁹ SNWA (2024). 2024 Water Resource Plan. <https://www.snwa.com/water-resources/water-resource-plan/index.html>

¹⁰ 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>

¹¹ 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>

¹² US Census (2012-2022). American Community Survey: Selected Housing Characteristics.

household's finances in the past year.¹³ 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, 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.¹⁴ 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.¹⁵ 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.¹⁶ Nearly 30% of all the housing in the region was constructed between 2000 and 2009;¹⁷ 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.

Finally, it is important to note that Clark County has sought guidance from staff running similar programs in other regions and states, including southern California and Pennsylvania. Clark County would like to establish a program for Southern Nevada that incorporates best practices from prior models while developing a blueprint for other regions like Southern Nevada that operate in a regulated utility market. Given the urgency of the climate crisis and its impacts in Southern Nevada, Clark County and its Coalition partners are optimistic about the ability of the program to enact real change for residents while providing a scalable model for other states with a regulated utility market structure.

¹³ Hemmersmeier, Sean. Las Vegas Review Journal. August 31, 2023. *Clark County residents voice displeasure over utility bills*. <https://www.reviewjournal.com/business/energy/clark-county-residents-voice-displeasure-over-utility-bills-2896813/>

¹⁴ SNWA (2024). 2024 Water Resource Plan. <https://www.snwa.com/water-resources/water-resource-plan/index.html>

¹⁵ Geller, Howard. Southwest Energy Efficiency Project (SWEEP). 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>

¹⁶ 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>

¹⁷ 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.

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 creates an opportunity for significant emissions reductions. Through funding from the CPRG Program, retrofits driven by the Hub are expected to 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 energy savings related to water treatment and delivery from 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 the Hub 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 requested amount 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 will be used for project coordination, implementation, and informational support, which is expected to benefit another 2,802 homes annually through indirect support to leverage available incentives related to improving household efficiency.

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.¹⁸ The EUSS dataset allows for the development of reduction estimates that capture how the weather of Southern

¹⁸ 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

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 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 program development 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 Standard¹⁹ 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 (MTCO_{2e} / 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 (MTCO_{2e})

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

¹⁹ Nevada Public Utilities Commission. Renewable Portfolio Standard.
https://puc.nv.gov/Renewable_Energy/Portfolio_Standard/

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

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 expected to continue to stimulate investments in energy efficiency throughout the communities it serves. 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 September 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.²⁰ 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 Regional Coalition participants 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 up to an additional 56,000 homes over that period.

Permanence: It is expected that the effective useful life of HVAC equipment will result in a decrease in 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

²⁰ 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>

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 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 lower project costs and extend the program's reach by approximately 5%.

As implementation details are finalized, every feasible opportunity to leverage additional resources to improve cost effectiveness will be explored. Assuming a full award of \$499,999,236 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 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 impact of building energy retrofits is based on estimates obtained from the NREL ResStock EUSS.²¹ 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 \$499,999,236.

²¹ National Renewable Energy Laboratory. ResStock End Use Savings Shapes, 2022.1 Release TMY3.
<https://resstock.nrel.gov/datasets>

- The share of the award applied to implementation was assumed to be around 80% or approximately \$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 included in each package were obtained from a compilation of installed measure costs from programs nationwide.²²
- 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. Incorporating these rebates bring estimated project costs to \$16,550 for weatherization and \$32,541 for weatherization and standard electrification.
- 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 Federal Poverty Level (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 more 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.²³ 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's Better Buildings Neighborhood Program,²⁴ 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%).²⁵

²²Less 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

²³ 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>

²⁴ 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>

²⁵ 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>

The mix of energy conservation measures for indirect participating 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.
- It is assumed that an equal share (25% each) would take weatherization only or heat pump only measures.
- Lastly, it is assumed 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.²⁶ 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.²⁷
- 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.

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 people engaging with the Hub;

²⁶ Gagnon, Pieter; Cowiestoll, Brady; Schwarz, Marty (2023): Cambium 2022 Data. National Renewable Energy Laboratory. <https://scenarioviewer.nrel.gov>

²⁷ 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>

- Number of home 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
- Percentage of funds distributed to low-income and disadvantaged populations

The Hub is expected to generate 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.

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, ^{28,29} 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 ³⁰ (4.36 tons). ³¹ 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 ^{32,33} , 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.

²⁸ NV Energy. Energy Pricing Plans: Standard Electric Rate. <https://www.nvenergy.com/account-services/energy-pricing-plans>. Accessed. 2/22/24.

²⁹ 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

³⁰ 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, Napthalene, Pentane, Phenanthrene, Propane, Pyrene, Toluene.

³¹ Air quality emissions factors sourced from AP 42, Fifth Edition, Volume I Chapter 1: External Combustion Sources.

³² 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/>

³³ 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
<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 upgrades are 6,560, 18,807, and 17,410 gallons per home per year, respectively. ³⁴ 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	Dollars Saved
GHG reductions delivered through the program	MTCO ₂ e
CAP/HAP reductions delivered through the program	Metric tons of pollutants
Improved comfort, physical health, and financial condition of participants	Participant 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.

³⁴ Water savings estimates provided by the Southern Nevada Water Authority.

Major applications for grant funding require approval by the Clark County Board of Commissioners; the Board of County Commissioners approved the submittal of a CPRG application on March 19, 2024.

Clark County will oversee the administration of the Hub on behalf of the *All-In* Regional Climate Collaborative participants. These coalition 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.

As previously noted, Clark County intends to leverage its EECBG funds to develop and design for the energy conservation and electrification work within the Hub. This effort will include coordination with utilities, state and regional agencies, and community-based partners. Additionally, this funding could cover the purchase and set up of a CRM tool and the creation of initial outreach materials, a website, and a community engagement strategy for the residential energy conservation and electrification portion of the Hub. Funds from EECBG will be tracked and expended separately from CPRG funds during this time. Table 9 gives a detailed implementation timeline for key tasks and milestones for the Hub expected to be covered by the CPRG Implementation funds.

Table 9. Implementation Timeline and Milestones

Timeline	Project Tasks/Milestones
Q4 2024	Initiate hiring process within County
	Initiate procurement process to secure Lead Program Operator and Construction Lead for the Hub
	Finalize outreach strategy
Q1 2025	Initial round of Clark County hiring completed, and training conducted for existing staff and new staff hires
	Selections made and contracts distributed to Lead Program Operator and Construction Lead
Q2 2025	Contractors complete initial round of hiring and training of contract staff
	Community outreach and marketing efforts begin to create a waitlist of interested parties
	Submit first Semi-Annual Progress Report to EPA (estimated), then ongoing twice per year
Q3 2025	Official opening of the Hub to the public, and home assessments and improvements begin
Q1 2026	Initial measurement and verification studies conducted to evaluate program effectiveness, which continues on a quarterly basis
Q4 2029	Detailed Final Report submitted

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 of 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 ³⁵ ; 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 a proxy indicator (noted in 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.³⁶ 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.

Table 11. Estimated Energy Cost Reductions

Federal Poverty Level	Avg. CO₂e Savings³⁷	Avg. Income³⁸	Current Avg. Energy Burden³⁹	Avg. Cost Savings⁴⁰	Improved Energy Burden	Savings as Share of Income
0-100%	2.6	\$11,651	17%	\$963	8%	8%

³⁵ 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

³⁶ Data provided in Table 10 sourced from CEJST.

³⁷ 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>

³⁸ 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>.

³⁹ IBID

⁴⁰ Calculated with current single family retail energy rates from SW Gas and NVE.

Federal Poverty Level	Avg. CO ₂ e Savings ³⁷	Avg. Income ³⁸	Current Avg. Energy Burden ³⁹	Avg. Cost Savings ⁴⁰	Improved Energy Burden	Savings as Share of Income
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 multilingual 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 is provided to all interested parties in the region.

Tracking Progress: Clark County, through the Hub, will assess, quantify, and report on the benefits and avoided disbenefits outlined in this section annually. This assessment will be conducted at a 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 to track client intake, timelines of outreach, completion of program applications, and other stages of program participation. During the intake process, factors affecting the household, such as utility cost burdens, will be noted and tracked for improvements. 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 developed an outreach campaign strategy that will be executed over the next few years. This strategy will leverage the relationships developed with community-based organizations (CBOs) through the *All-In* process and furthered through the PCAP process, to reach target audiences, particularly LIDACs. Providing a foundation of climate literacy will build the necessary community support to implement the plan, adopt climate policies, and 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 the development of this measure for the PCAP and 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 low-income communities and Black communities on energy efficiency and clean energy for NV Energy. There were 15 individuals in attendance who participated in a conversation to share their current priorities

and 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 was held in March 2024 with Chispa to foster discussions with Spanish-speaking residents. To ensure equitable engagement, participants were compensated for their time, and 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 Unions (SNBTU) to discuss current and future workforce needs and toured several Joint Apprentice 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 February 2024, Clark County and SNBTU co-hosted a listening session with over 25 local contractors to understand current capacity, existing barriers, and resource needs of the workforce to adequately support their participation in work identified through the Hub.

From August 2023 to March 2024, the County has also been meeting with utilities and regional agencies to discuss how 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 Hub's braided funding model.

Engagement During Program Implementation: Meaningful engagement with LIDACs will be continuously included in the development and implementation of the Hub. Through the following strategies, Clark County will ensure early and consistent inclusion of diverse perspectives:

- Developing an outreach and engagement strategy that prioritizes LIDACs;
- Leveraging the *All-In* Engagement Team, including Climate Ambassadors from different parts of the County, to engage members of their communities through multilingual 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 to 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 supports “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 assessments 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 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

a. 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

Project Title	Assistance Agreement Number	CFDA	Summary	Sponsor Contact
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 over 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 County, 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 working groups.

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 for the Department of Environment and Sustainability in 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 developing energy programs in southern Nevada. Prior to this role, Ms. Kilduff was a Senior Sustainability Consultant for Deloitte Tax and an Energy Manager at the NASA Jet Propulsion Laboratory. For the CPRG Implementation program, Erin will support day-to-day program implementation of energy audits and energy conservation measures.

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 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 drawdown reimbursements, grant expenditure requests, and fiscal oversight will support management of the budgetary elements of the CPRG program.

Section 7: Budget

Total funding amount requested is \$499,999,236. Budget breakdown and descriptive narrative provided in the attached budget narrative and budget spreadsheet.