

Section 1: Overall Project Summary and Approach

Description of GHG Reduction Measures

Despite being a small city of just over 65,150, the City of Cheyenne – Wyoming’s capital and largest city – is becoming a regional economic and technology hub. As tech companies increasingly locate their data centers in Cheyenne, the demand for electricity is expected to increase from today’s 350 MW to over 1200 MW by 2030. This includes 5 data center campuses (including Microsoft and other large technology corporations), hosting 27+ active and future data centers within the next decade. To manage the dual priorities of sustainable growth and building a cleaner energy economy, Cheyenne is pursuing an ambitious energy strategy to harness its natural wind and solar assets while benefiting from cost-competitive renewable energy technologies. Wind turbines already line Cheyenne’s horizon, but only provide part of the solution. There is significant potential for solar to complement wind and further diversify Cheyenne’s energy mix – part of an all-of-the-above strategy aligned with the state. However, solar requires more land than wind energy. Much of [Wyoming’s direct economic output](#) (77%) is already dependent on land-intensive agricultural and livestock industries, and Cheyenne is no exception.ⁱ

To mitigate greenhouse gas (GHG) emissions from both present energy consumption and future energy needs, Cheyenne proposes a package of four (4) innovative, ambitious, and scalable measures in both the electricity and waste sectors. **These measures were selected based on their ability to meaningfully advance Cheyenne’s energy strategy within the period of performance, scale to support even larger projects within the next decade and generate sustainable revenue streams for the City to reinvest in long-term, sustainable energy solutions.** All four (4) measures below are aligned with CPRG goals, including implementing ambitious measures that will achieve significant cumulative GHG reductions by 2030 and beyond (see Section 2), contribute to substantial community benefits (see Section 4), complement other funding sources to maximize emissions reductions and community benefits (see Section 1 – Demonstration of Funding Need), and pursuing inventive programs that are replicable and can be scaled across Wyoming and the country (see Section 1 – Transformative Impact). Project risks for all four (4) measures are discussed at the end of this section.

Landfill Solar (Measure 1): US EPA funding would enable the City to **deploy Wyoming’s first landfill solar project** and sustainably reuse 102 acres of otherwise undevelopable land at the municipally owned Cheyenne Landfill. By using its own landfill, the City can increase renewable energy deployment while also limiting greenfield development.

Major Features	<p>Site Address: 1461 Happy Jack Rd, Cheyenne, WY 82009</p> <p>Area: The City aims to repurpose the surface of 32 acres of closed landfill area (capped over 30 years ago) and another 70 acres of landfill buffer area.</p> <p>Energy Capacity: Initial site evaluation and planning estimates this will amount to approximately 13.5 MW of solar.</p> <p>Project Structure: The City intends to own the system, creating a subscription-based, community energy program in partnership with Black Hills Energy to reduce the energy costs of its operations and energy burdens of others in the community.</p> <p>Estimated Emissions Reductions: 95,061.37 metric tons CO2e</p>
Tasks	<p>Task 1: Develop RFP for qualified project development</p> <p>Task 2: Prepare for and evaluate RFP responses</p> <p>Task 3: Negotiate and sign contract with energy developer(s)</p> <p>Task 4: Project design, site permitting, and interconnection study</p> <p>Task 5: Construction</p> <p>Task 6: Operations and maintenance</p> <p>Task 7: Engage and educate community about project plans with 12+ forums</p>

Milestones	Milestone A: Release RFP for qualified project development Milestone B: Sign contract with selected respondent Milestone C: Host first in-person community forums on solar projects Milestone D: Complete project design and permitting Milestone E: Begin construction Milestone F: Complete construction and place project in service Milestone G: Host post-construction in-person community forums on solar projects
PCAP Link	Pages 5, 36, and 49

Cheyenne is actively working with [Black Hills Energy](#) (BHE) (utility, also known as Cheyenne Light & Power), [Kansas State University’s Technical Assistance to Brownfields program](#) (KSU TAB), and [Rocky Mountain Institute’s \(RMI\) Brightfields Accelerator](#).ⁱⁱ Together, they are assessing the most effective practices for siting and designing clean energy solutions to responsibly repurpose the closed landfill and surrounding areas.

Cattle-Voltaics (Measure 2): To protect its longstanding agricultural and ranching economy while addressing its rapidly growing energy needs, Cheyenne seeks US EPA funding to scale agrivoltaics in Wyoming – specifically the co-location of cattle ranching and solar, or “cattle-voltaics”. [Agrivoltaics](#) is an emerging practice where solar is co-located with agricultural operations.ⁱⁱⁱ Most commonly, this involves growing crops under solar panels or siting solar panels above grazing lands for sheep – or like this proposal, cattle. This offers multiple benefits beyond emissions reductions, including dual land use, income diversification, and shade for crops and livestock. See Section 4 - Community Benefits, for greater detail.

“Cattle-voltaics” would allow for the existing ranching operations at the King Ranch to continue alongside and under an estimated 46.2 MW of solar. This land, plus the landfill, are part of an overall 1,105-acre parcel owned by the city. Utilizing this land for solar would be an innovative co-location strategy. While multiple small-scale research efforts have explored this successfully, ***Cheyenne would become a national leader – no project in America would come close to the size and scale of this proposed project*** (see attached letters from the Colorado Agrivoltaic Learning Center (CALC) and University of Minnesota West Central Research and Outreach Center).

Major Features	<p>Site Address: 1515 Happy Jack Rd, Cheyenne, WY 82009 (approximate address)</p> <p>Area: This proposed cow-location would leverage 350 acres of city-owned land adjacent to the Cheyenne Landfill that is already leased for cattle ranching.</p> <p>Energy Capacity: Initial site evaluation and planning estimates this will amount to approximately 46.2 MW of solar.</p> <p>Project Structure: The City intends to own the system and manage through BHE as a subscription-based, community solar program to reduce the energy costs of government operations and energy burdens of others in the community.</p> <p>Estimated Emissions Reductions: 119,725.2 metric tons CO2e</p>
Tasks	Task 1: Develop RFP for qualified project development Task 2: Prepare for and evaluate RFP responses Task 3: Negotiate and sign contract with energy developer(s) Task 4: Project design, site permitting, and interconnection study Task 5: Construction Task 6: Operations and maintenance Task 7: Engage and educate community about project plans with 12+ forums

Milestones	Milestone A: Release RFP for qualified project development Milestone B: Sign contract with selected respondent Milestone C: Host first in-person community forums on solar projects Milestone D: Complete project design and permitting Milestone E: Begin construction Milestone F: Complete construction and place project in service Milestone G: Host post-construction in-person community forums on solar projects
PCAP Link	This is directly related to the ranch solar project measures listed in the PCAP on pages 5, 36, 49, as this emissions reduction and co-location strategy is intended to both ease and scale adoption of solar on ranching and grazing land. The cattle-voltaics project was not explicitly mentioned in the PCAP because research was still ongoing, and it only received approval after the PCAP submission deadline.

Cheyenne is actively working with [BHE](#), [Laramie County Community College](#) (LCCC), [Cheyenne LEADS](#), the [CALC](#), and [University of Minnesota West Central Research and Outreach Center](#) to evaluate interconnection options, workforce training partnerships, and cattle-voltaic design strategies.^{iv} This innovative approach creates opportunities for educational and workforce training partnerships between Wyoming’s educational institutions and research centers around the country, further showcasing the City’s openness to innovative approaches that can meet the needs of its growing tech economy.

Note: While the exact structure of the subscription-based, community solar will depend on funding, the City and BHE have already discussed how this project – and the landfill solar project described above – can build on BHE’s [Renewable Ready Service Tariff](#).^v This existing operational (and currently fully subscribed) program offers low-cost renewable energy in 5-to-25-year subscription options to large commercial and industrial customer meters or governmental accounts.

On-Site Solar for Wastewater Treatment Plants (Measure 3): Cheyenne is seeking funding to deploy solar to power their Crow Creek and Dry Creek wastewater treatment plants to **offset a majority of on-site electricity use with solar**. By offsetting 534,525 kWh per month between the two facilities, solar could save the City up to \$25,181/month and demonstrate the synergy of on-site solar as a complement for energy intense community operations.

Major Features	<p>Site Addresses: 8911 Campstool Rd and 4403 Livingston Ave., Cheyenne, WY 82007</p> <p>Areas: The viable land on Crow Creek is approximately 14 acres, and the viable land on Dry Creek is approximately 17.5 acres.</p> <p>Energy Capacity: Initial site evaluation and planning estimates this will amount to approximately 4.45 MW of solar.</p> <p>Project Structure: The City intends to own the system and connect it up behind-the-meter for each facility. The estimated 2 MW at Crow Creek is enough to offset up to 57% of the facility’s electricity consumption, and the estimated 2.45 MW at Dry Creek is enough to offset up to 75% of the facility’s electricity consumption.</p> <p>Estimated Emissions Reductions: 11,155.57 metric tons CO2e</p>
Tasks	Task 1: Develop RFP for qualified project development Task 2: Prepare for and evaluate RFP responses Task 3: Negotiate and sign contract with energy developer(s) Task 4: Project design and site permitting Task 5: Construction Task 6: Operations and maintenance Task 7: Engage and educate community about project plans with 8+ forums

Milestones	Milestone A: Release RFP for qualified project development Milestone B: Sign contract with selected respondent Milestone C: Host first in-person community forums on solar projects Milestone D: Complete project design and permitting Milestone E: Begin construction Milestone F: Complete construction and place project in service Milestone G: Host post-construction in-person community forums on solar projects
PCAP Link	Pages 5, 36, and 49

Electrifying Biogas Digestion and Capturing Methane for Renewable Natural Gas (Measure 4):

Cheyenne seeks US EPA funding to upgrade its Dry Creek Wastewater Treatment Plant (WWTP) facility to convert the waste biogas into Renewable Natural Gas (RNG) and displace fossil natural gas consumption. Sewage waste from around Laramie County is processed at the Crow Creek and Dry Creek WWTP facilities. At Crow Creek, waste is initially treated and then rerouted to the Dry Creek facility to undergo anaerobic digestion. From there, sludge passes through gas-compressed primary and secondary digesters and is eventually turned into biogas over 13-15 days (about 2 weeks).

Most of the biogas produced is flared off, releasing CO₂. This 24/7 operation consumes on average 816,584 kWh a month, costing the City \$71,727/month. Conversely, the City can avoid methane flaring by converting the biogas into RNG for regional industrial, commercial, and residential heating use. Dry Creek currently processes 1,175,300 kg (about 2,591,090 lb) of solids per year of 15,692,222 MJ of biogas, and 4,602,565 MJ of RNG per year. ***The upgrades described below enable the City to produce more biogas, meet regional demand for RNG by reusing waste, and displace emissions from natural gas.*** Cheyenne is actively in discussion with the City's Board of Public Utilities (BOPU) to plan and optimize the development of RNG production and distribution.ⁱⁱ

Major Features	<p>Site Address: 8911 Campstool Rd, Cheyenne, WY 82007</p> <p>Existing Systems: Today, the Dry Creek WWTP uses a digester gas compression system from 1974. This dated technology is less efficient than modern mechanical digesters and only allows for mechanics to check for malfunctions when the digester is recompressed. When the digester at Crow Creek WWTP fails (like in the 1980s), the water and sludge must be rerouted to Dry Creek and is limited by the digestion rate of the Dry Creek digester gas compression system. BOPU has already purchased a new heat exchanger allowing more biogas to be produced from the same amount of sludge.</p> <p>System Upgrades: Retrofit the mechanical digester at the Dry Creek WWTP to digest sludge more efficiently and produce RNG from biogas. The upgrades will improve the inlet filtration and compression system, remove gases like H₂S, CO₂, and water vapor from the biogas via filtration, membranes, and glycol dehydration, and finally compress and analyze the RNG for a high-quality product. With these upgrades, the system can better process waste to help offset the demand for fossil natural gas.</p> <p>Other Benefits: In addition, by converting the gas compressor digester to a mechanical one, the operation will no longer rely on biogas for power and instead will use electricity. While this will increase the facility's electricity demand, the City will be able to sell more biogas and plans to power the digester with the on-site solar (Measure 3).</p> <p>Estimated Emissions Reductions: 2,659.23 metric tons CO₂e</p>
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Tasks	Task 1: Develop RFP for qualified project development Task 2: Prepare for and evaluate RFP responses Task 3: Negotiate contract with RNG developer(s) Task 4: Project design and site permitting Task 5: Construction Task 6: Engage and educate community about project plans with 4+ forums
Milestones	Milestone A: Release RFP for qualified project development Milestone B: Sign contract with selected respondent Milestone C: Host first in-person community forums on RNG project Milestone D: Complete project design and permitting Milestone E: Begin construction Milestone F: Complete construction and begin operations
PCAP Link	Pages 5 and 28

Project Risks & Mitigation Strategies to Ensure Success:

Because all four measures proposed are predominantly contractual work leading to project deployment, the focus of the tasks and milestones for each measure are appropriately geared toward developing market-based procurements as well as community engagement. As a result, the greatest risks to the success of the tasks and milestones outlined above are the efficacy of the procurement process and the degree of buy-in from the community. Detailed elements of these risks are discussed below (see Section 4 – Community Engagement for the City’s complete approach to engagement and education).

- Typical Landfill Solar Risks:** Any solar project on a closed landfill must not disturb the landfill cap, which can release pollutants to the air, soil, and water and be harmful to environmental and human health. To mitigate this risk, Cheyenne will follow landfill solar best practices by requiring that any solar developer ballast the solar array on the surface of the site, without ground or cap penetration. Additionally, when siting solar on closed landfills, the settlement rate informs the degree to which the land topography may change. Typically, at least 10 years from closure is needed for the settlement rate to stabilize. The southern 32-acre cells of the Cheyenne Landfill have been closed for over 30 years. Since October 2023, Cheyenne has also actively participated in an educational cohort with tailored 1-1 support on landfill solar run by US EPA-funded KSU TAB and RMI’s Brightfields Accelerator to understand best practices in siting and procurement strategy. Lastly, the City released a March 2024 [solicitation for landfill mapping and surveying services](#), which will help ensure that the solar procurement can include the most up-to-date topographical information.ⁱ
- Cattle-Voltaics Risks:** As noted above, because no cattle-voltaics project has been built at this scale to date, there are potential unknown risks. From research, in coordination with Rocky Mountain Institute, the CALC, and the University of Minnesota, there are design strategies that should reduce and/or eliminate the likelihood of significant risks – as this is essentially a solar parking canopy project deployed on ranch land. This coordination will continue during project development to ensure Cheyenne and the project development team are building with best practices in mind. There is also a risk of community support/opposition. While the City owns the proposed project land and there is broad support (see Belvoir Ranch discussion in Section 4), it is essential that the City proactively educate, inform, and work with project neighbors and ranchers to share how this will complement existing ranching and grazing and not be visible from nearby homes. As discussed in Section 4 - Community Engagement, this will include hosting in-person and online forums, continuing the practice of 1-1 engagement with individual stakeholders, and orchestrating tours to the CALC to offer hands-on, in-person, and tangible education with leading experts in agrivoltaics and cattle-voltaics.

- **System Interconnection Risks:** There is no meaningful on-site electricity demand at the landfill, landfill buffer, or King Ranch land, so Cheyenne will need to investigate the feasibility of connecting its solar project to BHE’s grid. However, grid interconnection can merit multiple studies and potentially years of waiting in a queue behind other projects already in planning. To avoid lengthy interconnection queues, the City has been collaborating with BHE to develop a plan for co-locating with the utility’s existing wind farm interconnect with solar and battery storage. This innovative approach will not only significantly reduce time to activate and mitigate the interconnection risks but would also provide enhanced grid flexibility and resiliency with renewable energy. These risks do not apply to the proposed [on-site solar](#) at the two WWTPs, as those will be connected behind-the-meter at the WWTPs directly.ⁱⁱ See Section 1 - Transformative Impact - Leveraging Existing Interconnection for Hybrid Power, for more details.
- **Utility Partnership Risks:** All four (4) measures rely on BHE’s collaboration, from minor meter integration at the WWTPs to major solar and battery grid integration and RNG distribution. Led by the Mayor, the City has prioritized strengthening its relationship with BHE, given the critical collaboration needed and the scale of opportunities available. This has resulted in a growing partnership for both renewable energy and RNG opportunities. BHE has helped inform the CPRG grant application development, particularly on the sizing of solar and battery storage for Measures 1 and 2, and the RNG infrastructure needed for Measure 4. See *BHE’s letter of commitment* attached.
- **Market Risks:** With any solar project, the maturity of the industry and supply chain is a risk to price, construction timing, and overall project development, especially with increased demand for using domestic content to leverage federal clean energy tax credits. Some industry and supply chain risks are influenced by global markets, trade restrictions, industry tariffs, and other forces outside Cheyenne’s control. However, Cheyenne is proactively planning for domestic content for solar, steel, and other equipment in this CPRG budget/budget justification and intends to reduce this risk by preparing for a single solar procurement across its CPRG solar project portfolio. See Section 1 - Transformative Impact – Aggregated Solar Procurement, for more details.

Ultimately, these four projects – landfill solar, cattle-voltaics, on-site solar, and the biogas digester + methane capture — result in four feasible, ambitious measures to diversify Cheyenne’s energy landscape. These include:

1. Installing renewable energy on municipal and wastewater facilities,
2. Developing distributed and community-scale renewable energy,
3. Enabling customer participation in distributed generation, and
4. Expanding bio-digestion systems to reduce emissions and capture methane generated for RNG.

Cheyenne has begun incorporating climate-friendly policies and regulations and will demonstrate this by using its own assets. These projects will take the initiative as pilot projects and embrace strategic emissions reduction measures at-scale while appropriately and innovatively mitigating potential risks.

Demonstration of Funding Need

Cheyenne seeks CPRG Implementation funding to leverage additional federal, state, and local resources. As discussed in the *Budget Section*, Cheyenne has structured its CPRG Implementation grant to deploy projects that can specifically offset 40% of capital costs via the federal clean energy tax credits (base credit plus domestic content bonus). The project site locations are not in eligible areas for the Energy Communities or Low-Income Communities tax credit adders, nor is a landfill deemed an eligible brownfield to qualify for the brownfields provision in the Energy Communities adder. See Budget – 40% Investment Tax Credit for the breakdown of the tax credit incentive. The City is concurrently pursuing

funding for the cattle-voltaics project from the [Wyoming Energy Authority's Energy Matching Fund](#).ⁱⁱⁱ However, to be eligible for this state funding, Cheyenne must have at least 50% in federal or private matching funds for the project, which, if selected for funding, will be provided by CPRG Implementation grant funds. The City is also following the Greenhouse Gas Reduction Fund for opportunities for low-cost financing through the National Clean Investment Fund and Clean Communities Investment Accelerator to assist in funding these initiatives.

Cheyenne aims to use the Investment Tax Credit (ITC) for the addition of RNG infrastructure to their Dry Creek WWTP. Current proposed guidance ([Section 10](#)) suggests this property would not be eligible for the ITC due to the 80/20 rule, which states that at least 80% of the eligible property must be new to receive the tax credit.^{iv} Because the RNG infrastructure is an addition to an existing anaerobic digester, the new infrastructure will make up less than 80% of the whole energy property. When complete with the new RNG generating infrastructure, the portion of existing infrastructure will make up more than 20% of the energy property. Regardless, RNG infrastructure construction is planned prior to 2025, and if the IRS releases guidance before then indicating this property is eligible for the ITC, the City will apply for the tax credit via elective pay.

Entity	Type of Leverage	Amount/Value	Status
<i>Federal Investment Tax Credit (for clean energy)</i>	Federal Market Incentive (cash)	\$44,372,973.58 (based on current capital cost estimates)	Will secure upon award per IRS guidance
<i>Federal Investment Tax Credit (for biogas)</i>	Federal Market Incentive (cash)	Depends on IRS guidance	Eligibility TBD, pending IRS guidance
<i>Wyoming Energy Authority Energy Matching Fund Program</i>	Matching Funds (cash)	\$8,367,000; contingent upon federal award AND state approval	Concept Paper (Part I) submitted to Energy Authority
<i>KSU Technical Assistance to Brownfields Program + partners</i>	Staff Time (in-kind) for research, analysis, and planning	Value is based on hourly rate of KSU TAB and TAB partners	Secured/already engaged, see Letter of Commitment
<i>City of Cheyenne</i>	Land (in-kind)	452 acres	Secured, see Letter of Commitment
<i>City of Cheyenne Board of Public Utilities</i>	Land (in-kind)	35 acres	Secured, see Letter of Commitment
<i>City of Cheyenne Board of Public Utilities</i>	RNG Equipment Investment (cash)	\$1,500,000 for new digester lid and mixer at Dry Creek WWTP	Will secure upon award, see Letter of Commitment
<i>Black Hills Energy</i>	Existing grid infrastructure at Corriedale Wind Farm + staff time (in-kind) for analysis and planning	Existing interconnection (saves ~2 years in project development), staff analysis/planning	Secured, see Letter of Commitment

Cheyenne has also explored the lack of availability of other resources. The State of Wyoming declined to participate in the CPRG program, leaving Cheyenne without the opportunity to join a broader statewide application instead. Regarding other federal grants, Cheyenne is not eligible for USDA's Rural Energy for America Program nor are the measures proposed likely eligible for US EPA's Solar for All. Should the University of Wyoming (UW) be awarded Solar for All funds, Cheyenne intends to leverage part of that funding to advance residential rooftop solar (see PCAP page 35). Lastly, while US DOE's Foundational

Agrivoltaic Research for Megawatt Scale (FARMS) program did fund six (6) agrivoltaic research projects in December 2022, the program was limited to \$8 million and does not seem to be recurring.

Despite the secured, planned, and award-contingent resources listed above, as well as operating in a state that has embraced an all-of-the-above energy strategy, Cheyenne has limited resources. In fact, ***the City's entire FY24 general fund budget is \$66.2 million – approximately equal to just the proposed cattle-voltaics project with the federal clean energy tax credits applied (\$66.26M) and merely two-thirds of this CPRG Implementation grant request (\$99.1M).*** Clearly, without EPA CPRG funding, most, if not all, of the projects described above would not happen – or certainly not in the next decade when deploying transformational emissions reductions strategies is particularly critical.

Transformative Impact

This proposal undoubtedly will stimulate transformation toward a decarbonized economy with innovative yet replicable and scalable strategies to unlock greater emissions reductions. These include:

Innovative Land Uses for Scaling Renewable Energy:

- **Landfill Solar:** Repurposing closed landfills (or closed portions of operating landfills) to host solar is not well-known as a practice. While over 300 projects have been built on closed landfills/buffer areas in the US, [US EPA Re-Powering America's Land data](#) confirms there are only nine (9) completed landfill solar projects greater than 10 MW and no landfill solar projects in Wyoming.^v ***Not only would this 13.5 MW project be the first in Wyoming, but it would be one of the largest built in the country. Additionally, the potential for landfill solar is at least 60X larger than what has been installed to date.*** Analysis by the [RMI in 2021](#), found that of the 10,000+ closed landfills across the country, at least 4,300 of them could host solar projects.^{vi} The total generation capacity of these solar sites could exceed 63 GW, more than two-thirds of the country's solar capacity installed through 2020 and about equal to the power needs of the entire state of South Carolina.
- **Agrivoltaics & Cattle-Voltaics:** While co-locating solar and sheep grazing is increasingly common, co-locating cattle and solar is a largely untapped practice, with the largest [US DOE-recorded](#) project in the US currently 3.7 MW in Massachusetts.^{vii} ***Cheyenne hopes to change that by showcasing what's possible at-scale in the mountain west with Wyoming's first agrivoltaics project (according to US DOE's InSPIRE database), where rangeland, ranching, and grazing are significant.***^{viii} In fact, researchers informed the Cheyenne project team that despite successful pilot projects and evidence to the contrary, solar developers still perceive that cows risk damaging solar panels and hesitate to invest in these projects at-scale. Because of this lack of cattle-voltaics at-scale, Measure 2 has market transformation potential. Even US DOE's [Foundational Agrivoltaic Research for Megawatt Scale \(FARMS\)](#) program did not award any funding to cattle-specific projects; however, this project has significant ramifications for future development.^{ix} The US Bureau of Land Management and US DOE recently updated the [Western Solar Plan](#) to provide a roadmap for up to 22 million acres for solar development.^x Cheyenne, specifically, also owns the [Belvoir Ranch](#) – an 18,800 acre working ranch slated for future recreation, water, municipal landfill operations, and energy development. Preliminary estimates suggest up to 6,000 acres could be feasible to host and co-locate solar.^{xi} Ultimately, the proposed cattle-voltaic project for this grant is actually an at-scale pilot of what could be possible for other ranch sites in Cheyenne, in Wyoming, and across the Mountain West.

Aggregated Solar Procurement:

- With four solar sites (2 WWTPs behind-the-meter, landfill solar, and King Ranch cattle-voltaics), the City intends to ***aggregate the four sites for one highly qualified solar developer or development team to build more complex solar projects to streamline procurement and development timelines.*** The WWTP projects will be standard ground-mounted solar, but the landfill solar and cattle-voltaics

will require site-specific design considerations, including, but not limited to, ballasted foundations on the closed landfill and enhanced steel structures to support canopies over cattle. These will be inherently more complex. ***The City's innovative approach is to pair the behind-the-meter WWTP projects with the more complex sites to accelerate deployment, capture enhanced economies of scale*** for all solar equipment and installation labor, and provide a longer-term, multi-phased construction project to sustain job creation from these projects. This will also offer improved efficiencies for planning and deployment. As the landfill solar and cattle-voltaics designs are refined and permits are pursued, the development team can build and energize the approximately 4.45 MW of ground-mounted solar projects for on-site WWTP use. Thus, the tasks and milestones for solar procurement, negotiations, and contracting are identical because they are the same process – not three processes happening simultaneously. In contrast to procurement and contracting, permitting and construction will be phased sequentially, as shown in *Section 3*.

Leveraging Existing Interconnection with Hybrid Power:

- The City is working closely with its utility, BHE, to co-locate solar within an *existing* interconnection with the Corriedale wind farm adjacent to the city's landfill and King Ranch. Supporting this co-location of solar and wind, Cheyenne proposes adding 20 MW/80MWh of battery storage to achieve three (3) goals: 1) to enable greater flexibility and reliability with otherwise intermittent resources; 2) to deploy solar at greater scale while reducing solar curtailment by 14% compared to without a battery, resulting in a [conservative resource curtailment](#) projection of under 20%; and 3) to help BHE understand how to best integrate its first solar and energy storage project into its Wyoming service territory (and one of its first company-wide) in a grid that already supports extensive wind interconnections with more planned.^{xii} ***This creates a synergy by offering more consistent power from two intermittent resources (solar and wind) that generate electricity at different times.*** Ultimately, this hybrid power station will ***dramatically streamline interconnection and deployment*** (the hybrid co-location is not considered a new interconnection application), and it ***pilots this hybrid approach to scale at nearby wind farms***, including but not limited to the turbines at the Belvoir Ranch, and BHE's multi-state service territory.

Holistic WWTP Digestion and Collection Process Decarbonization:

- Cheyenne is proposing a package of strategies for its WWTP operations that collectively reduce greater emissions. By converting a gas-based digester to a mechanical one that runs on electricity, powering the on-site facilities with clean electricity, and capturing methane that is currently flared to displace economy-wide natural gas needs, the ***City is taking a comprehensive approach to upgrade and decarbonize its wastewater treatment process that is replicable and scalable for other municipalities in Wyoming and beyond.***

Capturing Revenue in Revolving Fund for Sustaining Energy Innovation:

- Beyond emissions reductions, the four measures should generate cost savings and revenue for the City. To further the impact, the City intends to create its first energy innovation revolving fund to capture the savings and revenue. This will first be reinvested in covering ongoing operations and maintenance costs of the solar and battery storage technologies beyond the period of performance as well as sustaining the city's first-ever Strategic Energy Project Manager (SEP) position to both oversee implementation of the four measures and pursue future sustainable energy projects. Any remaining funds will be reinvested in accelerating deployment of other sustainable energy projects.

These reduction measures and innovations build on the recommendations of the UW's [Renewable Energy Siting Collaborative](#), specifically on embracing an all-of-the-above energy strategy, leveraging brownfields and previously disturbed lands for renewable energy development, and streamlining the current process for renewable energy siting and permitting through the City's efforts to co-locate solar

with the existing Corriedale interconnection.^{xiii} As the largest city in Wyoming, the City of Cheyenne is poised to lead by example by showing how the state’s all-of-the-above energy strategy (and other states with similar approaches) can embrace innovation, renewable energy, and sustainable land use. Cheyenne is excited to collaborate with US EPA, the UW and others to demonstrate how smaller cities in Wyoming and across the U.S. can strategically integrate renewable energy and emissions reductions to advance economic growth and meet rising energy demand.

Section 2: Impact of GHG Reduction Measures

CPRG Implementation funding is a critical catalyst to enabling the four (4) measures described above. Without US EPA’s CPRG program and funding potential, these emissions reduction measures, which were loosely discussed among Cheyenne leaders previously, would not have been transformed into these detailed, tangible plans. Accordingly, these GHG reductions are newly additive and a result of installing solar and from offsetting the amount of fossil natural gas burned with biogas based RNG.

- Justification Overview for Solar GHG Reductions (Measures 1-3): As described in the *Technical Appendix*, the GHG reductions from solar installations in Measures 1-3 are based on reducing 96,362.64 MWh in total electricity consumption from the grid and calculating the emissions that would have resulted from the grid in a business-as-usual scenario. This scenario accounts for grid generation, federal and state policies, and a predicted growing demand.
- Justification Overview for RNG GHG Reductions (Measure 4): As described in the *Technical Appendix*, the GHG reductions from the RNG generating infrastructure are based on the difference of emissions from processing 3,220 kg of solids a day in a business-as-usual scenario with anaerobic digestion and flaring at the WWTP compared to an RNG generation scenario with RNG burned at end-use displacing fossil natural gas. The RNG infrastructure will be placed in service mid-2025, so the cumulative emissions start halfway through 2025. Because the limiting factor for anaerobic digestion and RNG generation is quantity of solids, a 0.92% population growth is factored into the cumulative total, based on the population growth in Cheyenne between 2010-2020.

Magnitude of GHG Reductions from 2025 through 2030

Measure	Cumulative GHG Reductions (mtCO2e)
Measure 1 Landfill Solar	23,289.27
Measure 2 Cattle-Voltaics	79,914.16
Measure 3 WWTP Solar	10,362.30
Measure 4 WWTP RNG	2,489.27
Total	116,055.00

Magnitude of GHG Reductions: Cheyenne will achieve 116,055.00 metric tons CO2e of GHG reductions from 2025 to 2030 from Measures 1-4. This equals 27,621 gasoline-powered passenger vehicles driven for a year or 15,135 homes’ energy use for a year, based on the [EPA GHG Equivalencies Calculator](#).^{xiv}

Durability and Longevity of GHG Reductions

Solar: The solar will be contracted for at least 25 years, after which the City will decide whether to continue operations, decommission, or replace the panels (which is most likely). The solar panels will be designed to withstand Wyoming extreme weather, including [large hail and high winds](#).^{xv}

RNG infrastructure: Once installed, the City plans to keep the RNG infrastructure in service as long as there is a demand for RNG. As discussed in *Section 1*, the demand for renewable energy is projected to increase. By 2030, there will be a strong demand for RNG in the Cheyenne region, and BHE plans to utilize all energy resources available to them. By creating a steady supply of RNG, the City can reduce emissions from operations that would otherwise use natural gas.

Magnitude of GHG Reductions from 2025 through 2050

Measure	Cumulative GHG Reductions (mt CO ₂ e)
Measure 1 Landfill Solar	72,931.54
Measure 2 Cattle-Voltaics	250,255.29
Measure 3 WWTP Solar	26,531.65
Measure 4 WWTP RNG	12,420.20
Total	362,138.68

Magnitude of GHG Reductions: The City of Cheyenne will achieve 362,138.68 mt CO₂e of GHG reductions from 2025 to 2050 from Measures 1-4. This equals 86,190 gasoline-powered passenger vehicles driven for a year or 47,226 homes' energy use for one year, based on this [EPA Calculator](#).^{xiv}

Durability and Longevity of GHG Reductions: Like the durability and longevity of GHG reductions from 2025-2030, the GHG reductions will last if the solar and RNG infrastructure are active. As discussed in *Section 1*, the demand for solar and RNG continues to increase as new energy-intensive data operations open. Accordingly, the City plans to maintain the integrity of the solar panels and RNG infrastructure.

Cost Effectiveness of GHG Reductions

The cost effectiveness of the total GHG reductions from 2025-2030 is \$853.78/mtCO₂e. See *Technical Appendix* for more details. The GHG reductions from solar are more cost effective than the RNG since solar power has zero operational emissions while RNG results in some GHG emissions to prepare biogas for distribution. However, the RNG infrastructure, or Measure 4, is only requesting \$10,591,187, while the solar projects, Measures 1-3, are requesting \$88,494,733.

It is worth noting that there are short-term and long-term cost-effectiveness considerations. In the short-term (and in a vacuum), Measures 1 and 2 are less cost effective than traditional utility-scale solar. This is because the projects require fewer standard designs (ballasted solar arrays on the landfill to not penetrate cap) and raised panels with more steel to securely mount panels at least 6 feet above ground to allow for cattle to co-exist with the solar (see *Section 1 and Budget Justification* for additional details). In addition, the electricity generated will connect to existing infrastructure as described in *Section 1* and will create a hybrid interconnection system with existing wind turbines. The hybrid system requires a battery to mitigate electricity curtailment when both solar and wind are concurrently producing electricity at high levels. The battery adds \$18,511,050, decreasing the cost-effectiveness but adds further benefits (see *Section 1 – Transformation Impacts, Section 4 – Community Benefits*). In the long-term, Cheyenne aims to be a pioneer for these innovative siting and hybrid interconnection approaches at-scale. US EPA investment in these projects will increase comfort and accelerate deployment in Wyoming and across America, which qualitatively increases the cost-efficacy and overall project value.

Note: *Not* factored into the *Technical Appendix* or emissions calculations above is the fact that the City also intends for these projects to catalyze long-term investments in operational sustainability and regional emissions reductions. As noted in *Section 1 – Transformational Impacts*, the City intends to create an energy innovation revolving fund and reinvest cost savings and revenue generated to cover O&M costs as well as the SEP Manager position to oversee implementation of these projects and pursue/fund accelerated deployment of future municipal energy conservation and emissions reduction projects. None of these – the revolving fund or SEP manager – exist today. While this is not currently quantifiable, this does mean the City's documented cost-efficacy is very conservative.

Documentation of GHG Reduction Assumptions

See *Technical Appendix and GHG Emission Reduction Calculations*.

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

Expected Outputs and Outcomes

Measure	Outputs
All Measures	<ul style="list-style-type: none"> SEP Manager hired Interns hired to support expanding energy innovation focus Energy Innovation Revolving Fund created # of workforce development programs created based on/referencing these measures
1. Landfill Solar	<ul style="list-style-type: none"> MWs of solar capacity installed Acres of landfill/landfill buffer used for solar installation Renewable Ready Service Tariff/community energy program expanded to include new subscribers for solar (also applies to Measure 2) Case study produced on landfill solar design and deployment in Wyoming, ideally in collaboration with Wyoming DEQ
2. Cattle-Voltaics	<ul style="list-style-type: none"> MWs of solar capacity installed # of square feet of shade provided to grazing cattle Research partnerships and collaborations established to track progress Initial report with regional partners on at-scale cattle-voltaics lessons learned, including, but not limited to, average body temperature of cattle and heat stress indicators, vegetation growth, water needed to support cattle and vegetation, overall behavioral interactions of cattle with panels, revenue generated from cattle leasing and energy production, design considerations, O&M needs, etc. Note: Cheyenne intends for a more detailed research report on cattle-voltaics to come from this project, but does not think this is feasible to achieve within the period of performance due to the seasonal variability and data needing to be gathered for a robust analysis. It is likely that this would be a 5-year progress report following the start of operations, currently expected in late 2026 or early 2027. Thus, the 5-year progress report would likely be achieved in 2032-2033. Progress toward this output should be measured by research partnerships and collaborations established to track efficacy, lessons learned, and broader scalability.
3. WWTP Solar	<ul style="list-style-type: none"> MWs of solar capacity installed
4. WWTP RNG	<ul style="list-style-type: none"> New digester installed Upgrades installed, including inlet filtration and compression system, H₂S removal filtration, glycol gas dehydrator, CO₂ removal membranes, compression, and gas quality analytical equipment Memorandum of Understanding (or similar agreement) signed between BHE on RNG distribution

Measure	Outcomes
All Measures	<ul style="list-style-type: none"> ▪ Metric tons of CO₂e emissions reduced between 2025-2030 ▪ Metric tons of CO₂e emissions reduced between 2025-2050 ▪ Municipal savings/revenue generated for revolving fund between 2025-2030 ▪ Municipal savings/revenue generated for revolving fund between 2025-2050 ▪ # of subscribers in community energy program between 2025-2030 ▪ # of subscribers in community energy program between 2025-2050 ▪ # of temporary jobs created for construction/upgrades between 2025-2030 ▪ # of long-term jobs created from O&M, research, and educational opportunities related to these projects between 2025-2050
All Solar Projects (1-3)	<ul style="list-style-type: none"> ▪ Electricity generated (kWh) from all 3 solar measures between 2025-2030 ▪ Electricity generated (kWh) from all 3 solar measures between 2025-2050
2. Cattle-Voltaics	<ul style="list-style-type: none"> ▪ # of participants joining site tours/workshops to CALC between 2025-2030 ▪ # of acres productively leveraged for cattle-voltaics/livestock + solar in WY between 2025-2050 ▪ Heat stress reduction for grazing cattle (measured by average body temperature of cattle)
4. WWTP RNG	<ul style="list-style-type: none"> ▪ Amount of biogas flared between 2025-2030 ▪ Energy (MJs) from RNG produced between 2025-2030 ▪ Energy (MJs) from RNG produced between 2025-2050

Performance Measures and Plan

Measure	Performance Measures for Outputs and Outcomes
All Measures	<p>The proposed SEP Manager position would be the primary responsible individual for tracking, measuring, and reporting progress with support from interns as well as the Sustainability Specialist position the City is actively hiring for.^{xvi}</p> <ul style="list-style-type: none"> ▪ For progress on emissions reductions, we will follow similar methodology for the estimates in this CPRG application (see <i>Section 2</i>). This will include, but not be limited to, comparing actual solar and RNG production to business-as-usual (BAU) scenarios for grid power and natural gas consumption/flaring. ▪ For progress on municipal savings/revenue, we will develop a BAU projection for operational costs for electricity bills/consumption and compare actual monthly and annual costs/revenue to that projection, factoring in actual O&M project costs. ▪ For progress on community energy program subscribers, we will work with BHE to obtain current participation numbers and then track new subscriptions once the program is expanded, including socioeconomic indicators of subscribers. ▪ For progress on jobs and workforce development, we will work directly with the selected contractors and development teams to understand who they are hiring and whether they are local hires. For long-term jobs beyond construction, we will coordinate with Cheyenne LEADS to capture the employment opportunities directly and indirectly related to these projects from O&M, research, and education. ▪ For progress on internships, the SEP Manager and interns would provide an end-of-internship report to City Council and other senior department leaders.

All Solar Projects (1-3)	<ul style="list-style-type: none"> ▪ To track electricity generated and other direct benefits, we will ask the development team to provide a turnkey online monitoring portal that shows real-time and cumulative electricity production as well as other benefits, including CO₂ emissions reduced and equivalencies such as number of households powered, and equivalent number of miles driven (example here).^{xvii} ▪ For MW of solar installed, the City will work with the development team to understand the final capacity that is constructed and operational.
1. Landfill Solar	<ul style="list-style-type: none"> ▪ To report progress, the SEP Manager and interns will develop a short case study on landfill solar in Wyoming with/for DEQ, specifically to share lessons learned from procurement, permitting, and construction. This will be shared with DEQ, WEA, and other municipalities and landfill operators in Wyoming.
2. Cattle-Voltaics	<ul style="list-style-type: none"> ▪ For tracking participation in agrivoltaic site tours and workshops, we will keep records of both those invited and those who attended. ▪ For tracking acreage leveraged for cattle-voltaics and square feet of shade, we will work with development team to confirm design plans and final construction. ▪ For tracking heat stress reduction for grazing cattle (measured by average body temperature of cattle), we will ask the development team to install temperature sensors under the solar panels and adjacent to the solar arrays and then partner with UW, LCCC, and others to monitor body temperatures of cattle. ▪ For reporting progress, the City's SEP Manager and interns will develop an initial report on cattle-voltaics after the first year of operations, detailing specific lessons learned and findings. This will be shared with partners and posted online.
4. WWTP RNG	<ul style="list-style-type: none"> ▪ For progress on biogas flared vs. RNG produced, we will use existing systems and data from BOPU/BHE/RNG buyers to measure the amount of gas flared, captured, and converted for RNG distribution to offset natural gas market purchases.

Authorities, Implementation Timeline, and Milestones

Measures 1 & 2: Landfill Solar & Cattle-Voltaics

- *Responsible Parties:* City of Cheyenne Mayor's Office, Department of Public Works (DPW), Purchasing Department, and Planning & Development Department (PDD)
- *Implementation Roles & Responsibilities:* City, DPW, and Purchasing will co-lead the solar procurement solicitation, selection, contracting process, and community engagement, with DPW and PDD overseeing the permitting and construction process; the City's SEP Manager and Mayor's Office will coordinate with BHE on electricity offtake/interconnection; DPW and SEP Manager will oversee monitoring and maintenance
- *Authority to Implement:* The City owns all land, operates the landfill, manages site access, and will run procurement. Depending on the exact ownership and electricity offtake structure, BHE has authority over Renewable Ready Service Tariff, selling power, and other grid approvals.
- *Entities Necessary for Successful Implementation:* BHE (for offtake planning, system design, and grid interconnection); KSU TAB and RMI's Brightfields Accelerator (for landfill solar procurement best practices); UW, LCCC, and Cheyenne LEADS (for workforce development/research partnerships)

Measure 3: WWTP On-Site Solar

- *Responsible Parties:* City of Cheyenne Mayor's Office, BOPU, DPW, and Purchasing Department
- *Implementation Roles & Responsibilities:* City, BOPU, DPW, and Purchasing will co-lead the solar procurement solicitation, selection, contracting process, and community engagement, with BOPU overseeing the permitting and construction process; BOPU and SEP Manager will oversee monitoring and maintenance

- **Authority to Implement:** The City/BOPU owns land, manages site access, operates on-site facilities, and will run procurement.
- **Entities Necessary for Successful Implementation:** BHE (for inspection and interconnection); DPW (procurement coordination)

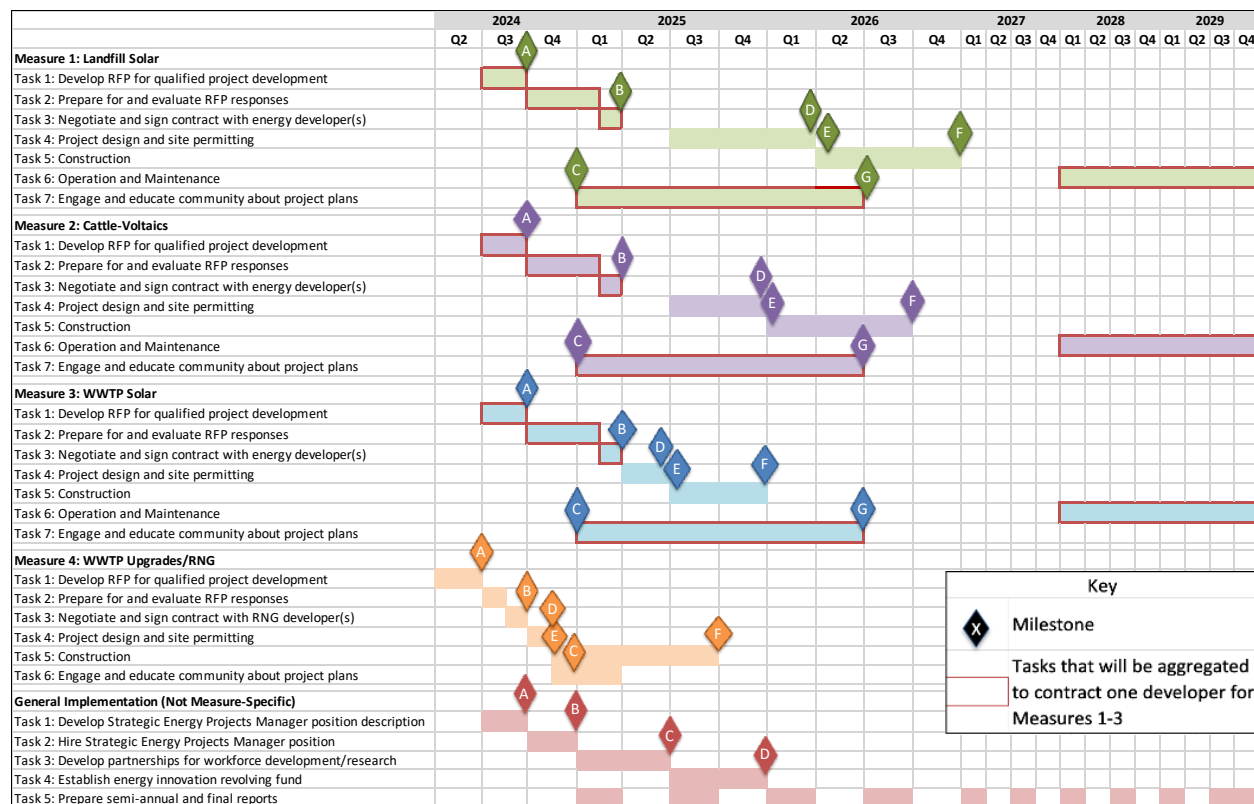
Measure 4: Upgrades for Biogas/Methane Capture and RNG Conversion

- **Responsible Parties:** City of Cheyenne, BOPU, Purchasing Department
- **Implementation Roles & Responsibilities:** City, BOPU, and Purchasing will co-lead the biogas system upgrades and RNG conversion services procurement, selection, contracting, and community engagement, with BOPU and PDD overseeing the permitting and construction process; the SEP Manager and Mayor's Office will coordinate with BHE on RNG distribution strategy
- **Authority to Implement:** The City/BOPU owns the land, operates on-site facilities, and will run procurement, but needs BHE for distribution network.
- **Entities Necessary for Successful Implementation:** BHE (for RNG set up and distribution)

Implementation Timeline & Milestones

Below is the estimated timeline for implementation. The milestones refer to the milestones per measure described in *Section 1*, except for the milestones for general implementation (not measure-specific) which are as follows:

- Milestone A: Post SEP Manager position
- Milestone B: Hire SEP Manager position
- Milestone C: Kickoff meeting with solar development team
- Milestone D: City Council approves Energy Innovation Revolving Fund



Section 4: Low-Income and Disadvantaged Communities

Community Benefits

Cheyenne’s proposed emissions reduction measures provide direct and indirect benefits to the Southeast Wyoming region and low-income and disadvantaged communities.

Cheyenne’s CEJST Census Tracts Affected by Proposed Measures

Cheyenne’s GHG reduction measures provide benefits across the *all* census tracts in Cheyenne through increasing access to clean energy, energy burden reduction opportunities, increasing economic resilience, and employment and workforce opportunities. While none of the measures proposed are *physically* located in these census tracts, the City aims to offer a range of direct and indirect benefits to lower income and disadvantaged census tracts.

Census Tract	South Greeley (4.01)	Fox Farm Area (4.03)	Southside East & West Cheyenne (2.00)	Old City (7.00)	Cheyenne	Wyoming
Population 2022	5,271	6,626	4,791	3,954	64,610	581,629
Percent Minority (Non-White)	25%	43%	40%	20%	24%	17%
Percent Hispanic/Latino	20%	33%	34%	15%	17%	11%
Median Household Income	\$64,227	\$54,511	\$47,412	\$31,882	\$74,989	\$72,495
Median Household Income (Hispanic/Latino)	-	\$59,269	\$39,955	-	\$71,654	\$62,695
Renter Occupied	29%	33%	42%	59%	32%	28%
Lack HS Degree	10%	21%	16%	14%	5%	6%
Projected Wildfire Risk	98th Percentile	94th Percentile	95th Percentile	81st Percentile	N/A	N/A
Asthma Rate	73rd Percentile	86th Percentile	80th Percentile	73rd Percentile	N/A	N/A

All data from Cheyenne MSA PCAP if not otherwise hyperlinked to US Census Bureau sources.

Increasing Access to Affordable Clean Energy to Reduce Energy Burdens: Community solar offers opportunities for residential customers who pay electricity bills — including renters (~32% of Cheyenne households and 59% of households in the Historic Cheyenne District), people living in multifamily residential buildings, and those without a viable rooftop for hosting solar — to buy clean energy. A subscriber is then able to reduce their energy burden and/or hedge against future price increases for energy to increase their financial resilience. The City intends to set up a community solar or similar subscription-based program that increases access to clean electricity and reduces electricity bills, regardless of census tract, prioritizing homeless and domestic violence shelters. Community solar is an electricity bill account credit (or reduced rate) in exchange for a guaranteed subscription for the length of the agreement. *This allows subscribers to reduce the volatility of their energy bills with fixed rates, especially important as utility bills are rising in the [Cheyenne region](#) and [across Wyoming](#) due to infrastructure upgrades, continued coal cost overruns, and [rising natural gas prices](#).* While the exact structure is still being determined, the City and BHE have already discussed how both the landfill solar and cattle-voltaics projects described in *Section 1* can build on BHE’s [Renewable Ready Service Tariff](#). This already operational (yet fully subscribed) program offers low-cost renewable subscription options to large volume commercial and industrial customers through single meter or aggregated meters or governmental accounts.

US EPA funding is critical to enabling the City and BHE to develop subscription options that go further and provide opportunities to residential customers as well. As Cheyenne proceeds, it intends to plan with community engagement in mind — as [two common implementation issues](#) include “unfamiliarity with solar products” and “lack of trust” among customers and those offering the opportunity.^{xviii} Moreover, the City intends to shape the program with BHE based upon community input and [best practices for designing systems](#), including a specific carve-out for lower income subscribers and renters to prioritize affordability and access.^{xviii} This would directly benefit ~32% of Cheyenne’s population that lives in the 4 census tracts considered low-income and disadvantaged, including the Fox Farm and

Southside Cheyenne areas in which approximately 1/3 of residents identify as Hispanic or Latino and where there is a significantly higher level of residents lacking a high school diploma (see table above).

Embracing Co-Location of Clean Energy: As discussed in *Section 1*, none of the proposed solar projects displace recreational, grazing, agricultural, economic, or other public or private uses. In fact, all 3 solar projects demonstrate energy and land synergies, setting an example for landowners of innovative ways to meet regional needs while preserving farming and ranching legacies. This also shows how the City can preserve opportunities for recreation, cattle grazing, and future economic growth while deploying renewable energy at-scale. This is essential in the growing southeast Wyoming economy where avoiding displacement of jobs, grazing land, and recreational areas is paramount, especially as the City plans the future of the 18,800-acre Belvoir Ranch (see discussion in *Section 4 – Community Engagement*).

Dual Land Use & Income Diversification: The cattle-voltaics project (Measure 2) allows land to be used for energy generation and agricultural purposes, without displacing ranchers or cattle. Additionally, through land leases and energy payments, this creates multiple revenue streams for farmers, ranchers, and landowners – including the City in this case – who also host solar panels on their land. Similarly, the landfill solar project leverages existing land (literally above part of the closed landfill and on buffer land) that is unavailable for other development. In both situations, the City would earn greater revenue from this dual land use – a benefit to all taxpayers in Cheyenne. Related, it is worth noting that between 55-65% of Wyoming’s budget comes from taxes on the production of fossil fuel sources like coal, oil, and natural gas. In November 2023, Governor Mark Gordon [noted](#) that “finding innovative ways to generate income in a carbon-limited economy presents a major challenge that will require policy expertise at many levels.”^{xxix} While cattle-voltaics won’t make sense for all land, co-location of solar, cattle, and other livestock may make sense for enough land to create meaningful new revenue streams – especially considering that approximately [85% of the state land is considered “rangelands”](#) and one of the most common uses of rangelands is domestic livestock production.^{xx}

Increasing Economic Resilience for Wyoming’s Farmers and Ranchers: According to the [US Bureau of Labor Statistics](#), the average annual salary for farm and ranch workers in Wyoming as of May 2022 is \$31,440.^{xxi} This is well below Cheyenne’s median household income (\$74,989) and per capita income (\$41,908), according to the [US Census Bureau](#).^{xxii} Demonstrating and scaling cattle-voltaics protects grazing lands and livestock and also increases the economic resilience of farmers and ranchers far beyond this project, especially as [livestock production accounted for 77% of Wyoming’s direct economic agricultural output](#), with beef cattle ranching accounting for 60% of total direct agricultural output (\$1.03 billion in Wyoming’s direct economic output).^{xxiii}

Shade for Crops and Livestock: Research has shown that the shade from solar panels helps reduce heat stress and watering needs – especially important as [Wyoming gets increasingly hotter and drier](#).^{xxiv} Agrivoltaics researchers at the [University of Minnesota found](#) that cows that use the solar canopies for shade could meaningfully reduce internal body temperatures by 1°F compared to unshaded cows.^{xxv} The added shade helps even grasses grow during drought conditions. This is particularly important as droughts are the most costly (52.3% of total disaster costs) and second-most frequent of the billion-dollar extreme weather events impacting Wyoming since 1980, according to [NOAA’s National Centers for Environmental Information](#).^{xxvi} Reducing economic fallout from drought conditions indirectly benefits all workers who depend upon a vibrant agricultural economy.

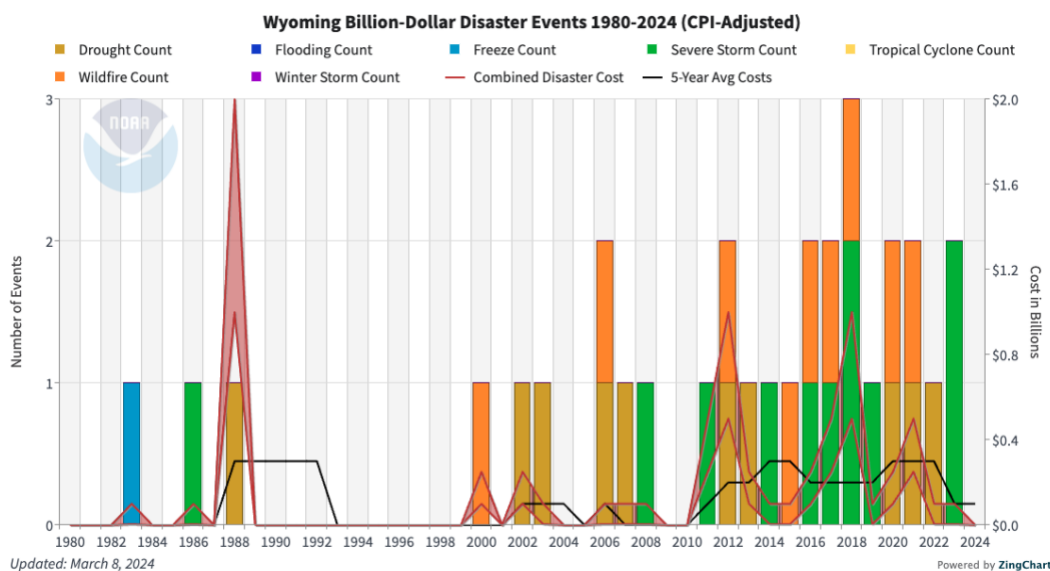
Creating Opportunities for Local Research and Workforce Development: If Cheyenne does not embrace energy innovation, the City risks losing well-paying, high-quality job and research opportunities of varying levels and related economic growth – including construction, operations, field research, entrepreneurship, and even technology development. For instance, research on agrivoltaics and cattle-

voltaics is already in the works just south of the Wyoming border at CSU in Fort Collins, the CALC in Longmont, and at CU-Boulder. Making this tangible for faculty, students, and prospective trainees in this field is partly why Cheyenne is requesting funding for site tours for regional stakeholders, workshops for project team members, and transportation to the CALC (see *Section 4 – Community Engagement*). This is an opportunity to not just attract new talent to Southeast Wyoming but also cultivate its own homegrown workforce, laborers, and researchers at this intersection of energy innovation and land use.

Related, the City intends to lead by example by launching two paid internship opportunities annually – for Environmental Education and Energy Innovation Research – that support this next phase of Cheyenne’s innovation through 2030. This creates direct pipelines for students to get hands-on experience through collaboration with regional educational institutions, including, but not limited to, LCCC, UW, Colorado State University (CSU), and the [CSU-USDA Semi-Arid Grasslands Research Center](#).^{xxvii} However, internships are merely a start.

By deploying innovative solar measures, like cattle-voltaics and landfill solar, at-scale, the region will be put on the map in a new way, attracting researchers looking to study the impacts of such projects. For instance, based on preliminary interviews with cattle-voltaics researchers, Cheyenne is aware of the need to better understand the interactions between cattle and solar panels, how cattle respond to shade during periods of heat stress, desired water consumption in drought-prone, dryland ecosystems, and overall production of dairy and grasslands with the solar panels deployed. In fact, one researcher at CSU in Fort Collins noted that “everybody’s kind of waiting for” this type of demonstration project at-scale. See additional details on workforce development in *Section 5*.

Improved Resilience of Services from Renewables + Battery Storage: As discussed in *Section 1 – Transformational Impacts*, Cheyenne proposes adding 20 MW/80MWh of battery storage to complement both Measures 1 and 2. In addition to the benefits described in *Section 1*, this will enhance flexibility and reliability from otherwise intermittent wind and solar resources. According to [NOAA’s National Centers for Environmental Information and the NOAA chart below](#), billion-dollar severe storms and wildfires have particularly increased in frequency in the past decade.^{xxvi} Diversifying ‘firm’ power resources increases regional electricity resilience, and this supplemental measure would also help accelerate BHE’s ability to understand how to further integrate energy storage to create more flexibility in Wyoming service territory.^{xxviii}



Capturing Savings/Revenue for Future Energy Projects Without Raising Taxes: As discussed in *Section 1 – Transformative Impacts*, another indirect community benefit will be the ability for the City to kickstart and sustain new investment in energy savings projects with the savings and revenue generated from these projects. No tax increases or optional sixth penny tax will be needed as the City and BOPU can use operational savings and revenue from the solar and RNG projects (Measures 1-4) to create an energy innovation revolving fund.

Assessing and Quantifying Benefits: As discussed in our PCAP on pages 7 and 44, Cheyenne plans to create an Environmental Equity Steering Committee (EESC) for long-term environmental equity work in the region. Part of this committee's charge will be to assess and quantify the impacts of these projects on lower income, unrepresented, and disadvantaged populations and overall community benefits. To do that effectively, this committee will be set up with a diverse mix of stakeholders, including lower income and disadvantaged communities, public and private leaders, regional educational institutions, and a range of political affiliations. Cheyenne has already received support from LCCC and UW, particularly for workforce development insights. This will be further developed over the next six (6) months and will include creating an online page for real-time education and updates on the city's plans.

In addition, the City intends to ask the selected solar development team to provide a turnkey monitoring system with a publicly accessible online portal to show real-time and cumulative production as well as benefits, including, but not limited to, CO₂ emissions reduced, number of households powered, number of participating customers/households subscribed, and equivalent number of miles driven. This is based upon best practices from solar procurement templates from [CityRenewables.org](https://www.cityrenewables.org).^{xxix} If multiple developers are selected, the City will work with them to coordinate in good faith to ensure monitoring is consistent, efficient, and accessible through the same portal.

Lastly, regardless of the exact community solar structure ultimately deployed, the City will work with BHE to track and quantify the number of subscribing residents, the household income levels of subscribers, and the energy savings of participants. This will inform future projects and programs across their service territory.

Community Engagement

Community engagement – and engagement through education – is also a priority for the City of Cheyenne and a practice the city has embraced for decades and will continue to do with its EESC and Comprehensive Community Outreach Plan. In forming its PCAP, the City partnered with the Wyoming Outdoor Council to create an initial outreach plan for key stakeholders among municipal departments, utilities, religious institutions, and community action organizations. Key insights from this initial outreach effort include:

- *There seems to be an overall moderate level of awareness of GHG emissions and impacts in and around Cheyenne, but notably more concern over the effects of these environmental changes.*
- *Economic impact and energy strain are the two most significant environmental impacts.*
- *The level of involvement that many Cheyenne-area stakeholders have in addressing environmental concerns is fairly moderate and has room for increased environmental-related activities.*

These early insights suggest that more education and awareness efforts are needed for community members to make informed decisions. Accordingly, the City intends to use these initial CPRG projects to increase the breadth and depth of its community educational efforts as well as whom the City partners with to educate a range of stakeholders.

Education, Awareness, and Communication About Project Plans: For the four (4) municipal projects proposed by Cheyenne in this grant, it will be highly necessary that the City communicate both what it is

doing *and* how municipal projects impact community operations overall. This includes, but is not limited to, how the proposed projects diversify the region's energy portfolio to increase energy independence and reduce utility bill increases long-term, responsibly use taxpayer dollars to reduce emissions and air pollution, pilot new approaches to more sustainably use land for renewable energy deployment, create new workforce development opportunities, and contribute to an all-of-the-above energy strategy. Specifically, Cheyenne will host at least four (4), in-person, ADA-accessible community forums with the selected developer(s) to educate community members about the city's plans and address questions about development, technologies used, and construction timelines. Because 16.5% of Cheyenne residents identify as Hispanic or Latino (and up to 1/3 of residents in the Fox Farm and Southside Cheyenne census tracts), the City will also ensure materials are available in Spanish as well. Moreover, the City intends to continue its practice of using 1-on-1 meetings with concerned adjacent property owners, particularly for the small community of homes that are across from the landfill as well as neighboring farmers and ranchers to ensure they are adequately informed of the site plans and construction timelines and that their questions and concerns are heard and addressed.

Engagement Through Active Site Tours at the Colorado Agrivoltaic Learning Center: Because the CALC (also known as Jack's Solar Garden), one of the premier agrivoltaics education centers in the country, is only 75 minutes from Cheyenne, the City will also plan to educate and engage elected officials, project team members, farmers and ranchers, interested residents and property owners, and other stakeholders by hosting up to five (5) site tours in Longmont, CO. This offers hands-on education to view agrivoltaics in action, learn about solar technologies and designs, and understand the nexus of solar and land use. This is an unusual opportunity to also strengthen regional relationships for continued research and economic development opportunities with UW, LCCC, and Cheyenne LEADS as well as sharing lessons learned to inform Cheyenne's project design as well as future agrivoltaics and cattle-voltaics that wish to learn from Cheyenne's experience. To support this, Cheyenne has included budget requests for tour fees and charter bus fees to offer these tours at no cost to participants.

Creating a Comprehensive Community Outreach Plan: To do this, and related to the EESC formation, the City intends to create a Comprehensive Community Outreach Plan. As discussed on page 44 of the PCAP, this will help educate stakeholders and provide notices to the general public of virtual and ADA-accessible, in-person community forums, and further gather data on key metrics for direct and indirect emissions reductions as well as engage those impacted by the city's proposed projects. This will also serve as a direct channel to communicate progress, opportunities for community solar-type subscriptions when available, and other community benefits of the City's emissions reductions projects.

This builds on Cheyenne's community engagement experience in 2023 upon being one of 5 US cities selected to be part of the 2023 [Housing Solutions Lab Network](#), aiming to engage with and support underrepresented groups in Cheyenne.^{xxx} Through this peer learning network, the City assembled a team of municipal and community leaders (including organizations like My Front Door, Habitat for Humanity, and Cheyenne Regional Medical Center), to advance affordable housing, anti-displacement strategies, and key components of comprehensive housing planning, such as data collection and community engagement. Cheyenne was also selected in 2023 to participate in the EPA Building Blocks Planning for Equitable Development program. This opportunity will increase the City's capacity to implement smart growth strategies in under-resourced areas to redesign how infrastructure and community development should be more sustainable and equitable. Cheyenne is an Entitlement City, receiving US Housing and Urban Development funds through the Community Development Block Grant. We are preparing to update the Citizen Participation Plan whose primary goal is to provide citizens-- especially low- and moderate-income citizens of the community where CDBG-funded activities will take place-- an opportunity to participate in an advisory role in the planning, implementation, and

assessment of the programs and projects. A robust outreach effort is underway with listening sessions, public hearings, and workshops scheduled throughout the coming year. The City partners with boots on the ground nonprofit organizations to initiate meaningful dialogue that will be used to develop priorities and action plans. Steps are being made to identify and better understand the culture of underrepresented groups through these targeted listening sessions and engagement events, and the City will leverage lessons learned from this process to inform subsequent engagement approaches. Through these strategies, Cheyenne is prioritizing disadvantaged communities with a data-driven and equity-focused outreach program to better understand the intersection of affordable and/or sustainable housing, smart growth, community energy burdens, and opportunities for increased access to cleaner energy technologies among lower income residents.

Relevant History of Community Input and Energy Development on City Land: Cheyenne has a history of using public lands for energy development and planning to expand these uses for additional energy generation. In 2008, the City approved a master plan for the [Belvoir Ranch](#), an 18,800 acre site that was purchased by the City in 2003.^{xi} This plan specifies multiple future uses, including energy development (both wind and solar), water, landfill use, continued cattle grazing, and recreation – and describes how thoroughly the City engaged residents on visioning and future land use planning:

- As noted on page 3, the master plan was shaped by a “community-driven planning process”. Given the unique size and limited public access of the site early on, the City went to great lengths to include residents in the planning and vision process.
- As discussed on [page 6 of the master plan](#), the City used aerial videos taken from a helicopter to enable residents to “experience” the site and understand its unique qualities.^{xxxi} An initial “visioning” workshop was held in June 2007, drawing approximately 70 people, who were able to express their views on how best to use the site, key areas for conservation, and areas that might be developed in a compatible manner to provide income to the City.
- Based on that workshop, the vision and design principles presented were refined to guide the creation of a preliminary land use plan. This preliminary plan was discussed at a second workshop, held in October 2007, and participants’ recommendations for revisions were then incorporated into a revised plan.

Although this master planning was over 15 years ago, and the City has conducted numerous development master plans since, it speaks to a longstanding but recent history of the intersection of public land use and energy development. For instance, page 25 of the [Belvoir Ranch master plan](#) specifically notes that “the property also offers opportunities for solar energy “harvesting” on south-facing slopes.^{xxxi} Compatibility of this use with grazing and hunting will also need to be evaluated further.” Both the landfill solar and cattle-voltaics projects proposed in this grant build on the City’s goals of leveraging city-owned land for clean energy development. However, the cattle-voltaics project adjacent to the landfill will serve as an at-scale demonstration for co-locating solar and cattle grazing with the intention of scaling this further in future years to the Belvoir Ranch.

Acknowledging Cheyenne’s Application Context & Doing Community Engagement Effectively: It is worth noting that the City recognizes that it was objectively not able to do as robust a community engagement process to inform the proposed projects as it would have liked to meet this application deadline. While some technical planning and research was underway already for the four (4) proposed projects, the state’s decision to withdraw from the CPRG planning process in December substantially shifted the onus of preparation to Cheyenne. Simply put, unlike other applicants across the country, the City did not expect to be the lead on the CPRG Implementation grant application from Wyoming. Even after the state declined to participate in December (the latest of all states), the City still had to weigh

whether it had the ability to effectively prepare not only this application but also its PCAP. ***This should not excuse or exempt the City from required elements of this application. Rather, it should serve as relevant context as to why the City acknowledges that deeper community engagement targeted at harder to reach and disadvantaged populations can be and will be done more thoroughly in the coming months.*** Effective engagement – especially to already marginalized populations and pockets of the community – cannot and should not be rushed and needs to be well-planned.

Section 5: Job Quality

Cheyenne’s proposed GHG reduction measures will create a range of long-term and temporary jobs in the region. Most immediately, a SEP Manager will be hired to oversee the procurement, contracting, construction, and longer-term management of the solar, energy storage, RNG projects, and energy revolving fund. The City will also create pathways for career development with LCCC, UW, and Cheyenne LEADS by hiring a paid Environmental Education Intern and an Energy Innovation Research Intern each year of the grant term to support the projects, as described in *Sections 1, 4, and 7*.

To ensure quality construction jobs, Cheyenne will do the following:

- ***Strategically Aggregating Procurement and Phasing Solar Construction:*** As discussed in *Section 1 – Transformational Impacts*, the City intends to streamline solar procurement by aggregating Measures 1-3 together with the goal of attracting a single developer or development team for full implementation. This creates *multi-year opportunities* to recruit and retain a skilled labor force for design, construction, and electrical components. As discussed in *Section 3*, the City plans to phase the solar project construction to allow the developer/development team to design, permit, and construct the more shovel ready WWTP solar while designing and permitting the more complex landfill solar and cattle-voltaics projects. Then, the construction team can shift to the landfill solar and cattle-voltaic projects once permitting is completed.
- ***Meeting Prevailing Wage and Apprenticeship Requirements:*** The RFPs for the solar and WWTP projects will require the developer adhere to prevailing wage and apprenticeship requirements as described in the Investment Tax Credit of the Inflation Reduction Act, in addition to federal requirements for Davis Bacon Prevailing Wages and Build America, Buy America. They will also specify a preference for local hiring where possible, or at a minimum, where a partnership between larger, national firms and local or regional developers cost-effectively meets the City’s procurement goals. In addition, the developers will be encouraged to work with students in the university workforce development program(s) described above to provide hands-on experience.
- ***Creating a New Workforce Development Pipeline:*** The City plans to work with regional educational institutions, including LCCC and the UW, to create a new workforce development program for solar jobs – building on existing [programs at LCCC](#) that certify entry-level wind turbine technicians and [UW that conduct wind energy research](#).^{xxxii} As expressed in their letters of support, both LCCC and UW hope to connect their students with the projects that could serve as models for the region. LCCC also has workforce training credit and non-credit programs within their [Advanced Manufacturing and Material Center](#) that could serve as a template for the new program.^{xxxiii} As discussed in *Section 4*, the City will work with LCCC, UW, and Cheyenne LEADS in the next year to establish a workforce development program and connect both Wyoming institutions to research on agrivoltaics and cattle-voltaics already underway just south of the Wyoming border at CSU in Fort Collins, the CALC in Longmont, and CU-Boulder. This is an opportunity to form partnerships across institutions and cultivate a skilled workforce at this nexus of energy innovation and land use in Southeast Wyoming.
- ***Planning for Long-Term Maintenance:*** In addition to construction and research partnerships with LCCC and UW, the City will also actively collaborate to create opportunities to establish solar

maintenance technician jobs – particularly for solar panel cleaning and production monitoring. Because there is a range of manual and increasingly more automated strategies for panel cleaning and monitoring, the City envisions this being another opportunity for workforce development and jobs beyond construction over the expected 25-30 year life of the projects. For instance, both [UW robotics](#) and [LCCC robotics](#) programs could incorporate trainings for [automated](#) and/or [drone-based](#) maintenance strategies.^{xxxiv} The City – and other tech companies installing solar in the region – could then hire or contract with qualified technicians directly from regional institutions.

With an increasing demand for renewable energy in Cheyenne, a knowledgeable and skilled local workforce enables the local economy to directly reap the benefits of this growth. As described in *Section 1*, the demand for renewable energy is only expected to increase substantially by 2030 and beyond. Tech companies have identified Cheyenne as an ideal location for electricity-intensive data centers: there's ample space and the cold weather keeps operating costs low. By leveraging these measures to enhance regional renewable energy workforce development programs with LCCC, UW, and Cheyenne LEADS, the City is preparing a skilled labor force and its economy for emerging job opportunities.

Section 6: Programmatic Capability and Past Performance

Past Performance

The City of Cheyenne has extensive experience with federal grant requirements, managing over \$43 million in current active grants from numerous granting agencies, including the US EPA. Cheyenne has the systems, processes, and procedures in place to effectively and efficiently manage these rigorous grant obligations. Specific awards include:

1. U.S. Treasury American Rescue Plan State and Local Fiscal Recovery Funds: \$12,191,813 (2021)
2. Department of Homeland Security FY22 Staffing for Adequate Fire and Emergency Response (SAFER) Grant Program: \$2,614,043.88 (2023)
3. Federal Transit Administration 5307 Operating Grant: \$2,418,763 (2024)
4. State of Wyoming Office of State Lands & Investments, Project Bison Microsoft Data Center Utility Reimbursement Grant: \$2,250,000 (2022)
5. U.S. Environmental Protection Agency Brownfield Assessment Grant: \$500,000 (2022)

Reporting Requirements

Cheyenne has experience managing large scale projects that utilize layered funding sources and can provide deliverables on time and within budget, including FY24 \$13M in one percent sales tax fund capital projects. The City follows and strictly adheres to the policies and procedures as approved by the City of Cheyenne Governing Body: City of Cheyenne Accounting Policies and Procedure, City of Cheyenne Grants Management Policies and Procedure, and the City of Cheyenne Procurement Policy and Procedure Handbooks. We adhere to the guidelines set forth in 2 CFR Part 200, ensuring compliance with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.

The City utilizes a grant management software system to centralize all grant related documents and manage workflow, reporting deadlines, and to maintain compliance with grantor regulations.

1. American Rescue Plan SLFRF Project and Expenditure Compliance Reports are submitted quarterly through the US Treasury's portal. Cheyenne is a Tier 2 recipient (Metropolitan cities and counties with a population below 250,000 residents that are allocated more than \$10 million in SLFRF funding) so is only required to submit the quarterly Project and Expenditure Report. This grant is audited annually by an external auditor and is on track for fund obligation by the December 2024 deadline. Since August 2021, compliance reports have been submitted on time with no issues.

2. Semi-annual Programmatic Performance Reports are required for the SAFER grant to ensure we are meeting the staffing maintenance level requirements. The Fire Chief is responsible for submitting these reports in FEMAGO, which are verified and confirmed by the City Treasurer. In addition to the PPR, an SF-425 Federal Financial Report is also required on a semi-annual basis. The grant management software sends a series of three alert reminders prior to each deadline and the Senior Accountant is responsible for submitting these reports.
3. The City Transit Program, which is housed under the Public Works Department, manages the FTA 5307 grant award, supporting fixed-route service for fare subsidies for seniors, persons with disabilities, or individuals presenting Medicare cards. The Transit Manager is responsible for submitting all reports, under the supervision of the Public Works Director.
4. The Grants Department works with Microsoft's partners to draft and submit quarterly and annual reports to the Wyoming Business Council. The project is on target to meet project milestones after a slight construction delay in 2023; no corrective measures have been necessary.
5. The City's Planning & Development Department manages the EPA Brownfield Assessment and RLF grants. Mr. Olson submits the quarterly reports in ACRES, reviewing and providing oversight of the Cooperative Agreement, Community Involvement, Site Assessments, and Cleanup Planning. He provides overall project status, modifications to work plans as needed, and expenditures for site specific deliverables and resources leveraged. Site assessment results are then populated into a database for broader use.

Within the last few years, the City has been selected for routine reviews by the U.S. Department of Justice, Office of Justice Programs (OJP), Bureau of Justice Assistance, the U.S. Environmental Protection Agency, and the U.S. Department of Commerce; these reviews were completed, and no issues were identified. Project managers and staff have established a cooperative relationship with EPA Region 8 staff through the management of an EPA Brownfield Revolving Loan Fund, a Brownfield Assessment Grant, and the Climate Pollution Reduction Planning Grant.

Staff Expertise

Cheyenne's responsiveness to the state of Wyoming removing itself from participating in the CPRG process in late 2023 speaks to its ability to marshal resources and adapt promptly to changing political conditions. Specifically, Cheyenne contracted with ICLEI, Climate Mitigation Strategies, and RMI to develop a thorough PCAP and ambitious emissions reductions measures for the CPRG Implementation grant that make sense for Southeast Wyoming and can serve as a model for other site owners and communities across the Mountain West. Cheyenne has already leveraged and will continue to leverage the US EPA-funded KSU TAB and RMI's Brightfields Accelerator to plan for solar reuse and procurement on closed portions of its landfill.

A Project Management Team will ensure that all technical, administrative, and financial requirements are met. Our team of key staff members will collaborate to deliver the required quarterly and annual reports. Additionally, our team will lean on our project partners to help direct critical decisions regarding grant implementation. In addition to the Sustainability Specialist (actively being hired for) and the Strategic Energy Project Manager position (which will be hired upon award), the Project Management Team will consist of:

Lonnie Olson, AICP Candidate – Planner II: Lonnie is a Long-Range Planner for the City of Cheyenne, who works with the Historic Preservation Board, Urban Renewal Authority, and is the project manager of an EPA Brownfield Assessment grant. During his time in the City, Lonnie has diligently worked with his EPA Officer and Environmental Consultant to continue the work done from past predecessors and keep Cheyenne on track. Lonnie helped the City with an EPA limited scope audit that came back clean and recently received an EPA Building Blocks award looking at Smart Growth in an old industrial corridor. He

is passionate about water in the west and believes this is one of the most pressing issues that will affect how the region will grow. In addition, he is the Emerging Planners representative for Western Planner. Lonnie will perform project management oversight and assist with grant management tasks.

Renee Smith, MEd – Economic Resource Administrator: Renee has been with the City of Cheyenne since April 2021. She comes to the City with over 20 years of public, higher education, and nonprofit management experience, which includes innovative finance forecasting and analysis, grant management and compliance, project management, and communications. She is a candidate for the Leadership Wyoming Class of 2024. Renee holds a BS in Exercise and Sports Science, Sports Medicine from Colorado State University and a Master of Education in Educational Leadership from Northern Arizona University. Renee will provide grant management, financial, reporting, compliance oversight and project management assistance.

Brad Brooks – BOPU Director: Brad has been with the City of Cheyenne Board of Public Utilities for almost 25 years, currently serving as the Director. He has also held the positions of Engineering and Water Resources Manager, Operations and Maintenance Manager, and was in the position of Construction Project Coordinator over the board's major construction projects. Prior to working for the city, Brad spent 13 years in the consultant field, covering a variety of public and private general civil engineering projects for various firms. Brad holds a BS in Civil Engineering from the University of Nevada at Reno, is a member of the American Society of Civil Engineers, the American Water Works Association, the Water Environment Federation, past WYOWARN Chair, graduate of Leadership Cheyenne, and is a Wyoming registered professional Civil Engineer. Brad will provide oversight for the WWTP projects.

Matt Buelow – Water Reclamation Division Manager: Matt started his water career twelve years ago as a wastewater operator. Since then, he has worked as a maintenance operator, lead O&M operator and now the division manager for the Cheyenne Board of Public Utilities. Matt manages two WWTP facilities, which involve IFAS, MBBR and Reuse. He has assisted numerous engineering firms with plant upgrades. He is a certified Level 4 WWTP Operator and is finishing his degree in Business Management.

Craig Lavoy – Deputy Director: Craig has a Civil Engineering degree from the University of Wyoming, with experience in the design of roadways and the transportation field. He acts as the Deputy Public Works Director, Solid Waste Administrator, and supervises Fleet Maintenance, providing engineering oversight for the Public Works Department. Craig is a member of the Professional Engineer Wy PE 11563 and holds Solid Waste Association of North America certifications in Composting Programs, Landfill Operations, Integrated Solid Waste Management Systems, and Transfer Station Systems. Craig will provide oversight on the landfill solar project.

Samuele Quattrini – Landfill Manager: Sam has 20 years of experience as an environmental and engineering geologist. He holds a Professional Geologist license in Wyoming and New Hampshire, as well as a Bachelor of Science and a Master of Science in Geology from the University of Parma (Italy). Sam worked in the solid waste management industry since 2010, managing environmental monitoring and construction projects at municipal solid waste landfills. Between 2010 and 2015, Mr. Quattrini participated as a consultant in renewable energy projects at landfills and other sites in New Hampshire and Massachusetts. Before becoming the landfill manager for the City of Cheyenne in 2022, Mr. Quattrini worked for the State of New Hampshire and the State of Wyoming regulating hazardous waste remediation sites and solid waste facilities, respectively.

Project team resumes are attached for further reference as desired.