

ABQ Biopark Climate Action Plan 2026



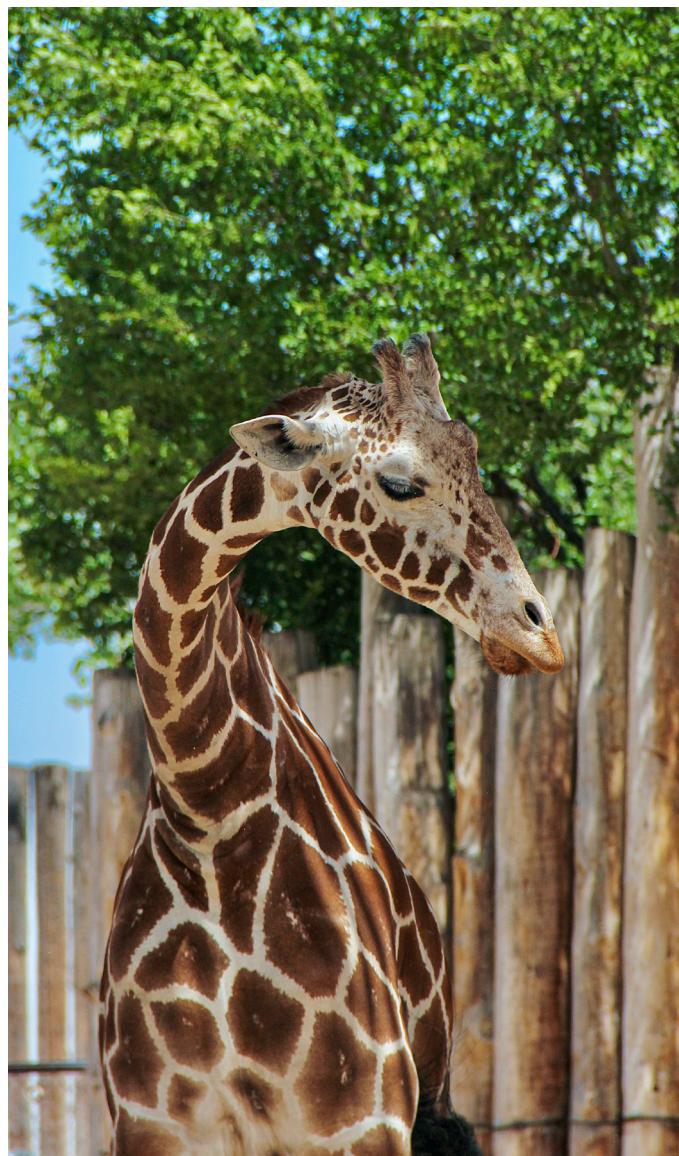


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Core Team

The Core Team was responsible for leading the climate action planning process. They held regular meetings, made key decisions, and identified key participants to involve in the process.

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The Project Team contributed across a variety of the Climate Action Planning components, including interviews, site tours, and workshops.

ABQ BioPark

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Verdis Group is a sustainability and climate action consulting firm that facilitated the ABQ BioPark's climate action planning process.

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Letter from the Directors

Dear guests,

We are proud to share that the ABQ BioPark has completed our first comprehensive Climate Action Plan, a milestone that reflects our deep commitment to conservation and to the community of Albuquerque.

For decades, the BioPark has worked to connect our community with wildlife and nature, inspiring conservation action through education and direct experience. This Climate Action Plan represents the natural evolution of that mission. We cannot protect the species and ecosystems we care about without addressing the climate crisis that threatens them. From the Rio Grande bosque at our doorstep to the global habitats of the diverse species in our care, climate change poses an existential challenge to the biodiversity we are dedicated to preserving.

This plan charts our course to achieve net-zero greenhouse gas emissions while enhancing climate resilience and modeling sustainable practices across our BioPark facilities. This is an ambitious commitment and one that will require significant changes to how we operate. Through strategic investments in energy efficiency, electrification, circular water and waste infrastructure, sustainable building design, and operational improvements, we will meaningfully reduce our environmental footprint while continuing to provide exceptional experiences for the more than one million guests we welcome each year.

Our Climate Action Plan also reinforces the BioPark's role as a climate prepared leader in Albuquerque. The City's 2021 Climate Action Plan set ambitious goals for our entire community, and as a major City institution, we have a responsibility to contribute meaningfully to those goals. Our net-zero commitment directly supports the City's aim to cut emissions, while our specific actions complement community-wide initiatives in renewable energy transition, waste reduction, and climate adaptation.

By aligning our efforts with the City's climate framework, we amplify the collective impact of Albuquerque's climate response and demonstrate that municipal facilities can lead by example.

Lastly, we would like to thank our BioPark staff, the City of Albuquerque's Sustainability Office & Energy and Sustainability Management Division, and the New Mexico BioPark Society for their tremendous support and vision as we have embarked on this planning effort over the past 18 months. This achievement would not have been possible without the dedication and expertise of these partners. The work ahead will require dedication, innovation, and ongoing commitment; and it will ensure that the BioPark continues to fulfill its conservation mission for generations to come. Together, we can protect the remarkable diversity of life on our planet starting right here in Albuquerque.

Sincerely,

Brandon Gibson
Director
ABQ BioPark

Julie Miller Rugg
Executive Director
New Mexico BioPark Society



EXECUTIVE SUMMARY



Strategic Directions

This plan will guide the ABQ BioPark in our efforts to mitigate the effects of climate change and adapt to current and emerging impacts of our shifting climate reality. Strategies within this plan strive to build resilience within the City of Albuquerque and the many communities the BioPark serves.

This plan was created through a participatory process involving staff from across the City of Albuquerque (the City) and the New Mexico BioPark Society (NMBPS). The plan is organized around the following strategic themes, which emerged through the planning process:





Albuquerque's Changing Climate

Albuquerque is expected to experience warming temperatures, more frequent and severe drought, and an extended fire season as a result of climate change. Higher intensity rainfall events are expected and increased flood risk, particularly as wildfire and extended dry periods restrict the soil's ability to absorb water. The changing climate will impact both Albuquerque's urban and suburban communities. Approximately 55% of the city's buildings are significantly threatened by wildfire, while around 35% face high flood risk.¹ Wildfire risk is heightened at the wildland-urban interface—the city's edges—while the urban heat island effect increases heat stress in the City's most developed regions. Across the community, proximity to the Rio Grande increases exposure to flooding hazards.



¹["Albuquerque, New Mexico Climate Change Risks and Hazards: Heat, Fire."](#) ClimateCheck. Accessed 11 March 2025.



Reducing Emissions

The ABQ BioPark recognizes that reducing emissions from our operations is an essential component of climate action, mitigating our footprint and impact on our community. The first step to reducing emissions is to establish the baseline. In 2023, our baseline GHG inventory totaled 3,111 metric tons of carbon dioxide equivalent (MtCO₂e) across Scopes 1, 2, and material Scope 3 emissions sources (Figure 1). 58% of these emissions are from Scope 1 and 2 sources. The primary source of emissions was stationary combustion (52%) followed by procurement (20%).

Scope 1 and 2 emissions are directly tied to the BioPark’s buildings and vehicles. Scope 3 emissions are indirect and occur upstream and downstream along the BioPark’s value chain as a result of its operations and demand for good and services. Scope 3 sources include employee procurement, employee commuting, and business travel. To learn more, please see the Glossary.

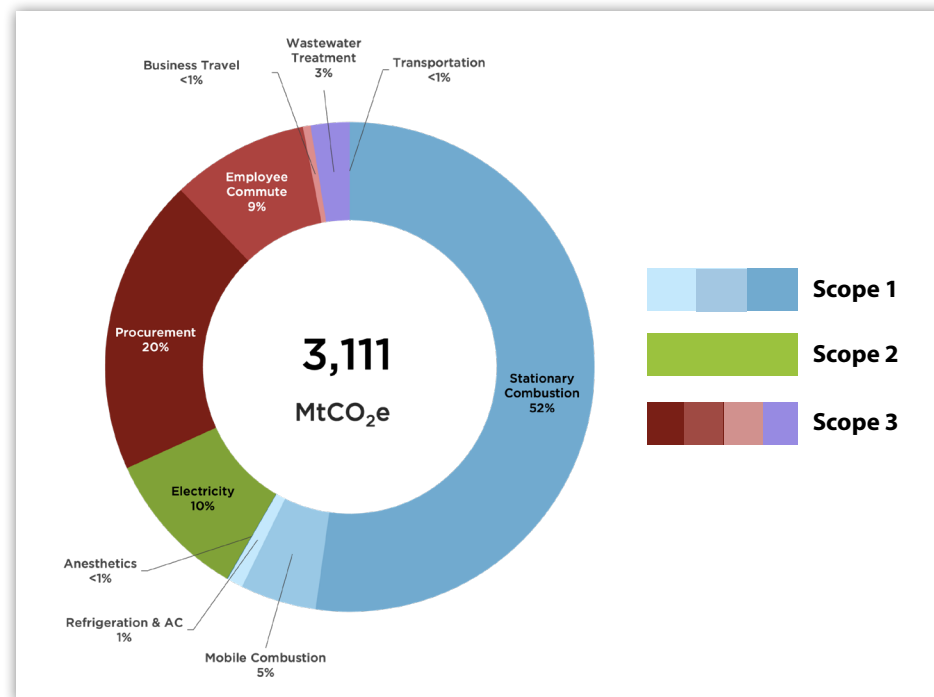


Figure 1: GHG emissions by source, 2023



The BioPark has outlined a pathway to net-zero emissions to direct our decarbonization efforts (Figure 2). Through collaborative engagement of BioPark, NMBPS, and the City’s Sustainability Office team members, the BioPark outlined when and to what extent we plan to implement specific emission reduction strategies. By addressing the emissions categories as outlined in this plan, we aim to achieve net-zero Scope 1 and 2 emissions by 2045, with a mid-term target of 45% by 2035.

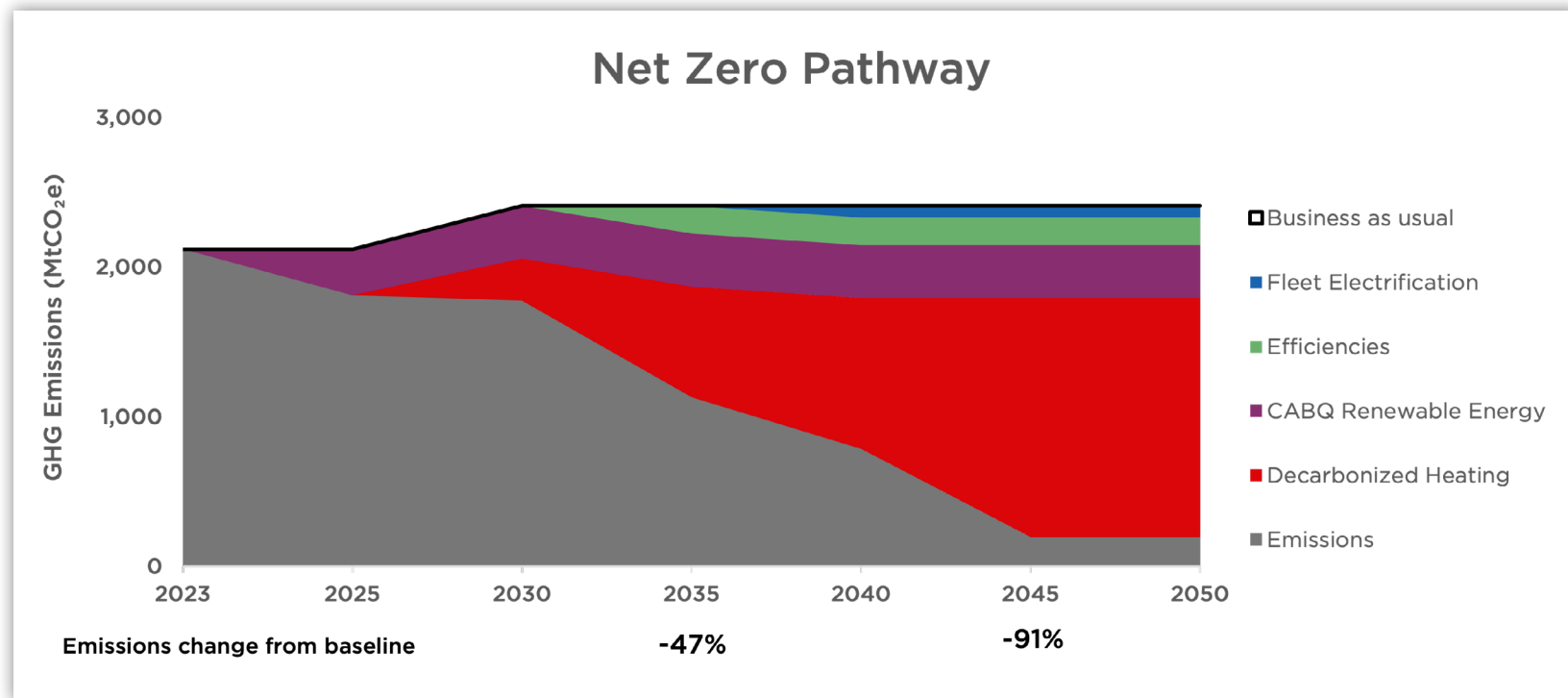


Figure 2. The ABQ BioPark’s emissions reduction pathway.



Climate Action Goals and Targets

The BioPark established the following climate action goals through collaborative and evidence-based discussions. BioPark, NMBPS, and the City’s Sustainability Office team members and leadership reviewed baseline data, peer benchmarking, and subject matter expert input for each.

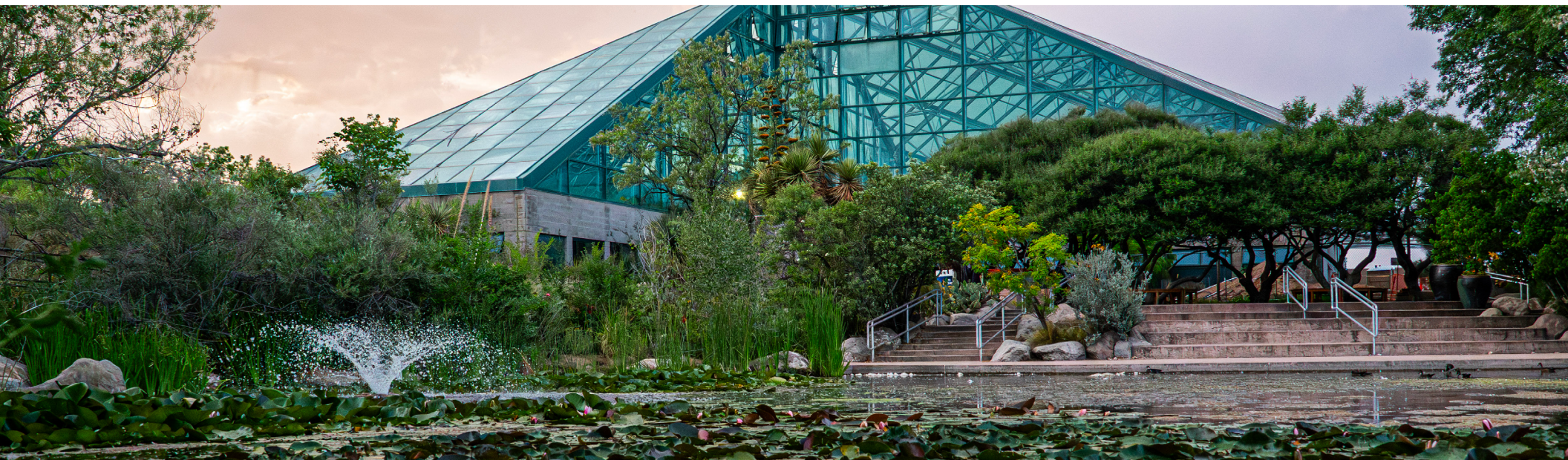
<p>GOAL 1 </p> <p>Net-Zero Scope 1 & 2 GHG emissions by 2045</p> <hr/> <p>TARGET 45% Scope 1 and 2 emissions reduction by 2035</p>	<p>GOAL 2 </p> <p>Employee Sustainability Engagement Score of 60 by 2030</p> <hr/> <p>TARGET 30% employee active commuting mode split by 2030</p>	<p>GOAL 3 </p> <p>Ensure responsible use of water through reuse and efficient systems</p> <hr/> <p>TARGET Establish improved baseline for facility water use by 2026 and track annually</p>
<p>GOAL 4 </p> <p>Sustainability and climate criteria are embedded into building, funding, and plant and animal population planning efforts</p> <hr/> <p>TARGET Establish sustainable building design guidelines by 2028</p>	<p>GOAL 5 </p> <p>The ABQ BioPark is established as a leader in community-wide sustainability and a model campus</p> <hr/> <p>TARGETS All guests will be within 3-5 minutes of a heat relief feature 20% of purchases made with net-zero or carbon neutral vendors by 2050 Complete campus-wide composting plan by 2027</p>	



Priority Strategies

The following strategies are essential for the ABQ BioPark to execute to achieve the goals outlined in this plan. The order in which strategies appear in the list below does not indicate priority level.

1. Align organization mission and vision with climate goals in strategic plan refresh
2. Incorporate B.R.A.I.N. (Balanced Resource Acquisition and Information Network) data in decision-making
3. Create a new sustainability-focused project category for Strategic Conservation Framework (SCF)
4. Integrate climate considerations into plant and animal population planning
5. Identify avenues for dedicating a percentage of gate fees to support climate goals
6. Further refine and identify list of priority projects for future GRT support
7. Identify the role that will drive sustainability & mission alignment
8. Use recycled water for irrigation and install additional rainwater catchments
9. Establish a waste baseline metric
10. Implement infrastructure to support zero-waste events
11. Complete flood and fire risk assessments
12. Transition transportation equipment to electric
13. Implement approved conservation messages aligned with Interpretation Plan
14. Formalize partnership with the City's Sustainability Office to use the BioPark as an experimental campus
15. Expand opportunities to engage the community with local ecosystems
16. Expand partnerships with other aligned cultural entities in the City





INTRODUCTION

The ABQ BioPark Climate Action Plan builds on the City of Albuquerque’s long-standing commitment to climate leadership, including the City Council’s declaration of a climate emergency (Resolution R-19-187), the [2021 Albuquerque Climate Action Plan](#), the [Sustainability Resolution \(R-24-34\)](#), the [Central New Mexico Comprehensive Climate Action Plan](#), and [Mayor Keller’s Executive Instruction No. 40](#), which commits the City to strengthening the local food system, stabilizing families and communities, and supporting a resilient local economy. Together, these efforts establish a strong foundation for coordinated climate action across City departments and institutions.

As the City of Albuquerque’s cultural attraction dedicated to plant and animal conservation, education, and outdoor recreation, the BioPark is uniquely positioned to foster meaningful connections between people and nature. As an accredited zoological facility, we recognize both the urgency of preparing for the impacts of climate change and our responsibility to reduce our own environmental footprint through the regenerative and responsible use of resources.

In response, the BioPark undertook a collaborative strategic planning process during 2024–2025 to chart a clear path toward a climate-resilient future. The resulting Climate Action Plan complements the City’s community-scale climate strategies by translating shared goals into organization-specific actions, targets, and accountability measures focused on climate mitigation, adaptation, and resilience. Through this plan, the BioPark aligns its operations, programs, and partnerships with broader City and regional climate priorities—demonstrating how municipal institutions can lead by example while advancing conservation, education, and community well-being.



Integration with Existing Plans

Please see [Appendix D](#) for the BioPark and City of Albuquerque alignment table.

ABQ BioPark Strategic Plan (2022-2027)

Our People

- CAP Strategy: Identify the role that will drive sustainability & mission alignment

Our Plants and Animals

- CAP Strategy: Integrate climate considerations into plant and animal population planning

Our Communities

- CAP Strategy: Expand opportunities to engage the community with local ecosystems
- CAP Strategy: Expand partnerships with other aligned cultural entities in the city
- CAP Strategy: Formalize partnership with the the City's Sustainability Office to use the BioPark as an experimental campus
- CAP Strategy: Implement approved conservation messages aligned with Interpretation Plan

Our Impacts

- CAP Strategy: Redirect wastewater for irrigation and install additional rainwater catchments
- CAP Strategy: Implement infrastructure to support zero-waste events
- CAP Strategy: Complete flood and fire risk assessments
- CAP Strategy: Transition transportation equipment to electric

ABQ BioPark Strategic Conservation Framework

- CAP Strategy: Create a new sustainability-focused project category for Strategic Conservation Framework (SCF)

2021 Albuquerque Climate Action Plan

- CAP Strategy: Formalize partnership with the City's Sustainability Office to use the BioPark as an experimental campus



Strategic Planning Process



Project Team members participated in five workshops throughout the Climate Action planning process using Technology of Participation (ToP) methodology for strategic planning. ToP provides foundational methods for the facilitation of complex planning processes that encourages diverse perspectives to work collaboratively toward consensus around a desired outcome. This participatory decision-making framework lays the groundwork for a successful plan by incorporating voices from across the organization. People participate in what they help create, and ensuring the BioPark's interested parties were involved in the creation of the plan will be instrumental to its success.

The five strategic planning workshops are outlined as follows:

Visioning: Project Team members were asked to brainstorm and organize ideas around the questions: "What would a more sustainable and climate resilient BioPark look like in 10 years? What do we want to see in place in 10 years as a result of our actions?"

Barriers & Climate Consequences: Project Team members participated in an exercise to identify barriers standing in the way of achieving the collaboratively defined vision described in the first workshop. In this workshop, Project Team members also completed an exercise to identify how Albuquerque's projected climate change impacts may affect their day-to-day work.

Strategic Directions: The Project Team ideated strategies that would help overcome the identified barriers, address climate consequences, and move the BioPark toward its vision.

Focused Implementation: Five key topics, or strategic directions, were identified based on the results of the first three workshops and information obtained during the discovery phase. Focus teams composed of subject matter experts from the BioPark, the City's Sustainability Office, and NMBPS were formed for each strategic direction to delve deeper into strategy development and implementation planning. Vision areas, barriers, and strategic directions were pulled forward from previous workshops into the focus teams. Each team participated in a focused implementation workshop where they vetted, prioritized, and refined strategies that should be implemented in the first two to three years. They assigned ownership and timing to each strategy.

Goal Setting: The Project Team reviewed the final list of strategies for each focus team. This workshop also led participants through the focused conversation about which goals and targets the BioPark would set for the Climate Action Plan. These goals and targets were refined and approved by the BioPark's leadership team.



Building on Strengths and Successes

Before engaging with Verdis Group to create the Climate Action Plan, we had already taken steps to mitigate our environmental impact and establish ourselves as regional partners and leaders in sustainability and climate action.

Create organizational alignment and governance

- Since 2009, the City's 3% for Energy Conservation Program has directed over \$2.5 million dollars to energy efficiency and solar projects at BioPark facilities, saving 228 MWh of energy.
- From 2020-2022, the BioPark completed a strategic planning process, within which four core organization pillars were identified. Climate action planning and sustainability are embedded within the "Our Impacts" pillar of work.
- A Strategic Conservation Framework was adopted in 2024 to guide conservation-decision making internally.
- The Conservation Committee was established in 2025 to encourage and facilitate conservation and sustainability projects and communication.

Support long-term financial sustainability to enable climate action

- The City's 1/8 cent gross receipts tax provides long-term funding to support large-scale capital projects such as the recent \$14 million Heritage Farm renovation and \$33 million Asia exhibit at the Zoo.
- The NMBPS serves as a key fundraising partner, designating around \$3.4 million to support BioPark initiatives annually.

Center water stewardship and circular systems

- The Heritage Farm performs on-site composting of organic waste.
- Passive rainwater catchment has been installed at the Botanic Gardens, including Heritage Farm.

- The Australian Shores habitat incorporates a water recycling system that enables the BioPark to capture grey water for reuse on grounds.
- In 2025 the BioPark incorporated sustainability into the Boo at the Zoo event, offering candy with sustainably-produced palm oil and free battery recycling for guests and staff who attended.

Enhance operational resilience and adaptability

- The BioPark installed carport solar at the Botanic Garden and Zoo parking lots to generate renewable electricity for the City while providing shade and protection for parked vehicles.
- The BioPark offers on-site public electric vehicle (EV) charging at stations located at the Zoo and Aquarium/Botanic Garden.
- The BioPark converted the lights used in the month-long, annual River of Lights event to more efficient LEDs.
- The BioPark has transitioned the majority of facility lighting to LEDs including motion sensors for automated shutoffs.
- The BioPark utilized 100% renewable electricity as an entity covered by the City's commitment to supply all municipal operations with clean electricity.
- In 2023, the BioPark installed a new all-electric shuttle to transport guests between the Zoo and Tingley Beach and the Aquarium/Botanic Garden.
- In 2026, the BioPark added an electric train to Heritage Farm.

Catalyze community engagement and systems change

- The People Pillar serves as an active, staff-led group focused on facilitating employee engagement.
- The BioPark has a well-established partnership with the City's Sustainability Office and Energy and Sustainability Management Division and collaborates with these groups to plan for and implement sustainability projects.
- The BioPark offers an annual collection drive to assist Albuquerque residents with the proper disposal of recyclable E-Waste materials.



VISION STATEMENT



Our Climate Action Plan Project Team collaboratively described a vision during the August 2025 Visioning Workshop in response to the question:

“What would a more sustainable and climate resilient ABQ BioPark be like in 10 years?”

Sustainable and Resilient Campus. The BioPark functions as a living laboratory for climate-positive infrastructure and operations. Strategic investments in on-site energy generation, efficient building systems, and resilient construction have produced facilities that provide refuge during extreme weather while contributing clean energy back to regional grids. The campus demonstrates that adaptive infrastructure and operations create financial savings, enhanced guest experiences, and measurable environmental benefits that extend well beyond the BioPark’s gates.

Mission-aligned Governance and Action. The BioPark has achieved integrated decision-making where conservation impact and climate action reinforce each other. Governance structures and decision making processes facilitate effective prioritization and implementation of mission-aligned conservation and sustainability efforts. Supported by City leadership and regional partnerships, staff at every level share a comprehensive understanding of conservation goals and contribute to measurable species recovery and ecosystem restoration. Governance structures facilitate rapid implementation of conservation initiatives while building institutional capacity that strengthens both organizational resilience and community-wide outcomes.

Water is Life. The BioPark has established water stewardship practices that actively restore natural hydrological cycles while meeting operational needs through innovative conservation and reuse systems. Campus water management demonstrates regenerative approaches where stormwater becomes a resource, operational systems operate in closed loops, and conservation measures enhance guest engagement. These integrated water systems create educational opportunities while contributing to regional watershed health and demonstrating that responsible stewardship strengthens both organizational operations and ecosystem function.

Circular Economy. The BioPark celebrates regional heritage while achieving near-zero waste through local sourcing partnerships and circular systems that transform waste into valuable campus resources. Vendors throughout campus offer locally-produced, plastic-free products that showcase regional artisans and sustainable practices, creating engaging guest experiences that tell the story of local landscapes and culture. On-site composting systems process organic waste into nutrient-rich fertilizer for campus grounds, while comprehensive recycling infrastructure and reusable alternatives across food service and retail demonstrate that circular practices enhance rather than compromise operational excellence and guest satisfaction.

Carbon-free Transportation. The BioPark has transformed mobility across campus operations, creating transportation systems that actively benefit both community health and environmental quality. Staff use electric vehicles, active transportation modes, and public transit options supported by targeted incentives and flexible work arrangements. The BioPark operates an electric light-duty fleet powered by renewable energy, while guests access convenient emissions-free transportation through active transportation, public transit, and EV charging stations.

Leading Change Beyond our Gates. The BioPark serves as a living demonstration of climate solutions, inspiring and equipping diverse community members to implement conservation practices in their own lives and organizations. Through visible demonstration of successful sustainability transitions, comprehensive education programming, and strategic partnerships, the BioPark creates pathways for other institutions and community members to implement similar transformations. This leadership positions the BioPark as an essential resource for regional climate resilience and a model of conservation success.



PEER REVIEW



A selection of our peers’ actions and commitments were summarized to inform our planning efforts. The selected peers have comparable professional reputations within the cultural institutions industry. The table below summarizes key characteristics and sustainability progress of our peers (Table 1).

Our peers demonstrate strong mission alignment with sustainability and climate action initiatives and programming. While sustainability is a central part of many peer institutions’ operations and culture, few have adopted formal emissions reduction or sustainability targets. Only the Henry Doorly Zoo has previously published an organizational public-facing Sustainability or Climate Action Plan. The Albuquerque Museum is also a City facility that shares renewable energy targets with the City. LA Zoo and Botanical Gardens also operates as an entity of the City of Los Angeles, supporting and participating in city-wide initiatives and plans including the Sustainability City Plan, City of LA’s Green New Deal, Resilient Los Angeles Plan, and the One Water LA 2040 Plan.

Table 1. ABQ BioPark’s peer makeup and sustainability highlights.

Institution Name	Location	Climate Region	Employee Count	Annual Visitors	Sustainability Highlights
ABQ BioPark	Albuquerque, NM	Southwest	173	1,500,000	Net-Zero Emissions goal
Omaha’s Henry Doorly Zoo and Aquarium	Omaha, NE	Midwest	950	2,000,000	Climate Action Plan with public facing sustainability goals
LA Zoo & Botanic Garden	Los Angeles, CA	Southwest	200	1,500,000	Commitment to LEED silver or higher for new construction, focus on water construction and upgrading life support systems (LSS)
Albuquerque Museum	Albuquerque, NM	Southwest	30	225,000	Programming focused on environmental stewardship
Living Desert Zoo and Gardens	Palm Springs, CA	Southwest	100	500,000	On-site biodigester for on-site compost use, desert plant focus
Explora Museum	Albuquerque, NM	Southwest	-	-	Programming focused on renewable energy in Albuquerque



The review revealed the following sustainability trends among our peer institutions:

Sustainable Building Design

- Pursue LEED certification for existing and new buildings

Energy Efficiency and Renewable Energy

- On-site renewable energy development, procurement of renewable energy
- LED, building envelope, and mechanical building upgrades to conserve energy
- Upgrading Life Support Systems to more efficient systems

Waste & Water Programs

- Organic waste diversion through on-site or commercial composting
- Drought tolerant planting
- Installation of water-conserving fixtures and appliances
- Implementation of permeable pavement

Climate Change Programming

- Engage guests in programming focused on environmental stewardship, conservation, and renewable energy

Purchasing & Sourcing

- Programs focused on sustainable animal feed
- Focus on local sourcing for purchases

We have implemented many of the strategies that peers demonstrate. The peer review exercise revealed several additional opportunities that we could pursue to lead the way in climate action:

- Explore fossil-free heating options
- Complete building efficiency and LSS upgrades, consider certifications like LEED or WELL for new builds
- Standardize waste bins across facilities, expand waste stream diversions
- Develop a sustainable purchasing policy in alignment with the City





CLIMATE VULNERABILITY ASSESSMENT

Throughout our planning effort, we also conducted a climate vulnerability assessment to identify the specific ways in which climate change is likely to affect our institution. The assessment highlighted key vulnerabilities by evaluating how climate change is projected to impact the Albuquerque community and our ability to adapt to those changes given present social and organizational characteristics.



The climate vulnerability assessment included the following steps:

1. Identify projected climate impacts
2. Determine potential and existing consequences of climate impact on the ABQ BioPark
3. Assess the BioPark's adaptive capacity
4. Summarize the BioPark's vulnerability to the projected climate impacts and deliver recommendations to promote climate resilience

The main takeaways from the climate vulnerability assessment are:

- Albuquerque's climate is and will continue to change. The region is facing **warming temperatures, increased drought and wildfires, and intensifying rainfall events and flash flooding.**
- The BioPark will face several consequences as a result of the projected climate impacts, especially including **health and safety concerns for staff, guests, plants, and animals, disruptions to regular operations and programming, infrastructure damage, and increased emphasis on our conservation mission.**
- We have demonstrated a **high degree of adaptive capacity** based on staff trust in how we have **navigated previous disruptions, confidence in our ability to collectively respond during crises, and the existence of strong relationships with other City entities and community partners.**
- There are several opportunities we can leverage to become more resilient to the changing climate, such as **implementing our Climate Action Plan, actualizing our pathway to decarbonization, and enhancing our emergency protocols.**

Projected Climate Impacts

Albuquerque is expected to experience warming temperatures, increased drought and wildfires, and increased rainfall intensity and flash flooding as a result of climate change. Due to urban heat island concerns, urban/wildlands interfaces, and proximity to the Rio Grande River, Albuquerque residents face heightened vulnerability to heat, wildfire, and flooding hazards. Approximately 55% of the city's buildings are significantly threatened by wildfire, while around 35% face high flood risk.² Of paramount concern, the city is projected to experience very high heat and drought risks.



²["Albuquerque, New Mexico Climate Change Risks and Hazards: Heat, Fire."](#) ClimateCheck. Accessed 11 March 2025.



Warming Temperatures

Temperatures in Albuquerque are rising. By midcentury, the average annual temperatures are expected to be 5.8 degrees Fahrenheit (°F) warmer than they were in the 1990s.³ Across the state, summer temperatures are projected to increase more than winter temperatures, with minimum summer temperatures also increasing by nearly 6°F by midcentury—meaning the coolest summer temperatures experienced will be 6°F warmer than current summer lows.⁴

Extreme heat events are also on the rise. In the 1990s, 33.4 days a year had a heat index above 90°F; by midcentury, it is expected to be over 90 days a year.⁵ Extreme temperatures can have negative impacts on human health. When temperatures are greater than 90°F, sunstroke, heat cramps, and heat exhaustion are possible with prolonged exposure and/or physical activity.⁶

Projected temperature increases in the Southwest region are also expected to raise the likelihood of natural events such as wildfires, drought, and summer precipitation. As these climate impacts compound, like the combination of drought and warmer temperatures, mountain snowpack that feeds water supply reservoirs is expected to continue to decrease.⁷ ClimateCheck lists heat as an extreme risk to the BioPark’s properties.⁸

³ Hegewisch, K.C., Abatzoglou, J.T., Chegwiddden, O., and Nijssen, B “Future Climate Dashboard” web tool. Climate Toolbox. Accessed 28 March 2025.

⁴ Ibid.

⁵ Ibid.

⁶ “Albuquerque/Bernalillo County 2022 Hazard Mitigation Plan.” January 2022. Accessed 11 March 2025.

⁷ Easterling, D. R., et al. “New Mexico State Climate Summary 2022.” NOAA Technical Report NESDIS. Accessed 11 March 2025.

⁸ ClimateCheck. Risk Report. Prepared on November 1, 2024.

Table 2: Heat-related climate impact metrics and projections for Albuquerque, New Mexico.

Extreme Heat and Warming Temperatures			
Projected climate impact	Historic (1971-2000)	Mid-Century (2040-2069)	End-of-Century (2070-2099)
Average annual temperature (°F)	56.7	62.5	66.1
Minimum Winter Temperatures (°F)	23.2	28.3	31.2
Minimum Summer Temperatures (°F)	60.5	66.3	70.2
Extreme Heat Days (heat index >90°F)	33.4	90.4	119.8





Increased Drought and Wildfires

Climate impacts can compound to make already challenging conditions worse. Increased drought and warming temperatures will lead to more frequent and intense wildfires. According to the Albuquerque/Bernalillo County Hazard Mitigation Plan, Bernalillo County has a 36% chance of experiencing severe drought conditions in any given week.⁹ From 2000-2020, New Mexico experienced 811 weeks in drought (78%). In that same time period, New Mexico spent 35.7% of the time in severe drought conditions or worse.¹⁰ Drought can cause decreased soil moisture, dust storms, decreased irrigation for crops and livestock, large rivers running dry and more.

ClimateCheck lists the BioPark's properties at high risk of wildfires.¹¹ The combination of high temperatures, low moisture content in the air, accumulation of vegetation, and high winds create fire conditions. Between 1970 and 2016, Bernalillo County experienced 653 wildfire events averaging 42.7 acres per event. Five fires have resulted in a Federal Disaster Declaration since 2000.¹²

⁹"Albuquerque/Bernalillo County 2022 Hazard Mitigation Plan." January 2022. Accessed 11 March 2025.

¹⁰Ibid.

¹¹ClimateCheck. Risk Report. Prepared on November 1, 2024.

¹²Albuquerque/Bernalillo County 2022 Hazard Mitigation Plan." January 2022. Accessed 11 March 2025.

Increased Rainfall Intensity and Flooding

Although New Mexico typically experiences dry conditions, climate change is causing heavier downpours during the occasional rainfall, which raises the risk of flash floods. Albuquerque is already dealing with increased flooding due to climate change. In July of 2024, flooding required the rescues of 100 people and left parts of the city covered in mud and debris.¹³ During that same time, a severe thunderstorm brought flash flooding to the city and downed power lines, leaving up to 20,000 residents without electricity. Flashfloods can also lead to damaged infrastructure like sewer line breaks and can be costly to repair. The BioPark's properties are protected by levees which may reduce the risk of flooding. However, the levee system is aging, and although it's unlikely, it is possible that it could fail.¹⁴

¹³["Much of New Mexico is under flood watch after 100 rescued from waters over weekend."](#) AP News, 1 July 2024. Accessed 7 July 2025.

¹⁴Albuquerque/Bernalillo County 2022 Hazard Mitigation Plan." January 2022. Accessed 11 March 2025.



Potential Consequences

In addition to initial research conducted on likely climate consequences for Albuquerque, we engaged in a workshop to identify potential consequences of the three primary climate impacts: warming temperatures, increasing drought and wildfire, and increased rainfall intensity and flooding. Each of the consequences identified falls under one or more of the following categories:

- Built Infrastructure Vulnerability and Damage
- Financial Resources and Revenue Impacts
- Health, Safety and Welfare Impacts to Staff, Guests, Plants and Animals
- Operational Interruptions and Service Disruptions
- Conservation Mission and Scientific Impact
- Community Engagement and Educational Impact

A consequence level ranging from negligible to catastrophic was assigned to each of the climate impacts based on the extent to which the consequences named are expected to disrupt our operations.

- **Catastrophic.** The BioPark will cease to exist or have functions permanently altered.
- **Major.** Functions of the BioPark may be dramatically altered, such that value is undermined.
- **Moderate.** Functions of the BioPark may be diminished, such that operations and guest experience is degraded, but still present.
- **Minor.** The BioPark will continue to function, but specific activities may be impaired.
- **Negligible.** The BioPark will not be visibly or functionally affected.



Warming Temperatures

Warming temperatures are expected to have a significant impact on people and operations. Health and safety of staff, guests, and animals is the biggest concern during high temperatures. Rising temperatures can lead to heat stroke or heat exhaustion for humans and animals. Guests may decide not to attend parks and may choose to be indoors instead to stay cool. Animals may need to stay indoors and alter enrichments to also stay cool. Staff working outside will be impacted and may need to shift working hours to early in the morning or late in the evening to avoid the hottest parts of the day.

Rising temperatures also impacts infrastructure and power supplies. High heat puts a strain on energy systems as more air conditioners are running at a higher rate and for longer. The demand can also impact pricing and cooling costs may rise.

Assessed Consequence Level: Major



Drought and Wildfires

Drought can have an impact on human health and safety. Low soil moisture can lead to dust and decreased air quality. Additionally, low water flow can lead to poor water quality. Droughts can put a strain on the local water supply and therefore can impact the BioPark's operations if there is a water shortage. This can impact landscaping along with potential disruptions of potable water for human and guest use.

Wildfire risk increases with drought conditions. Wildfires are a severe threat to operations, human, guest, and animal health and safety, infrastructure and ecological integrity. Human and animal exposure to wildfire smoke can cause serious health problems, especially those with preexisting conditions. Infrastructure is extremely vulnerable to wildfires, especially if the material is flammable. Wildfires can cause pauses in operations, prohibit staff and guests from getting to the BioPark, and can destroy our facilities and ecosystems.

Assessed Consequence Level: Catastrophic

Increased Rainfall Intensity and Flooding

Thunderstorms and flooding will likely cause damage to infrastructure and operations. It may prohibit staff and guests from accessing BioPark facilities. Additionally, flooding can cause damage to buildings and infrastructure. Thunderstorms in the past have downed power lines causing power outages as well. Albuquerque has a levee system that helps alleviate flooding. However, the levee system is old and while it's unlikely, can fail.

Assessed Consequence Level: Major

Adaptive Capacity

Adaptive capacity is defined by the Climate Impacts Research Consortium (CIRC) as the "ability of a system to adjust to changes, manage damages, take advantage of opportunities, or cope with consequences."¹⁶ Staff participated in a series of virtual sessions designed to review the projected climate impacts for Albuquerque, clarify the use of adaptive capacity for assessing organizational resilience, and provide dedicated time for participants to provide input on our adaptive capacity through an online survey. The survey was modified from CIRC's adaptive capacity assessment tool, to obtain a rating of its adaptive capacity. The survey assessed staff perception of our social potential, organization capacity, and management potential. Staff were asked to respond to a variety of questions associated with each dimension, and provide a rating on the following 5-point scale:

1. **Nonexistent.** Not functional or does not exist.
2. **Poor.** Not adequate, but provides modest function.
3. **Fair.** Could easily be improved.
4. **Good.** Better than adequate, but could use improvement
5. **Superior.** This is the ideal condition.

Ratings were then assigned a value of Low (1 - 2.3), Moderate (2.4 - 3.6), or High (3.7 - 5). **The BioPark's adaptive capacity overall is rated as High (3.75 overall score).**

¹⁶ Mooney, Ann, Nathan Gilles, and Denise Lach, "The Vulnerability Assessment Workbook, Assessing your Community's Vulnerability to Climate Risks." The Pacific Northwest Climate Impacts Research Consortium (CIRC), College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, (2020)



ABQ BioPark’s adaptive capacity overall is rated as high (3.75).

Previous disruptions, such as COVID-19 pandemic and avian flu were navigated effectively. With these in mind staff wrote about our strong relationship with other City departments to help during an emergency, along with staff’s ability to come together during a crisis. Staff also identified a strong ability to respond effectively to emergencies and scientific support available through the AZA community for technical guidance. Strong emergency protocols informed by AZA and USDA-mandated protocols are in place.

Opportunities proposed by the staff to increase adaptive capacity include:

- **Proactive planning:** Shift from reactive to proactive emergency preparedness.
- **Staff retention:** Address turnover issues and create more permanent positions.
- **Communication:** Improve both internal communication between departments and external community outreach.
- **Training consistency:** Develop more structured, mandatory training programs.



Table 3. ABQ BioPark’s adaptive capacity by dimension as assessed by staff

Adaptive Capacity Dimension	Description	Rating
Social potential	Relationships between BioPark employees that allow them to make collective decisions about the future.	3.88 - High
Organizational capacity	Individual BioPark employee capacity, combined with others in the organization and local communities to make organizational choices in the face of change.	3.63 - High
Management potential	Rules, regulations, and management styles that allow BioPark and its employees to adapt to changing conditions.	3.74 - High



Vulnerability Level

The vulnerability level was assessed for each climate impact as a function of the likelihood that the impact will occur, the expected consequence level if and when the impact occurs, and the adaptive capacity of the organization (Figure 3). The vulnerability level for each climate consequence was ranked on a scale from low, moderate, or high.

Assessed vulnerability level indicates that we are moderately vulnerable to two of the identified climate impacts: warmer temperatures and drought and wildfires. We face a low vulnerability to increased rainfall intensity and flooding. This moderate and low level of vulnerability can largely be attributed to our strong adaptive nature. Our adaptability helps reduce vulnerability to climate impacts by enabling prompt and effective responses to both emerging threats and potential opportunities. The complete vulnerability assessment results are presented in Table 4.

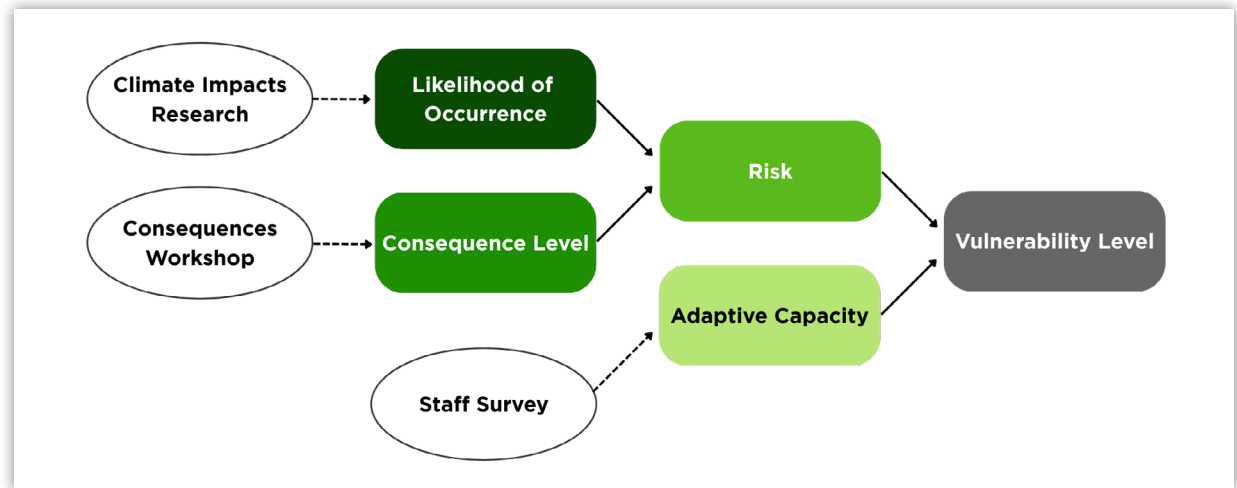


Figure 3. The figure above outlines the key inputs used in the climate vulnerability assessment (rectangles) and the processes used to identify and assign values to the inputs (ovals).

Table 4: ABQ BioPark’s climate vulnerability assessment results by dimension.

Climate Impacts	Likelihood	Consequence Level	Risk	Adaptive Capacity	Vulnerability Level
Warmer Temperatures	Very Likely	Major	Extreme	High	Moderate
Drought and Wildfires	Very Likely	Catastrophic	Extreme	High	Moderate
Rainfall and Flooding	About as likely as not	Moderate	Moderate	High	Low



Climate Vulnerability Assessment Summary

Albuquerque's climate future presents challenges that will test our resilience and operational continuity. The combination of extreme heat, drought, wildfires, and flooding from intense rainfall events create unique conditions where multiple hazards can amplify one another. Rising temperatures—projected to increase 5.8°F by midcentury, with extreme heat days nearly tripling—will stress human and plant and animal health, strain infrastructure and energy systems, and degrade the guest experience during summer months.¹⁷ Meanwhile, drought conditions that have stressed the region for over 800 weeks since 2000, combined with over 650 historical wildfire events in Bernalillo County, position the BioPark within a landscape where catastrophic fire remains a consistent threat to facilities, living collections, and surrounding ecosystems.

Despite these challenges, the BioPark demonstrates high adaptive capacity, evidenced by strong collaborative partnerships, proven crisis response through COVID-19 and avian flu events, and existing emergency protocols. It is imperative that we capitalize on our experiences adapting to non-climate hazards in preparation for our changed climate future. As climate extremes intensify and overlap with greater frequency, we must move from reacting to climate events toward proactive climate preparedness, retaining experienced staff, improving cross-departmental communication, and making sure all staff and vendors get consistent, quality training on emergency response.¹⁸



¹⁷"Future Climate Dashboard" web tool. Climate Toolbox. Accessed 28 March 2025.

¹⁸"Albuquerque/Bernalillo County 2022 Hazard Mitigation Plan." January 2022. Accessed 11 March 2025.



CREATE ORGANIZATIONAL ALIGNMENT & GOVERNANCE



Create Organizational Alignment & Governance

Vision Elements

Mission-aligned Governance and Action. The ABQ BioPark has achieved integrated decision-making where conservation impact and climate action reinforce each other. Governance structures and decision making processes facilitate effective prioritization and implementation of mission-aligned conservation and sustainability efforts. Supported by City leadership and regional partnerships, staff at every level share a comprehensive understanding of conservation goals and contribute to measurable species recovery and ecosystem restoration. Governance structures facilitate rapid implementation of conservation initiatives while building institutional capacity that strengthens both organizational resilience and community-wide outcomes.

Introduction

Robust governance structures, clearly defined organizational priorities, and integrated decision-making processes will be essential to effectively implement our Climate Action Plan. As an organization dedicated to conservation, education, and public engagement, we must ensure that climate action is not treated as a separate initiative but is woven into the core of our mission, operations, and strategic planning. This integration is key to elevating climate action to the status of a core organizational tenet, similar to fiscal responsibility, animal wellbeing, or guest safety.

This strategic direction, therefore, focuses on aligning departmental goals, maintaining leadership buy-in, and institutionalizing climate considerations—from population planning to budgeting—across all facets of the BioPark. Achieving this organizational alignment and establishing clear governance will ensure a long-term, sustained commitment to climate goals and enable the efficient use of resources in the face of a changing climate.

Existing Efforts

Our 2022-2027 Strategic Plan, the ABQ BioPark Strategic Conservation Framework (SCF), and a staff and volunteer led Conservation Committee highlight our dedication to conservation. The Strategic Plan’s 4 pillars (Our People, Our Plants and Animals, Our Communities, and Our Impacts), lay the groundwork for our sustainability efforts. The Conservation Framework guides and captures the breadth of our biodiversity conservation efforts. The Conservation Committee actualizes the strategies from these and accesses, approves, and implements emergent opportunities that support the connected goals and targets.

These interconnected governance structures—the guiding strategic plan, the conservation mission-aligned framework, and the active committee—demonstrate a commitment to the integration of our strategic priorities. However, to adapt to changing environmental, social, and economic systems, our priorities and governance must expand to integrate climate action in our core operations.



Future Opportunities

To achieve organizational alignment and governance, climate action must be embedded across the BioPark's operational and decision-making frameworks—from population planning and procurement policies to senior leadership accountability. While the strategic plans and Conservation Committee provide a solid foundation, climate considerations need the same non-negotiable status as animal wellbeing, guest safety, and fiscal prudence.

Successfully achieving this means integrating climate considerations into population planning to ensure species selections support population management efforts, biodiversity conservation, and adaptation to Albuquerque's changing climate; establishing climate-aligned guidelines for procurement and contract awards; and dedicating senior leadership capacity to monitor climate goals, address barriers, allocate resources, and accelerate action as needed.

Strategies

- Integrate climate consideration into population planning
- Implement contract award criteria aligned toward sustainability/ climate goals
- Include new project category for sustainability within the Strategic Conservation Framework (SCF)
- Integrate data from the B.R.A.I.N. into decision making, including budgeting
- Leverage climate action plan to inform strategic plan refresh
- Identify the role that will drive sustainability & mission alignment





**SUPPORT LONG-TERM FINANCIAL SUSTAINABILITY TO
ENABLE CLIMATE ACTION**



Support Long-term Financial Sustainability to Enable Climate Action

Vision Elements

All Vision Elements:

- **Sustainable and Resilient Campus**
- **Mission-aligned Governance and Action**
- **Water is Life**
- **Circular Economy**
- **Carbon-free Transportation**
- **Leading Change Beyond our Gates**

Introduction

Fiscal prudence is key to maintaining our role as a community anchor and ensuring that our operations can continue to center animal wellbeing and conservation impact. As climate change hazards continue to intensify, it will be necessary to balance near-term capital expenditures against the substantial, long-term costs of inaction on our adaptation and resilience efforts.

Our approach to directing capital must acknowledge the co-benefits of sustainability-directed investments while negotiating tradeoffs with other mission elements. Through this planning process, we identified a need to proactively plan for and secure funds to support our sustainability and climate action goals. When implemented, the combination of increased revenue and decreased costs, through resource reductions and efficiencies (material reuse, energy and water conservation, etc.), will provide us with the financial flexibility to maintain a quality visiting experience for the community, while enhancing and securing our ability to operate through future climate disruptions.



Existing Efforts

The ABQ BioPark has already demonstrated how dedicated funding mechanisms can accelerate conservation efforts and impacts. Since 2016, a voter-approved Gross Receipts Tax (GRT) has directed funding to capital investments that advance climate resilience and biodiversity conservation. Key initiatives include the completion of a Mexican Wolf Conservation Facility, the establishment of a rainwater collection system at Heritage Farm, and the inclusion of energy and water conservation strategies in construction projects, including at the recently open Australia Shores.

Recent partnerships on conservation, sustainability, and climate action efforts including with the City Sustainability Office, U.S. Fish & Wildlife Service, International Union for the Conservation of Nature (IUCN), New Mexico Department of Wildlife, National Park Service, and a variety of AZA (Association of Zoos and Aquariums) Species Survival Plan peers, highlight our proficiency at leveraging strong collaboration to develop creative solutions to complex problems that we can continue to leverage as we engage in climate action work.

Future Opportunities

The success of our Climate Action Plan will be bolstered by durable and diversified funding mechanisms, including public funding sources like the GRT, exploring dedicated internal revenue streams from operations, and actively seeking external philanthropic support. By prioritizing projects that offer long-term operational cost reductions (energy and water efficiencies) and establishing clear sustainability criteria for all capital investments, we can ensure financial resilience while accelerating our climate goals.

Strategies

- Identify priority projects that create cost reductions
- Further refine and identify list of priority projects for future GRT support
- Examine avenues for dedicating a portion of revenue from ticket sales to climate goals
- Establish a sustainability baseline for project funding
- Cultivate donors committed to sustainability and climate action





CENTER WATER STEWARDSHIP AND CIRCULAR SYSTEMS



Center Water Stewardship and Circular Systems

Vision Elements

Water is Life. The ABQ BioPark has established water stewardship practices that actively restore natural hydrological cycles while meeting operational needs through innovative conservation and reuse systems. Campus water management demonstrates regenerative approaches where stormwater becomes a resource, operational systems operate in closed loops, and conservation measures enhance guest engagement. These integrated water systems create educational opportunities while contributing to regional watershed health and demonstrating that responsible stewardship strengthens both organizational operations and ecosystem function.

Circular Economy. The BioPark uses circular economy practices, keeping materials and products in circulation for as long as possible. This practice shows up in product procurement, food service, waste diversion and reuse of waste into valuable campus resources. The BioPark also celebrates and showcases the heritage of the region in its commerce and vending operations. The BioPark concessionaire and special event vendors offer locally-produced, plastic-free products that showcase regional artisans and sustainable practices, creating engaging guest experiences that tell the story of local landscapes and culture. On-site composting systems process organic waste into nutrient-rich fertilizer for campus grounds, while comprehensive recycling infrastructure and reusable alternatives across food service and retail demonstrate that circular practices enhance rather than compromise operational excellence and guest satisfaction.

Introduction

Water is the single most critical resource in Albuquerque’s high-desert environment. Responsible water stewardship is central to how we fulfill our mission and ensure the long-term viability of our facilities. Transitioning to a circular economy will be essential for minimizing the BioPark’s environmental impacts and achieving our sustainability goals. In a circular economy, materials are reused, recycled, and remanufactured for continuous use. Water is recycled and organic waste (biological material) is composted and regenerated within natural systems. This transition shifts us away from a linear “take-make-dispose” model that depletes resources and toward a circular model that values and regenerates resources.

This strategic direction focuses on integrating innovative water conservation and reuse technologies across the BioPark campuses to restore natural hydrological cycles and reduce reliance on potable supplies. Simultaneously, it encourages the creation of circular systems that minimize waste, prioritize local sourcing, and transform operational byproducts into valuable resources, ensuring that we operate as a model of circularity for the community.

Existing Efforts

We have accomplished several early wins in our efforts to use resources more responsibly. For example, Tingley Beach’s recreational fishing ponds flow to the Bosque wetland marshes, where it supports habitat restoration for native wildlife.



Prior to renovations at Heritage Farm, drainage from the large Japanese Garden ponds irrigated bamboo that was grown on-site and used as supplemental browse for animals at the Zoo. With recent upgrades, we were able to install five 2,500 gallon rainwater catchment basins at the cattle barn and one 500 gallon rainwater catchment at the Farmhouse. In under a year, ~39,000 gallons of rainwater were reclaimed and used to water the orchard and cattle pasture. We have also sought to minimize or eliminate single-use plastics in retail and culinary spaces and hosted e-waste recycling events targeting both guests and staff.

Future Opportunities

Net-zero and Carbon Neutral Vendors

Emissions from our purchased goods and services make up 20% of our overall GHG footprint (Figure 1) and 62% of Scope 3 emissions. These emissions are considered indirect because they are generated by a different entity, however, we have the opportunity to influence our emissions through adjusting our purchasing choices, or partnering with our vendors to reduce emissions.

To achieve a decarbonized supply chain, we will need to develop a process to assess vendor sustainability, inform vendor selection, and track progress over time in collaboration with the City—who largely sets our purchasing policies. While the City does not currently include sustainability criteria in the selection of preferred vendors or request sustainability performance data from vendor partners, the BioPark and the City Sustainability Office have identified an opportunity to jointly encourage change. Given the current limitations our staff have in guiding purchasing decisions according to sustainability objectives, the project team outlined a glide path to increase sustainable procurement slowly over the next 25 years (Table 5).

Table 5. ABQ BioPark’s phased targets for increasing spend with net-zero or carbon neutral vendors.

Year	Percent of Spend
2025	0%
2030	5%
2035	10%
2040	14%
2045	17%
2050	20%

The biggest driver of our purchasing emissions stem from animal diet purchases, at 42%. Building on the resources available to us as ACP members, we can use the Sustainable Purchasing Guide¹⁹ to support us in engaging with our vendors and establishing sustainability priorities with the City. Additionally, joining on to existing efforts with our peers, including the ACP and AZA SAFE Shark and Rays joint effort to accelerate market change toward shark-friendly alternatives.²⁰

In addition to engaging vendors and leveraging our industry partners, exploring opportunities to reduce procurement needs through the reuse and recycling of materials is a key opportunity. For example, composting animal waste on-site may reduce the quantity of fertilizer and other soil amendments that we need to purchase, while diverting waste from landfills. Prioritizing local vendors can similarly reduce costs and emissions while strengthening the regional economy and reducing our dependency on vertically integrated food systems.

¹⁹ [Aquarium Conservation Partnership. Sustainable Purchasing Guide, 2024.](#)

²⁰ [SAFE Sharks and Rays Sustainable Feed Working Group, “Sustainable Feed Project,” 2024.](#)



Water Stewardship

Building on our previously successful efforts in water conservation, and intentional management of our water systems, we can demonstrate our leadership in water stewardship by moving beyond efficiency measures to actively restoring the natural hydrological cycle throughout our campus boundaries.

Implementing advanced water reclamation, such as redirecting non-potable wastewater for landscape irrigation, can significantly reduce demand on local water sources. Integrating additional rainwater catchment systems can expand access to this limited resource for non-potable use. By eliminating water-intensive practices, like “dump and fill” pools, and committing to developing closed-loop systems, we can conserve millions of gallons each year.

As the BioPark transforms our physical operations and infrastructure, we can also leverage our role as a trusted community educator to communicate the importance of water conservation, cultivating a deeper connection between guests, our plant and animal collections, and the regional watershed. This proactive approach to water stewardship not only enhances financial and operational resilience in the face of increasing drought, but also positions us as an innovative model for the Albuquerque community.

Strategies

- Implement rainwater harvesting and water reclamation systems
- Develop guidelines for centering water into communications in culturally relevant ways
- Develop infrastructure to eliminate dump and fill pools
- Use recycled water for irrigation projects at the Heritage Farm

Circular Waste Systems

Transitioning to a circular economy supports our vision of near-zero waste and becoming a living laboratory for resource efficiency. This transition will involve more than just improving recycling, requiring us to rethink the lifecycle of materials used on campus. A comprehensive waste characterization study will allow us to map our materials use and types, address contamination sources, and identify opportunities for waste reduction and diversion.

As organic material is one of the largest contributors to emissions within the waste cycle, establishing additional on-site composting infrastructure is a major opportunity at the BioPark. By including animal waste, food scraps, and plant debris in our composting efforts, we can generate valuable compost for use on-site and for community engagement, while also reducing emissions and procurement costs. Additionally, we can support staff and guests in successfully making sustainable choices by standardizing waste collection and diversion systems across all sites, and implementing infrastructure to support zero-waste events. Through the combination of these efforts, the BioPark can transform our waste management processes from a behind-the-scenes challenge, into an educational asset that demonstrates replicable solutions to the community.

Strategies

- Conduct a waste characterization study
- Establish a waste baseline metric
- Implement infrastructure to support zero-waste events
- Develop facility-wide messaging and systems for waste diversion
- Develop and implement an on-site composting program



ENHANCE OPERATIONAL RESILIENCE & ADAPTABILITY



Enhance Operational Resilience and Adaptability

Vision Elements

Sustainable and Resilient Campus. The ABQ BioPark functions as a living laboratory for climate-positive infrastructure and operations. Strategic investments in on-site energy generation, efficient building systems, and resilient construction have produced facilities that provide refuge during extreme weather while contributing clean energy back to regional grids. The campus demonstrates that adaptive infrastructure and operations create financial savings, enhanced guest experiences, and measurable benefits to the environment and the biodiversity that relies on it, extending well beyond the BioPark's gates.

Introduction

Greenhouse gases trap heat in the atmosphere and drive climate change, or the long-term changes in average weather patterns that have come to define Earth's local, regional, and global climates. Fossil fuels that are burned for energy, including coal, oil, and natural gas, are the leading source of greenhouse gas emissions globally.²¹ Reducing these greenhouse gas emissions is the best way to mitigate the worsening effects of climate change. The Intergovernmental Panel on Climate Change (IPCC), the leading international scientific body studying climate change, has stated that we must cut carbon emissions in half over the next five years and achieve net-zero emissions by 2050 if we are to limit global warming to 1.5 degrees Celsius (2.7°F) above pre-industrial levels.²² To achieve this ambitious target, everyone must play a role.

This strategic direction focuses our efforts to implement meaningful decarbonization measures while fostering resilience to the impacts of climate change across the organization. Measuring progress in decarbonization requires establishing an emissions baseline. This section provides details on our emissions inventory and strategies towards our net-zero goal and targets. Details on methodology can be found in Appendix C.

²¹ [Overview of greenhouse gases. US EPA. \(2024, April 11\). US EPA.](#)

²² [Sixth Assessment Report. IPCC. \(2021\). IPCC.](#)



Greenhouse Gas Inventory

Key to our Climate Action Planning process was data collection, setting our baseline for key sustainability factors, and developing a greenhouse gas emissions inventory to understand where our environmental footprint is today and what opportunities we have to reduce it.

The GHG inventory measured Scope 1, Scope 2, and material Scope 3 sources. Scope 1 emissions refer to direct emissions from owned or controlled sources, such as mobile fleet and gas-heating systems. Scope 2 emissions are indirect emissions from energy that is purchased and used on-site, and Scope 3 emissions are indirect emissions from non-owned sources that are not within the BioPark’s direct operational control. Scope 3 emissions from procurement, employee commuting, business travel, animal transportation, and wastewater treatment were included in the inventory.

ABQ BioPark produced 3,111 metric tons of carbon dioxide equivalent (MtCO₂e) greenhouse gas emissions in 2023 (Figure 1). The primary sources of emissions were stationary combustion (52%) followed by procurement (20%).

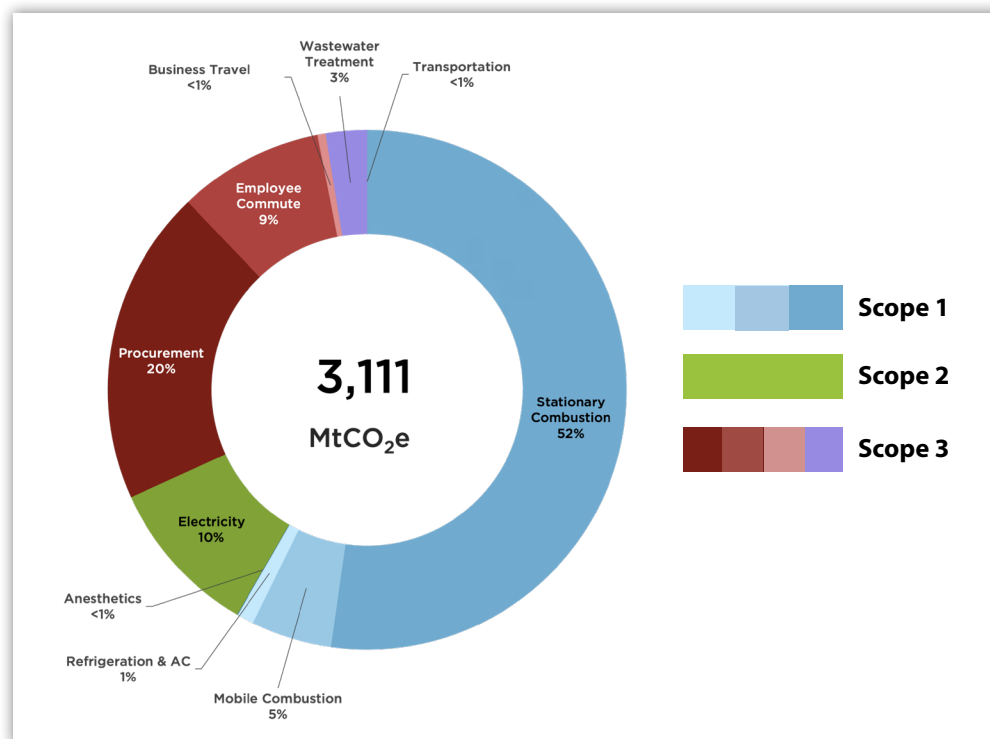
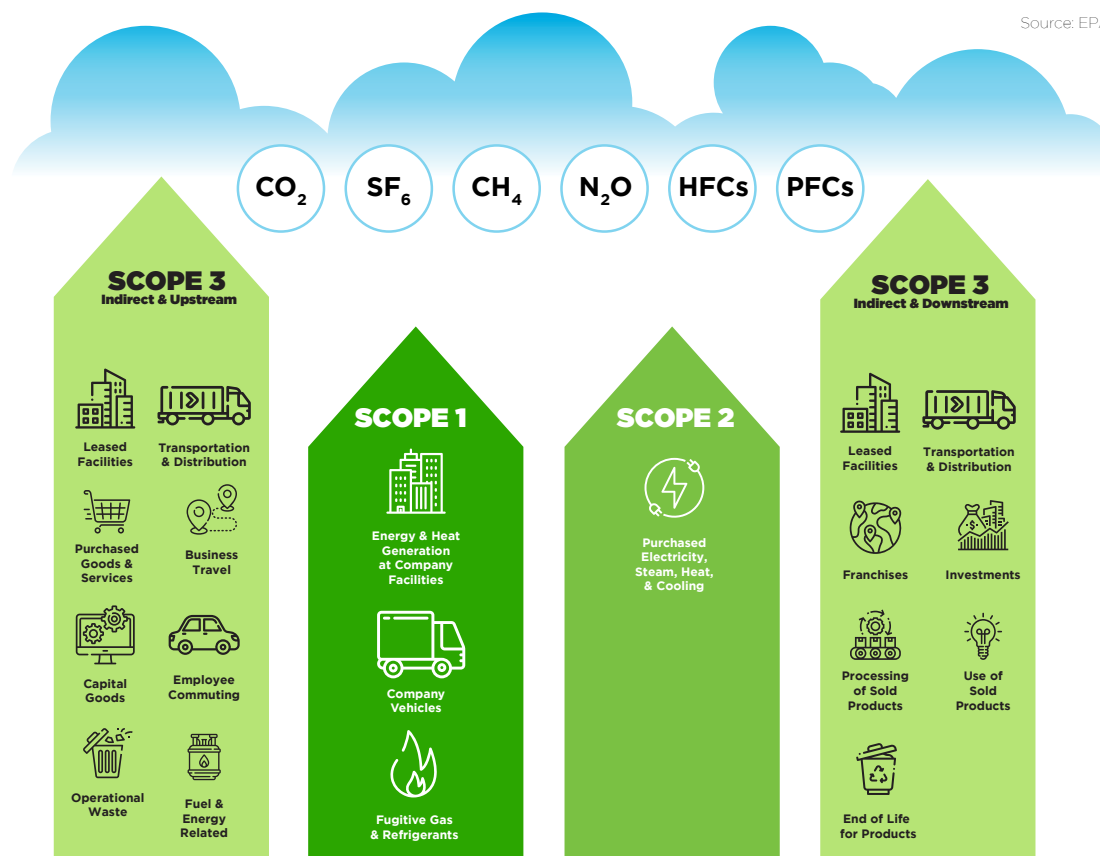


Figure 1: GHG emissions by source, 2023



Scope 1, 2, and 3 Emissions for Organizational Inventories

GHG emissions are organized into three 'scopes' based on the location and ownership of the emissions-generating activity. **Scope 1 emissions** are directly emitted from sources owned or controlled by your organization. **Scope 2 emissions** are indirect emissions that result from your organization's demand for energy. **Scope 3 emissions** are indirect and occur upstream and downstream of your organization along the value chain.



What's included? GREENHOUSE GAS PROTOCOL



Scope 1 & 2 Emissions

Scope 1 and Scope 2 emissions account for 68% of our overall 2023 greenhouse gas emissions (Figure 4). These emissions fall within our operational control and serve as the boundary for net-zero emissions reduction targets.

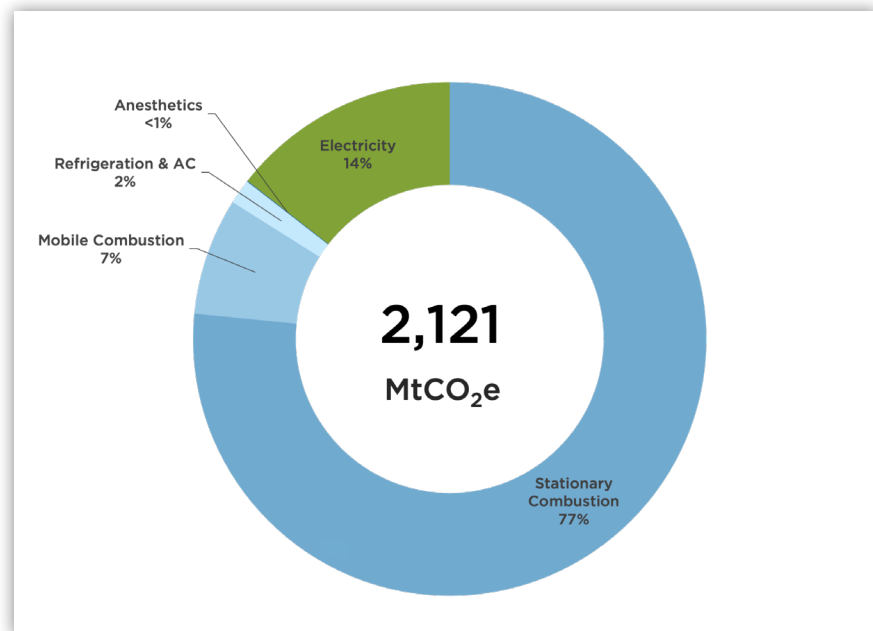


Figure 4. 2023 Scope 1 & Scope 2 GHG emissions by source.

Scope 3 Emissions

Scope 3 emissions account for 32% of our 2023 greenhouse gas emissions. Procurement accounts for nearly two thirds of those Scope 3 emissions followed by employee commuting (28%) (Figure 5). Emissions reduction strategies for procurement are discussed in the plan section entitled “Center Water Stewardship and Circular Systems.” Emissions mitigation strategies for employee commuting are discussed in the plan section entitled “Catalyze Community Engagement and Systems Change.”

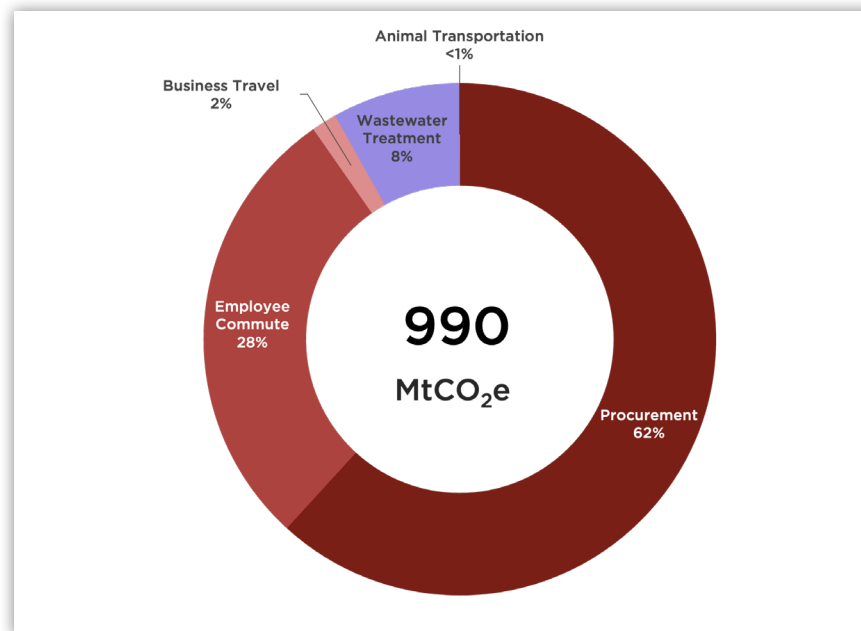


Figure 5. 2023 Scope 3 GHG emissions by source.



Net Zero Pathway

Net zero is achieved when an organization has reduced its annual emissions by at least 90% compared to its baseline and offsets any remaining emissions to eliminate its carbon footprint.

Goal and Target

Participating ABQ BioPark and NMBPS team members aligned on the following:

Goal: Net-Zero Scope 1 & 2 GHG emissions by 2045

- **Target:** 45% Scope 1 and 2 emissions reduction by 2035

These were selected based on a decarbonization model prepared by Verdis Group and refined in conversations with both our BioPark and NMBPS team members (Figure 2 and 6). The model projects that the BioPark can achieve a Scope 1 and 2 emissions reduction of 47% by 2035 and 91% by 2045 as we implement the decarbonization strategies identified through the Net Zero Pathway (NZZP) planning process.

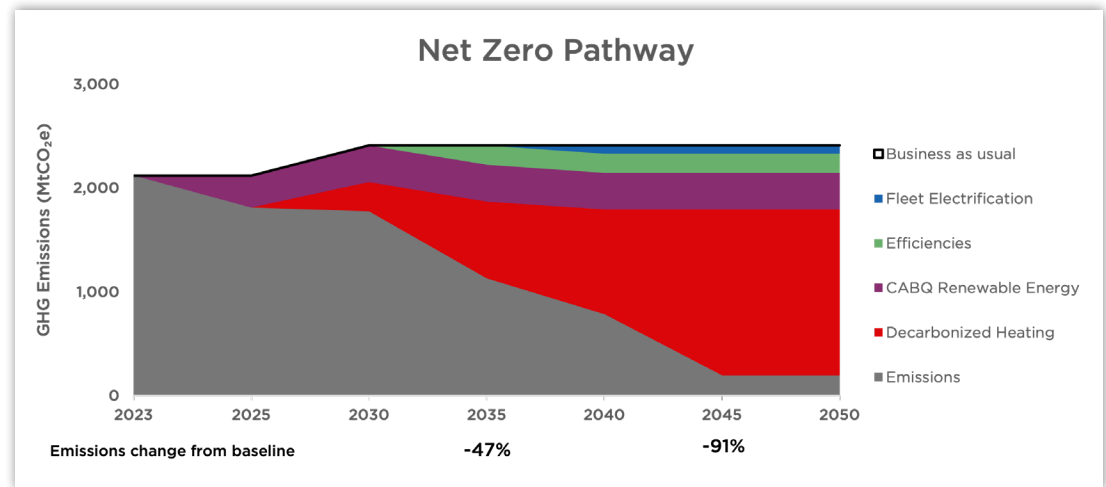


Figure 2. The ABQ BioPark’s emissions reduction pathway.

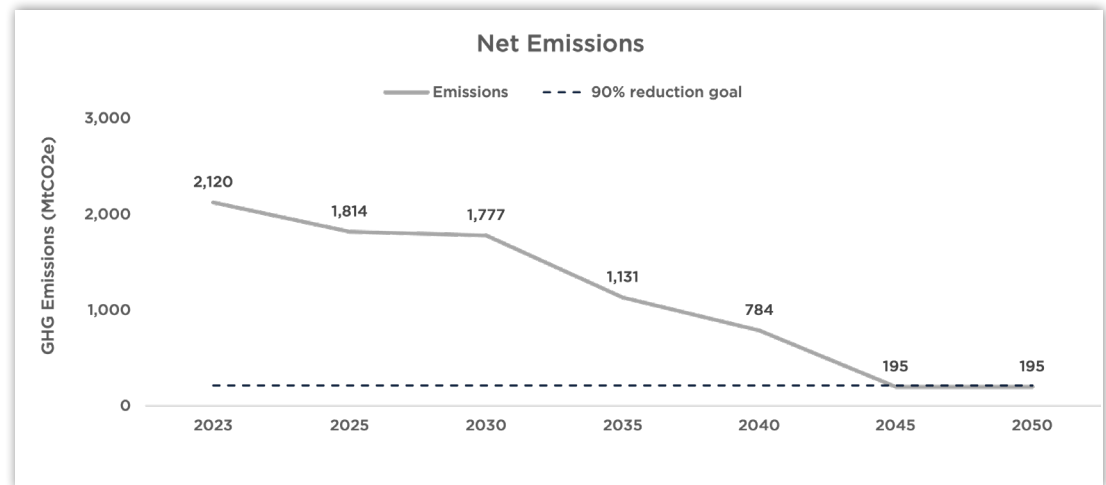


Figure 6. ABQ BioPark’s Scope 1 and 2 GHG emission reduction forecast



Our net-zero commitment aligns with local and regional climate action initiatives. In 2019, the State of New Mexico adopted a 2015 Paris Agreement-aligned 2030 emissions reduction goal of at least 45% compared to a 2005 baseline.²³ Governor Lujan Grisham subsequently expanded the state’s emissions targets to include a net-zero objective by 2050. The City has also adopted a 2050 community-wide net-zero emissions goal and has pledged to cut emission in half by 2030.²⁴

Community education and engagement will be essential to realizing these ambitious climate goals. As a trusted community institution, the BioPark can play an essential role in advancing climate action regionally as an advocate and educational partner. By communicating our own journey to net-zero and spotlighting sustainability and conservation, the BioPark can help foster transformative change beyond our gates.

Net-Zero Strategies

Below is a summary of the key strategies that will enable the BioPark to achieve our net-zero and mid-term emissions reduction targets. The BioPark, other City departments, and NMBPS will collaborate on the implementation of the NZP. Representatives of these teams participated in an exercise to identify priority actions the group will take over the next 24 months to advance each of the net-zero strategies.

Business as Usual (black line in Figure 2)

ABQ BioPark’s “business as usual” emissions project how our emissions profile is expected to trend over time due to operational changes. Planned future expansions and remodels, including the addition of the new Science, Health, and Aquaritic Research Center (S.H.A.R.C.) and Australia Phase 2, are expected to result in a 14% increase in emissions from baseline by 2030.

²³ [Exec. Order No. 2019-003. \(29 January 2019\).](#)

²⁴ [Exec. Order No. 37. \(11 April 2025\).](#)

Decarbonized Heating by 2045 (red wedge in Figure 2)

Adopting heating alternatives that do not require the use of fossil fuels such as natural gas is an essential component of our net-zero strategy. Natural gas currently accounts for 77% of the BioPark’s Scope 1 and 2 emissions, and, unlike electricity, natural gas must be phased out of use over time to eliminate emissions. All heating systems in place today across the BioPark are fed with natural gas. However, we cannot achieve our net zero target without reducing emissions from natural gas by at least 95% based on the modeled strategies.

Electrifying heating systems requires considerable planning to ensure building infrastructure can accommodate additional electrical load and space requirements of new equipment, heating reliability will meet animal care needs, and facilities teams are equipped to manage the new systems. Retrofitting existing building stock presents unique challenges; yet many viable fossil-free heating technologies are regularly adopted in such spaces, including air-source heat pumps, geothermal systems, and electric boilers. Engineering studies should be explored to inform which of these options are best suited for the BioPark’s diverse facilities. Further, designing fully electric buildings or planning for future electrification during the design phase for new construction will be essential for keeping us on track to achieve our net zero targets while we grow.

Retrofitting current infrastructure and planning future construction with electrified heating will require collaboration with engineers, the City, and PNM. Several considerations that we’ll look to explore with these partners include:

- **Load.** Electrical heating systems often demand significant electrical infrastructure upgrades to accommodate elevated load requirements. The BioPark has already taken steps to evaluate the state of current electrical systems, including identifying capacity-constrained areas and commissioning a single-line diagram for the Zoo.



- Feasibility and Reliability.** Some fossil-free heating technologies, such as geothermal, may not be feasible for all spaces due to spatial, infrastructural, or technical limitations. The BioPark should evaluate the feasibility of the available technologies with engineering partners. Additionally, the transition to fully electric heating may require investment in backup generation and battery storage to protect against service interruptions due to power outages.
- Cost.** The upfront and ongoing costs associated with fossil-free heating systems vary by technology and application. The BioPark’s facilities and GRT teams should explore cost models for transitioning to heating electrification to better forecast the financial support that will be required to initiate the transition.

City Renewable Energy Procurement (purple wedge in Figure 2)

Emissions tied to the use of electricity represent only 14% of the BioPark’s baseline Scope 1 and 2 emissions. We are a significant consumer of electricity, yet a substantial share of the electricity supplied to the campus is generated from renewable sources. Our renewable percentage reflects the results of recent City-led initiatives to supply municipal operations with clean energy.

The City has committed to supplying municipal operations with 100% renewable electricity by the end of 2025 through a combination of on-site solar, Solar Direct enrollment with PNM, and infrastructure as a service and has significantly increased its renewable percentage over time (Table 6).²⁵ At the end of 2023, the City had achieved 85% renewable energy procurement across municipal operations. The BioPark directly contributes to these initiatives as a host of on-site solar and battery storage. As a City entity, the BioPark facilities will receive 100% zero-emissions electricity once this goal is met and maintained by the City. No additional action on behalf of the BioPark will be required to facilitate this strategy.

²⁵ [City Council of Albuquerque. \(2025, May 5\). Albuquerque City Council Meeting – May 5, 2025 \[Video\]. YouTube](#)



Table 6. Existing and planned tactics to achieve the City’s 100% renewable energy goal.

Renewable Generation / Demand Reduction Source	MW Capacity
On-site Renewables	7.5
<i>ABQ BioPark Solar (Zoo, Botanic Garden and Aquarium)</i>	<i>0.83</i>
PNM Solar Direct	25
Energy efficiencies (B.R.A.I.N.) and building optimization	1-2
Infrastructure as a service (pending completion)	6
Total City Annual Consumption	40



Building Energy Efficiencies by 2035 (dark green wedge in Figure 2)

For most organizations, the first step to decarbonization is often to invest in energy conservation measures to optimize operational efficiency (reduce the amount of energy needed). The BioPark, in collaboration with the City's Energy and Sustainability Management Division, has already made considerable progress in this area, and it is estimated that we could achieve a 10% reduction in our building energy use intensity by 2035. Major projects completed or in progress include:

- The BioPark is on track to transition all buildings to the Balanced Resource Acquisition and Information Network (B.R.A.I.N.), the City-wide building energy management system, over the next several years. As part of the project, smart meters and additional submeters will be installed throughout the BioPark to provide high-resolution utility data to the B.R.A.I.N. The data obtained through the B.R.A.I.N. enables energy managers to quickly identify concerns and optimize energy generation and consumption across City facilities. Currently, Penguin Chill is the only BioPark facility connected to the B.R.A.I.N. Expanding the B.R.A.I.N. across the BioPark will enable facility managers to better track and reduce building energy use through set-points and real-time feedback.
- Penguin Chill and the Reptile House have building controls and operate set-points to conserve energy use. The BioPark is looking to expand this capability to additional buildings over time.
- LED lighting conversion has been ongoing across the BioPark for several years. All major lighting infrastructure is expected to be fully LED following completion of the City Energy and Sustainability Management Division's project in 2025.
- Minor building envelope upgrades are planned for completion in 2025, including installation of door sweeps and exterior caulking.

- The BioPark facilities team is on track to complete a major project to adopt a new asset tagging system by mid-2026. The new system will allow managers to identify aging units and adopt a replacement schedule to get more efficient units online.

To further optimize energy use across the BioPark, building recommissioning was identified as a near-term priority. Building re- or retro-commissioning involves a detailed audit of building systems and equipment, typically performed by a third-party specialist, to identify inefficiencies and recommend corrections to fine-tune system performance. The payback period for building commissions is often less than two years due to significant energy savings that result (typically between 3% and 16%).²⁶ Building recommissioning is typically recommended every 3-5 years. However, commissioning may be warranted when significant adjustments to building equipment or use are made.

Energy efficiency has not historically ranked as a priority during building design and construction at the BioPark. We do not currently have any LEED certified buildings on campus, and all buildings are designed at a minimum to comply with the energy conservation code. As we plan for expansion, we should consider adopting a building design policy that aligns with City's Energy and Sustainability Management Division Design Guidelines and encourages additional consideration for energy efficiency during the building design phase.

In addition to reducing energy cost, wear and tear on equipment, and emissions, cutting building energy use has been tied to additional community co-benefits. By promoting energy conservation across campus, the BioPark can also contribute to improved public health outcomes tied to air and water pollution, grid reliability, and lower local energy costs as utilities work to meet growing demand.

²⁶ Crowe, E., Mills, E., Poeling, T., Curtin, C., Bjørnskov, D., Fischer, L., & Granderson, J. (2020). Building commissioning costs and savings across three decades and 1500 North American buildings. *Energy and Buildings*, 227, 110408.



Fleet Electrification by 2040 (dark blue wedge in Figure 2)

The BioPark set a target to convert 50% of our vehicle fleet, with a focus on light-duty vehicles, to electric alternatives by 2040. Emissions from the vehicle fleet only account for 7% of our total Scope 1 and 2 emissions (Figure 2). However, fleet electrification generates co-benefits beyond emissions reduction.

Operating gas- or diesel-power vehicles and equipment contributes to air pollution that can impact staff, guest, and animal health. Most vehicle mileage occurs while traveling on or between BioPark campuses, meaning most air pollution impacts are borne locally. Transitioning to electrified alternatives will help improve air quality at the BioPark. Further, we may leverage the visibility of fleet vehicles on and near campus to demonstrate our commitment to decarbonization to staff and community members.

The BioPark’s City-owned fleet vehicle procurement process is already considering electrification opportunities. The City adopted a “Zero Emissions Vehicle (ZEV) First” policy for City vehicles following a 2019 Executive Instruction ordering the priority selection of ZEVs for purchase when, “commercially available, practical, and cost competitive for the class/type of vehicles needed for specific assignments.”²⁷ Today, the BioPark hosts three EVs out of our 78-vehicle City fleet (Table 7). However, the absence of on-site charging infrastructure presents a major barrier to expanded EV adoption. There are currently five Level 2 public EV charging stations at the BioPark, with four ports located at the Aquarium and Botanic Garden and six ports at the Zoo. Dedicated charging stations for fleet vehicles are not yet available at the BioPark.

The City does not yet have a mechanism to plan for and fund EV charging infrastructure at the BioPark and other municipal sites that host City-owned vehicles. Only locations with adequate charging infrastructure are eligible to receive EVs. If charging infrastructure were installed, City fleet managers would assign immediate priority to the BioPark to receive new EVs when existing vehicles require replacement. Therefore, the key strategy for us to achieve our fleet electrification target will be to install on-site fleet charging infrastructure. We should evaluate external funding options to add charging at existing sites and plan future construction projects with charging needs in mind.

Table 7. ABQ BioPark City fleet vehicle composition as of March 2025.

Vehicle Class	Total #	Electric	Gas	Diesel
Light-Duty Vehicles	11	2	7	2
Light-Duty Trucks	13	1	12	-
Heavy-Duty Trucks	9	-	4	5
Non-Road Equipment	6	-	1	5
UTVs	39	-	27	12

²⁷ [City of Albuquerque. \(2025, March 21\). Administrative Instruction No. 4-3: Vehicle Acquisition Policy and Procedures \(2024\).](#)



Resilient Operations

Introduction

The BioPark understands that we must prepare our people, spaces, and animals and plants in our care for the current and future impacts of climate change in addition to mitigating our own impact on the environment. The climate vulnerability assessment revealed that, while we exhibit a high degree of adaptive capacity, a need remains to take proactive measures to mitigate risks associated with rising temperatures, drought, and wildfire.

Existing Efforts

Operational measures and infrastructure that ensure the safety of staff, guests, and animals are mission critical. Many practices and resources in place today enable us to respond to elevating and emerging climate threats. The BioPark is well-equipped for fire response with current fire protections in buildings, strategic hydrant access, fuel wood reduction in the Bosque, and regular training and staff exercises in fire response procedures. Flood mitigation efforts are underway as flood gates in critical locations are being installed. Additionally, centralized data collection in the B.R.A.I.N. positions facilities teams to rapidly identify and respond to equipment malfunctions affecting mechanical equipment, water systems, and other critical infrastructure.

Future Opportunities

As we endeavor to become and remain a climate resilient organization, we will need to continue to adapt our operating procedures, infrastructure, and organizational culture. Adopting strategies that will safe-guard staff, guest, and animal health and comfort in times of extreme weather will be essential. Heat mitigation was identified as a priority in order to minimize health risks, increase guest comfort, and expand suitable areas for programming. Steps must also be taken to minimize exposure to financial impacts due to disruptions such as weather-related closures, infrastructure damage, and resource replacement costs.

Strategies

- Complete flood and fire risk assessments
- Install flood gates in priority structures
- Adopt animal emergency response toolkits
- Install additional shade structures
- Install additional on-site solar and battery storage



**CATALYZE COMMUNITY ENGAGEMENT AND
SYSTEMS CHANGE**



Catalyze Community Engagement and Systems Change

Vision Elements

Leading Change Beyond our Gates. The ABQ BioPark serves as a living demonstration of climate solutions, inspiring and equipping diverse community members to implement conservation practices in their own lives and organizations. Through visible demonstration of successful sustainability transitions, comprehensive education programming, and strategic partnerships, the BioPark creates pathways for other institutions and community members to implement similar transformations. This leadership positions the BioPark as an essential resource for regional climate resilience and a model of conservation success.

Carbon-free Transportation. The BioPark has transformed mobility across campus operations, creating transportation systems that actively benefit both community health and environmental quality. Staff use electric vehicles, active transportation modes, and public transit options supported by targeted incentives and flexible work arrangements. The BioPark operates an electric light-duty fleet powered by renewable energy, while guests access convenient emissions-free transportation through active transportation, public transit, and EV charging stations.

Introduction

Our mission to connect people with nature is invited to take new shape as the BioPark weaves climate action further into the fabric of our culture, spaces, and partnerships. By serving as a model of environmental stewardship, we can affect change beyond our campus boundaries by inspiring communities to take their own climate action. As we

demonstrate sustainable practices such as inventive reuse, circular water systems, and active transportation, it encourages others to prioritize actions that minimize harm to the natural environment. Additionally the involvement of BioPark staff, volunteers, and guests will be instrumental to the achievement of our on-site sustainability objectives. Community engagement around sustainability will be key to institutionalizing sustainability at the BioPark and catalyzing action beyond our gates.

Existing Efforts

Across our four locations (the Aquarium, Botanic Garden, Zoo, and Tingley Beach), the BioPark serves as a vital environmental, educational, and recreational resource for the community. Our operations are increasingly focused on conservation, biodiversity protection, and sustainable practices, making the BioPark a critical asset in the City's broader sustainability efforts.

An ongoing partnership with the City Sustainability Office is fundamental to embedding environmental responsibility and long-term resilience into the City's operational framework and community planning. This collaborative effort involves coordinating initiatives across various municipal departments, from waste management and energy efficiency in City facilities to the promotion of public transportation and the development of green infrastructure. The partnership seeks to translate the City's climate commitments, priorities, and goals into tangible, measurable results by fostering innovation, securing grant funding, and providing public outreach and education to drive collective climate action. This strategic alliance is key to ensuring that sustainability is not a siloed program, but a guiding principle for all municipal governance and development.

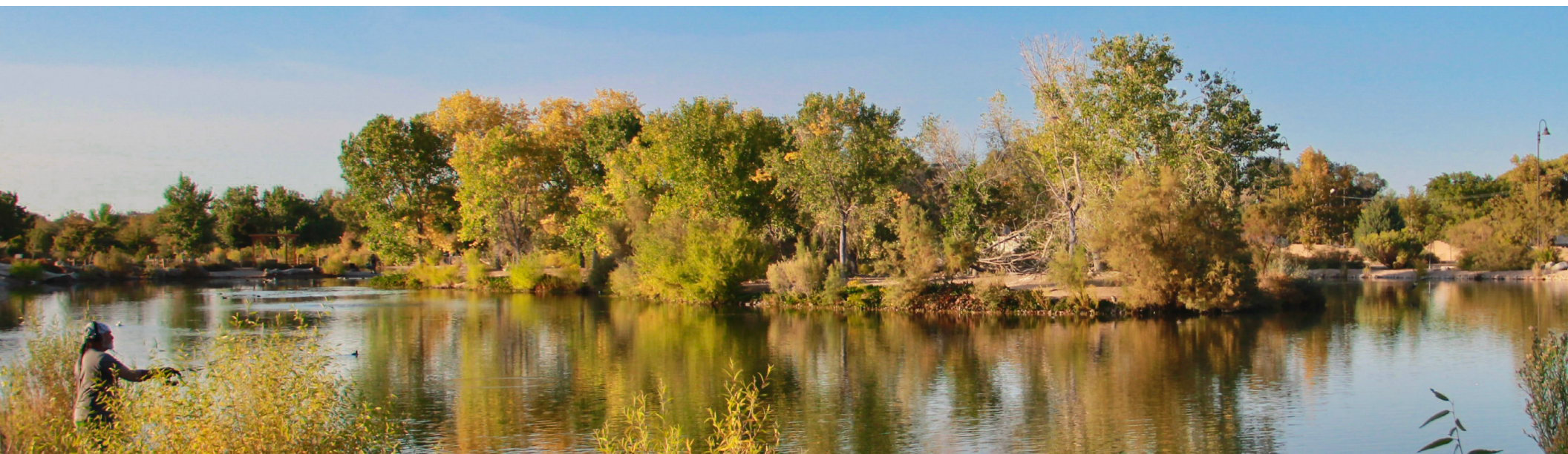


Our 2022 strategic plan introduced four new internal working groups designed to facilitate the implementation of strategic priorities over the five year planning period (2022-2027). These working groups have enabled us to effectively distribute ownership, enhance staff engagement, and respond to emergent organizational interests that align with strategic workstreams. These groups will play an important role in institutionalizing climate action within the BioPark, and are already taking steps to do so. The Our People Pillar, tasked with cultivating positive staff well-being, has taken steps to assess active commuting support options for staff as a climate action strategy aligned with its central purpose. The Conservation Committee provides funding for employee-lead sustainability projects, and is working to incorporate the BioPark’s climate action goals and targets into selection criteria.

In October 2024, we distributed a survey to establish a baseline for staff awareness of and involvement in sustainability efforts at the BioPark. The results of the survey revealed that staff generally view sustainability as closely aligned with the BioPark’s mission. However, sustainability efforts at the BioPark and different ways that staff promote sustainability while at work are not well understood. Our baseline Sustainability Engagement Score was 51 out of 100 (Table 8).

Table 8. ABQ BioPark’s 2024 Sustainability Engagement Score, ranked on a scale of 0-100 based on respondents’ answers to a core set of five questions.

Dimension of Sustainability Engagement	2024 Score (out of 100)
Awareness of Efforts (very/moderately aware) at the organization to be more sustainable	35
Knowledge (very/moderately knowledgeable) about ways to be sustainable at work	46
Behavioral Frequency (always/most of the time) self-reported key sustainable behaviors	71
Perceived Norm (always/most of the time) perceptions of how often others engage in key sustainable behaviors	45
Awareness of Sustainability (very/moderately familiar) familiarity with the concept of sustainability	59
Overall Score	51





The survey also assessed current commute habits to establish a baseline 'mode split', or percent of employee trips to and from work that are made using an active commute mode. Active commuting includes biking, walking, carpooling, using public transit and other forms of sustainable transportation, and working from home. Our current mode split is 19% (Figure 7). Carpooling is the most widely adopted active commute mode today, accounting for 8% of trips.

Future Opportunities

Increase Sustainability Engagement Score

Staff demonstrate clear interest in sustainability. However, relative to peers, there is room to improve our employee engagement score. Our goal is to increase our Sustainability Engagement Score from 51 to 60 by 2030.

Staff scored highest in their self-reported use of sustainable behaviors (71 out of 100) and lowest in their awareness of sustainability efforts at the BioPark (35 out of 100). Therefore, it is a priority to increase staff communications around sustainability as we implement our Climate Action Plan. As we work to execute on other priorities outlined in this plan, such as achieving organizational alignment around climate action, we anticipate our institutional culture will shift to further emphasize sustainability, reinforcing sustainability engagement improvements.

Strategies

- Utilize the Conservation Committee to drive internal awareness and buy-in around the BioPark's CAP, goals, and targets
- Institute visible sustainability strategies such as waste diversion, sustainable building design guidelines, and active commuting support
- Incorporate sustainability criteria into decision making frameworks

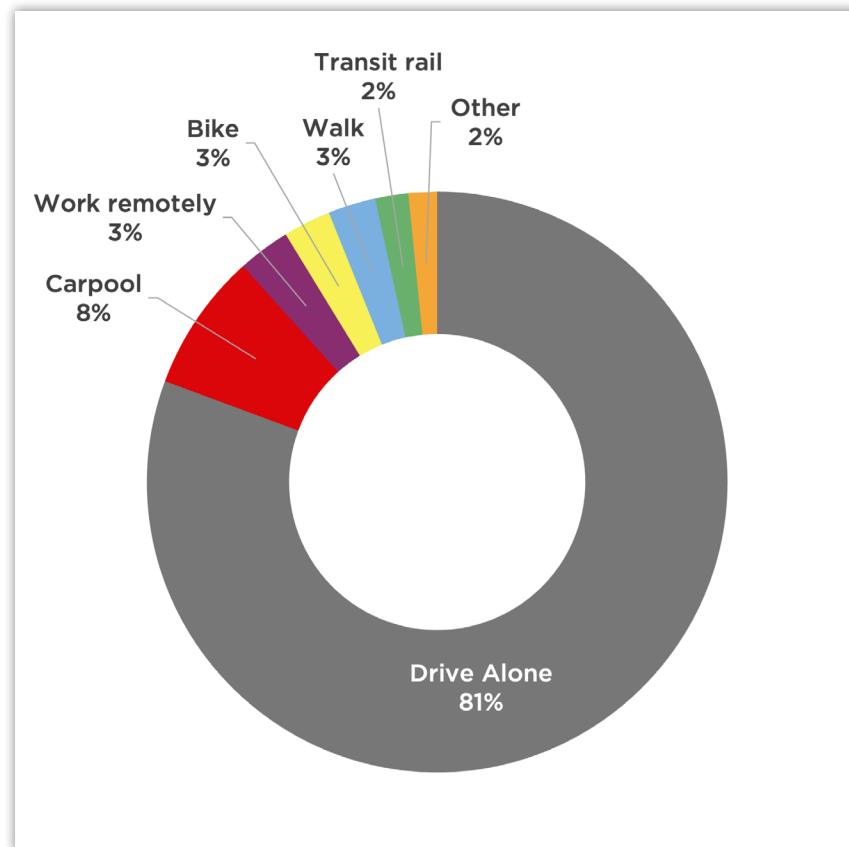


Figure 7. ABQ BioPark's employee commute mode split, 2024.



Increase Employee Mode Split

Employee commuting has been estimated to generate 282 MtCO_{2e} emissions per year, accounting for 28% of Scope 3 emissions (Figure 5). Today, 81% of employee trips are made driving alone, and these trips generate 94% of all commuting emissions at the BioPark. Active commuting modes such as carpooling, walking, or biking account for 19% of employee commuting trips. We set a target to increase our mode split from 19% to 30% by 2030 by encouraging wider adoption of carpooling, biking, and public transit (Table 9).

To achieve this target, supporting and encouraging employees to participate in active commuting will be essential. Developing an employer-sponsored active commuting program is an important strategy for ensuring that all employees have access to the education and resources to make sustainable commuting choices.

Table 9. ABQ BioPark’s baseline employee commuting mode split and 2030 target.

Mode	2023	2030 Target
Drive Alone	81%	70%
Carpool	8%	12%
Transit	0%	2%
Walk / Bike	5%	10%
Other	3%	3%
Remote Work	3%	3%
Mode Split	19%	30%

Strategies

- Complete an extended survey to identify barriers and opportunities for employees’ active commitment
- Integrate multimodal transportation throughout the BioPark
- Organize carpool matching program
- Provide secure bike storage
- Educate employees about bicycle commuting and public transit options
- Create robust incentives for active commuting

Expand Community Partnerships

Our status as a trusted educator and leader in the Albuquerque and New Mexico community presents a powerful opportunity to amplify the impact of our climate actions beyond our gates. The BioPark is committed to collaborating with community partners and publicly communicating our progress as we implement this Climate Action Plan. The ongoing collaboration between the BioPark, NMBPS, and the City Sustainability Office on decarbonization and sustainability efforts will be vital to the successful implementation of our Climate Action Plan. We are honored to serve as a testing ground for climate action strategies that may eventually be scaled to other City facilities.

Strategies

- Formalize partnership with the City Sustainability Office to use the BioPark as an experimental campus
- Foster partnerships with other aligned cultural entities in Albuquerque
- Implement prioritized external conservation messaging within the BioPark’s Interpretation Plan
- Communicate progress on climate action goals and targets through a publicly accessible [digital dashboard](#)



GLOSSARY



Glossary

ACP: Aquarium Conservation Partnership

Active commute: Modes of transportation other than driving alone in a car. Includes biking, walking, using public transit, carpooling, using scooters or other sustainable forms of transportation, and working from home (which is not “active” or “commuting” but is an action that avoids emissions from commuting).

Adaptive capacity: The ability of a system, organization, or individual to adjust to change, take advantage of opportunities, or respond to consequences.

AZA: The Association of Zoos and Aquariums.

B.R.A.I.N.: Balanced Resource Acquisition and Information Network

CABQ: City of Albuquerque

CAP: Climate Action Plan

Circular Economy: An economic model that replaces the linear “take-make-dispose” approach with one designed to eliminate waste and pollution, keep products and materials in use at their highest value, and regenerate natural systems. Materials, water, and organic matter are cycled continuously — through composting, local sourcing, material reuse, and closed-loop operations — rather than discarded.

Circular Systems: The interconnected processes, infrastructure, and partnerships through which circular economy principles are put into practice. Examples include on-site composting, rainwater catchment, closed-loop water management, and procurement relationships designed to keep resources and economic value circulating locally.

Circularity: The degree to which an organization’s operations align with circular economy principles — minimizing waste, extending the life of resources, and regenerating rather than depleting natural systems. Circularity serves as both a measurable goal and a reflection of organizational values.

City Energy and Sustainability Management Division: The Energy and Sustainability Management Division (ESMD) is responsible for planning, managing, and improving how the City of Albuquerque uses energy and water while advancing sustainability and climate goals.

City Sustainability Office: The Sustainability Office advances Albuquerque as a leader in equitable, long-term environmental solutions, mitigating climate pollution and fostering resilient communities.

Decarbonization: The process of reducing or eliminating greenhouse gas emissions associated with the operations of ABQ BioPark.

Drought: A period of drier-than-normal conditions that can last for days, months, or years. Drought often has large impacts on the ecosystems and agriculture of affected regions and causes harm to the local economy.

Fossil fuels: Fuels found in the Earth’s crust that contain carbon and hydrogen, which can be burned for energy, such as coal, oil, and natural gas.

Greenhouse gas (GHG) emissions: Gases that trap heat in the atmosphere, primarily caused by the burning of fossil fuels.

GRT: The 1/8 cent gross receipts tax approved by voters in 2016 to fund capital projects

IUCN: International Union for Conservation of Nature

LEED: Leadership in Energy and Environmental Design, is a green building rating system.

LSS: Life Support System

Management Division: The Energy and Sustainability Management Division is responsible for managing electric, gas, and water consumption, as well as renewable energy production for Albuquerque.

Net zero emissions: Net zero is achieved when an organization has reduced its annual emissions by at least 90% compared to its baseline and offsets any remaining emissions to eliminate its carbon footprint.



Net Zero Pathway (NZP): The mapping of strategies that ABQ BioPark will need to pursue to reach net-zero emissions.

NMBPS: New Mexico BioPark Society is the 501(c)3 non-profit support organization for the ABQ BioPark Zoo, Aquarium, Botanic Garden and Tingley Beach.

Power Purchase Agreement (PPA): A long-term contract with a renewable energy developer in which the client agrees to purchase a given amount of green energy at a predetermined rate over a specific period of time (typically 5–20 years). These projects are built and operate within the same electrical grid as the client purchasing the renewable energy.

PNM: Public Service Company of New Mexico, is an electric utilities provider.

Recycled Water: Water that has been previously used — including wastewater, stormwater, or other water streams — and treated to a standard appropriate for its intended reuse application. Recycled water may be used for non-potable purposes such as landscape irrigation and habitat restoration, or treated to advanced standards for potable applications. Also referred to as reclaimed water or reuse water.

Regeneration: Emphasizes systems and practices that restore, renew, and revitalize their own sources of energy and materials. It aims to create processes that are not just sustainable but also beneficial to the environment, effectively contributing to the regeneration of ecosystems and communities.

Science Based Targets Initiative: The Science Based Targets initiative (SBTi) is a corporate climate action organization that develops standards, tools, and guidance which allow companies to set greenhouse gas emissions reduction targets in line with what is needed to keep global heating below catastrophic levels and reach net-zero by 2050 at the latest.

Scopes: A way of categorizing GHG emissions based on their source and who controls them.

Scope 1: Direct emissions that are owned or controlled by a company, such as gasoline-powered fleet vehicles or onsite burning of fossil fuels.

Scope 2: Emissions that a company causes indirectly, such as through the use of electricity.

Scope 3: Emissions that are not produced by the company itself and are not the result of activities from assets owned or controlled by them but by those that it is indirectly responsible for up and down its value chain, including purchasing, employee commuting, leased assets, etc.

Stormwater: Water that flows from precipitation, such as rain or snow, that does not soak into the ground.

Sustainability: Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Urban heat island effect: The phenomenon where cities experience significantly higher temperatures compared to surrounding rural areas due to the concentration of heat-absorbing surfaces like buildings, roads, and pavement, combined with limited vegetation which would otherwise provide cooling through evapotranspiration, resulting in a “heat island” within the urban environment.

Verdis Group: A climate resilience and environmental sustainability consulting firm that partnered with ABQ BioPark for the development of this plan.

Waste diversion: The rate at which waste is redirected away from the landfill.

WELL: The WELL building standard is a certificate program that focuses on supporting occupant health and wellbeing.

Wildfire: An unplanned, uncontrolled, and unpredictable fire in an area of combustible vegetation.



APPENDICES



Appendix A

Barriers to the Vision

Purpose. To summarize the barriers that ABQ BioPark representatives collaboratively discerned during the Barriers Workshop. Barriers described are not problems to be fixed nor are they points of blame. Rather, barriers are blocks specifically to the vision. Barriers are internal and external factors blocking our collective path forward. Understanding our barriers helps open windows of opportunity to fully realize our vision. Workshop participants responded to the question:

“What is blocking us from moving toward our vision?”

Barriers

1. Organizational Identity & Strategic Misalignment

- Organization-wide priority misalignment and lack of unified direction
- Sustainability vision disconnected from official mission/vision statements
- Staffing capacity insufficient for vision requirements
- Competing commitments to existing collections versus new sustainability goals

2. Infrastructure & System Obsolescence

- Cost barriers for implementing emerging sustainable technologies
- Aging infrastructure that’s difficult to replace or retrofit
- Lack of safe transportation infrastructure (bike, pedestrian, bus systems)
- Reactive maintenance approach versus proactive planning
- Highly specialized facility constraints

3. Financial Instability & Misaligned Incentives

- Contract award decisions prioritizing lowest bids over sustainability
- Budget structures misaligned with sustainability goals
- Financial priorities subject to shifting priorities of donors, mayors, or directors
- Insufficient reliable, dedicated funding and staffing for climate goals

4. Cultural Disconnection & Communication Failures

- Absence of internal sustainability communities of practice
- Stakeholder education gaps regarding importance of net zero facilities
- “Not my problem” mentality and spread of misinformation
- Institutional culture lacking consistent training and action support
- Internal and external communication breakdowns
- Dispersed operational ownership and isolated pathways

5. Governance & Regulatory Obstacles

- Procurement standards lacking sustainability language and requirements
- Policies that actively impede sustainability efforts
- Antiquated water laws and regulatory frameworks
- Rigid City government systems
- Unpredictable government funding cycles
- Limited market options for sustainable goods and services



Appendix B

Climate Consequences

Purpose. To summarize the consequences that were identified during the August 2025 Barriers & Consequences Workshop. Participants in the workshop identified likely impacts to their functional areas (Animal Welfare, Care and Management, and Vet; Education, Interpretation, Guests, Volunteers; Conservation; Finance, HR, and Communications; Physical Facilities, Compliance/Risk, and Safety) in response to the question:

“What consequences may the BioPark face given the projected climate impacts?”

Consequences

1. Built Infrastructure Vulnerability and Damage

- Flooding from extreme precipitation will likely damage buildings, exhibits, and critical facilities
- Extreme heat will stress and potentially cause breakdown of HVAC systems and sensitive scientific instruments
- Drought and wildfire conditions may damage roofs, create fire hazards (especially in bosque areas), and affect structural integrity
- Soil erosion from extreme weather events will threaten facility foundations and landscape infrastructure
- Power grid instability will result in brownouts and blackouts affecting all facility operations

2. Financial Resources and Revenue Impacts

- Overall attendance patterns will shift—decreased outdoor visits but potential increases at indoor facilities like the aquarium as guests seek climate-controlled environments
- Facility maintenance and utility costs will increase substantially due to climate-related damage, system stress, and higher energy demands
- Revenue opportunities may emerge from positioning as a premium indoor destination and community resilience hub during extreme weather events
- Supply chain disruptions will increase operational costs while potential downsizing may be necessary due to financial constraints
- Changes to collection plans will require budget adjustments for specialized care and infrastructure modifications

3. Health, Safety and Welfare Impacts to Staff, Guests, Plants and Animals

- Collection animals will experience increased stress, illness, and potential mortality from extreme temperatures
- Heat-related health emergencies among guests will require enhanced medical response capabilities
- Staff will face stressful and potentially dangerous working conditions, reducing available labor power
- Air quality impacts from wildfire smoke will affect health of staff, guests, and animals
- Contaminated water supplies may pose health risks to both human and animal populations
- Aquatic species will be particularly vulnerable due to water quality and temperature changes
- Plant collections and tree species across the BioPark may suffer damage or mortality due to extreme heat, drought, fire and other weather extremes



4. Operational Interruptions and Service Disruptions

- Programming will shift toward indoor, climate-controlled spaces with potential for new early morning/evening schedules
- Communication infrastructure and transportation challenges will impair staff operations and outreach capabilities
- Water rationing and utility restrictions will limit facility operations while creating opportunities for water conservation demonstrations
- Volunteer and community engagement will decline during extreme weather but may increase during shoulder seasons and for climate-focused programming

5. Conservation Mission and Scientific Impact

- Climate urgency will increase the relevance and potential funding for species conservation and climate adaptation research programs
- Habitat degradation may compromise current conservation efforts while creating opportunities for drought-resistant species research
- Damage to on-site infrastructure, such as the the seed bank, may set back conservation activities
- Field work and research capacity will be limited by safety concerns and extreme conditions
- Enhanced partnerships with climate research institutions may emerge as conservation becomes central to climate adaptation strategies
- Managed collections face increased mortality risk while potentially serving as critical refugia for climate-vulnerable species

6. Community Engagement and Educational Impact

- Outdoor programming capacity will be reduced, but indoor facilities may attract new audiences seeking climate education and comfortable learning environments
- Educational mission will expand to include climate resilience and adaptation, potentially attracting new funding and partnerships
- Community role may evolve to serve as both cultural institution and climate refuge, strengthening civic relationships
- Public perception challenges from operational limitations may be offset by recognition as a climate adaptation leader



Appendix C

GHG Accounting and NZP Methodology

Greenhouse Gas Inventory - Methods and Assumptions

ABQ BioPark provided all relevant and available information. Verdis Group analyzed relevant data using proprietary tools to measure and report greenhouse gas emissions from the BioPark's operations.

Verdis Group accounted for emissions from four gases: carbon dioxide, methane, nitrous oxide, and refrigerants, which constitute the vast majority of emissions for most organizations. Methane, nitrous oxide, and many refrigerants are more potent greenhouse gases than carbon dioxide. Verdis Group applied a 100-year global warming potential (GWP) to convert the emissions from these sources into carbon dioxide equivalents.²⁸ GWPs were sourced from the IPCC's Fifth Assessment Report (AR5).

Emissions factors were sourced from the Environmental Protection Agency (EPA), Energy Information Administration (EIA), and PNM, which report emissions factors annually.²⁹

²⁸ For example, methane is approximately 28 times more powerful than carbon dioxide, so methane emissions are multiplied by approximately 28 to produce the carbon dioxide equivalent

²⁹ An emissions factor represents that amount of CO₂ emitted per unit of measure (e.g., kWh, gallons, dollars) and is used to calculate the CO₂ emissions attributable to a given activity.

Other Relevant Information

Applicable framework: Greenhouse Gas Protocol

Reporting lead: Megan Belongia, Senior Associate, Verdis Group

Report Contributor: Molly Coghlan, Associate, Verdis Group

Reporting period: January 1, 2023 to December 31, 2023

Organizational boundary: The inventory applies the consolidation approach of operational control. Therefore, the following locations were considered in the emissions sources:

- ABQ BioPark Zoo
- ABQ BioPark Aquarium
- ABQ BioPark Botanic Garden
- Tingley Beach

Operational boundary: Emissions sources included in this inventory are Scope 1, Scope 2, and selected Scope 3 categories (procurement, employee commuting, business travel, animal transportation and wastewater treatment)



Assumptions

Electricity

Market-based emissions from purchased electricity were calculated considering the City's renewable generation and power purchase agreement with PNM. In 2023, The City consumed 86.9 GW of electricity, generated 7.5 GW of renewable energy, and received 66.5 GW of renewable allocation through the Solar Direct program. Therefore, 85% of the electricity consumed by City operations was generated from renewable sources. An emission factor of 0 lbs CO₂e/MWh was applied to 85% of the electricity consumed at the BioPark. Emissions from the remaining 15% of electricity were calculated by applying PNM's reported 2022 emission factor of 925 lbs CO₂e/MWh, as a 2023 EF is not yet available.³⁰

Refrigerants

AR5 Global Warming Potentials were used to estimate carbon dioxide equivalent emissions from fugitive refrigerant emissions.

Emissions from the use of refrigerants were calculated based on an assumed annual leakage rate of 4% of the capacity charge for all equipment.

Procurement

Verdis Group applied version 1.3 of the US EPA's Environmentally-Extended Input-Output (USEEIO) Supply Chain Greenhouse Gas Emissions Factors for procurement analysis.³¹ USEEIO data were used to calculate Scope 3 procurement emissions from spend data. Average annual Consumer Price Index (CPI-U) was used to adjust these values for inflation between 2022 and the reporting year (2023).

³⁰ TXNM Energy. Accessed November 2024. [Climate change report](#).

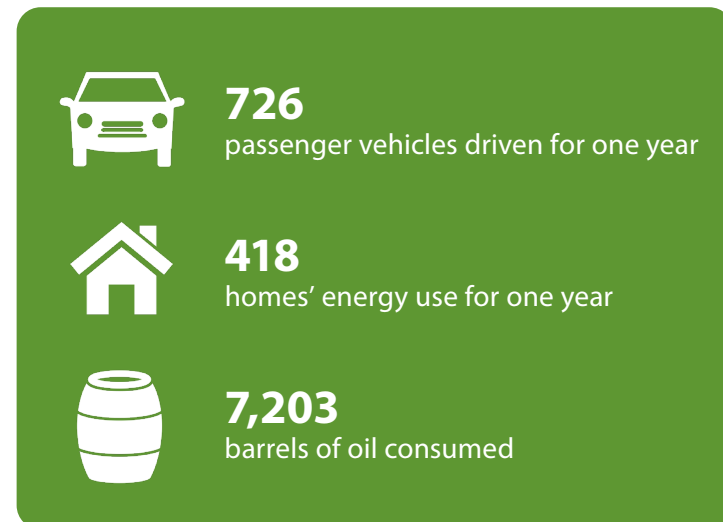
³¹ U.S. Environmental Protection Agency. Accessed November 2024. [Supply chain greenhouse gas emission factors v1.3 by NAICS-6](#). [Data.gov](#).

Employee Commuting

ABQ BioPark's employee commute emissions for the 2023 inventory were based on a proprietary survey distributed and analyzed by Verdis Group. The survey assessed the percentage of respondents commuting by various modes of transportation. The results were extrapolated to the rest of the employee population to calculate total emissions from employee commuting. The survey was conducted in 2024 and applied to the 2023 inventory under the assumption that commute patterns were not significantly different than the previous year.

Results

GHG emissions in 2023 were equivalent to the emissions produced by each of the following:³²



³² U.S. Environmental Protection Agency. "Greenhouse Gases Equivalencies Calculator - Calculations and References."



The majority of the Biopark’s GHG Emissions are from the use of natural gas followed by procurement (Table 10).

Table 10. ABQ BioPark’s GHG emissions by source, 2023.

Scope	Source	Description	MtCO ₂ e
1	Stationary Combustion	Emissions from combustion of fuels in stationary sources (e.g., boilers, furnaces).	1,625
1	Mobile Combustion	Emissions from the fuel consumption of vehicles owned or operated by ABQ BioPark.	156
1	Refrigerants	Emissions from the use of refrigeration and air conditioning equipment.	33
1	Anesthesia	Emissions from the use of anesthetics used for the treatment of animals.	1
2	Electricity ³³ (market-based)	Emissions from the generation of purchased electricity that is consumed on-site. Based on the most refined utility-specific data.	306
2	Electricity ³⁴ (location-based)	<i>Emissions from the generation of purchased electricity that is consumed on-site. Based on grid average data.</i>	1,739
3	Procurement	Upstream lifecycle emissions from the production of goods and services purchased or acquired by ABQ BioPark	611
3	Animal Transport	Emissions from the transportation and distribution of animals in vehicles not owned by ABQ BioPark.	1
3	Waste & Wastewater Treatment	Emissions from third-party disposal and treatment of waste generated in operations and the treatment of wastewater.	80
3	Business Travel	Emissions from transportation of employees for business-related activities in vehicles not owned or operated by ABQ BioPark, including aircraft, trains, buses, passenger cars and rideshare trips.	16
3	Employee Commuting	From the fuel consumption of the various modes of transportation used by employees to commute to work. Also includes remote work-related emissions.	282
Total			3,111

³³ Market-based electricity emissions are used to generate total company-wide emissions.

³⁴ Location-based electricity emissions are not used in calculating the organization-wide emissions total, but are disclosed per reporting requirements.



Net Zero Pathway - Methods

Introduction

Net zero is achieved when an organization has reduced its annual emissions by at least 90% compared to its baseline and offsets any remaining emissions to eliminate its carbon footprint. The aim of the Net Zero Pathway (NZP) process is to chart a data-driven path to net-zero emissions by:

1. Measuring current emissions
2. Assessing feasibility, impact, and timeline for potential decarbonization strategies
3. Setting targets and action planning for strategy implementation

ABQ BioPark completed a Net Zero Pathway planning process with Verdis Group prior to beginning the CAP planning workshops. The NZP process involved over 34 staff members across the City and NMBPS. This team provided expert insights in a series of workshops and interviews, which greatly informed the BioPark's path to net zero:

- **Workshop #1** - Strategy Ideation: The project team explored ABQ BioPark's baseline GHG inventory and ideated strategies that the BioPark could pursue to achieve net-zero emissions.
- **Information Gathering:** Verdis Group worked with numerous subject matter experts at the BioPark, the City, and NMBPS to gather key information and identify reasonable assumptions for the decarbonization potential of each strategy.
- **Workshop #2** – Target Setting: Participants and Verdis Group co-created a pathway to Net Zero, and the group put forth a recommendation for a net zero target date and intermediate reduction goal.
- **Workshop #3** – Action Planning: Key parties responsible for the implementation of the Net Zero Pathway participated in an action planning exercise to identify the priority actions that the BioPark will take in the next 24 months.

Other Relevant Information

Applicable framework: Science Based Target initiative

Net-zero boundary: Scopes 1 & 2

Baseline Year: 2023

Baseline Emissions: 2,121 MtCO₂e



Appendix D

Overlap of ABQ BioPark and CABQ Goals, Targets, Plans, and Policies

Category	BioPark Goals / Targets	CABQ Commitments & Alignment	Overlap of Goals & Future Collaborations
Governance & Decision Making	Sustainability and climate criteria are embedded into building, funding, and collection planning efforts	Sustainability Resolution (R-24-34) contains multiple directives supporting the BioPark in centering sustainability in building and funding decision-making	<p>BioPark</p> <ul style="list-style-type: none"> BioPark CAP Dashboard reporting progress toward goals Revise collection planning guidance to include climatic suitability for animals in BioPark care <p>CABQ</p> <ul style="list-style-type: none"> (possibly) ClearPath 2.0 Dashboard Explicit equity goals <p>Combined</p> <ul style="list-style-type: none"> New Mexico Energy Grant can fund a variety of sustainability projects Grant applications & creative funding mechanisms (Bonds, impact fees, etc.) Procurement could also be spelled out
Leadership	The BioPark is established as a leader in city-wide sustainability and a model campus	<p>2021 CABQ CAP includes components that could leverage the BioPark campus as a community model for climate-smart practices, including:</p> <ul style="list-style-type: none"> Community composting Food waste reduction Environmental education Renewable energy production Active transportation Energy efficiency 	<p>BioPark</p> <ul style="list-style-type: none"> Installation of flood gates across vulnerable buildings <p>Combined</p> <ul style="list-style-type: none"> Install onsite facilities to promote active transportation/commuting (2027) Climate budgeting? Leadership at BioPark reflected in City's goals Possible Resilience Hub Collaboration? Expertise, mentorship, and knowledge sharing is formalized
Emissions — Net Zero	Net Zero Scope 1 & 2 Emissions by 2045	<ul style="list-style-type: none"> Committed to the Paris Climate Agreement Net Zero by 2050 2021 CABQ CAP includes electrification of new and renovated City facilities Sustainability Resolution (R-24-34) allocates funding for facility upgrades and renewable conversions 	<p>BioPark</p> <ul style="list-style-type: none"> Include conservation and sustainability education in employee onboarding <p>CABQ</p> <ul style="list-style-type: none"> Sustainable Purchasing, esp with food systems Incorporate sustainability 101 training into new employee onboarding
Emissions — Reduction Target	45% emissions reduction by 2035	<ul style="list-style-type: none"> 50% emissions reduction by 2030 2021 CABQ CAP includes electrification of new and renovated City facilities Sustainability Resolution (R-24-34) allocates funding for facility upgrades and renewable conversions 	<p>Combined</p> <ul style="list-style-type: none"> Develop fleet transition & EV infrastructure Expand additional BioPark spaces on B.R.A.I.N. Develop sustainable purchasing program for BioPark Complete retrofitting of LED lighting across campuses Collaborate with Esperanza Bicycle Education Center to provide onsite bike clinics Advance focus on the 2030 to 2035 emissions targets Explore shared effort opportunities as initiative becomes formalized Incentivize active commuting to BioPark facility and NMBPS events Install onsite facilities to promote active transportation/commuting
Emissions — Procurement	20% of purchases made with net zero or carbon neutral vendors by 2050	<ul style="list-style-type: none"> 100% renewable energy for municipal operations Sustainability Resolution (R-24-34) contains multiple directives on sustainable procurement 	
Emissions — Transportation	30% employee mode split by 2030	<ul style="list-style-type: none"> Vision Zero — zero traffic deaths by 2040 2021 CABQ CAP includes multiple supporting items for active transport 	
Water	<ul style="list-style-type: none"> Ensure responsible use of water through increased reuse and efficient systems Establish improved baseline for facility water use and track annually 	<ul style="list-style-type: none"> 2021 CABQ CAP includes multiple components supporting city water conservation efforts 2021 CABQ CAP includes a strategy to create and monitor a water budget, emphasizing collaboration and data sharing 	<p>BioPark</p> <ul style="list-style-type: none"> Better signage and public messaging onsite where we are doing this well <p>Combined</p> <ul style="list-style-type: none"> New automated controls and submetering at Japanese Garden
Engagement	Increase SES score to 60 by 2030	<ul style="list-style-type: none"> 2021 CABQ CAP includes strategies for community education that could impact BioPark staff sustainability knowledge 	<p>Biopark</p> <ul style="list-style-type: none"> Internal efforts to increase SES score <p>CABQ</p> <ul style="list-style-type: none"> Public-Facing Education & Engagement Goals (ideally targeted towards behavior change) <p>Combined</p> <ul style="list-style-type: none"> Social media to educate and promote sustainability within the BioPark and the public
Built Environment	Establish Sustainable Design Guidelines by 2028	<ul style="list-style-type: none"> Sustainability Resolution (R-24-34) contains multiple directives on sustainable built environment, including required efficiency upgrades 2021 CABQ CAP includes electrification of new and renovated City facilities 	<p>Combined</p> <ul style="list-style-type: none"> Facilitate and reinforce adoption of sustainable building design guidelines, including B.R.A.I.N. CABQ Energy & Sustainability Management Design Guidelines Installed additional combined solar/shade structures
Waste	Campus-wide composting plan by 2027	<ul style="list-style-type: none"> EI No. 40 contains multiple directives on reducing food waste and increasing composting infrastructure, partnerships, and community access 2021 CABQ CAP includes funding for composting infrastructure 	<p>BioPark:</p> <ul style="list-style-type: none"> On-site composting at Heritage Farm Vendor collaboration on waste reduction (SSA) <p>Combined</p> <ul style="list-style-type: none"> Establish a waste baseline Identify food waste reduction opportunities Food waste prevention education Data collection and development support, & coordination with SWMD
Adaptation	All guests will be within 3-5 minutes of a heat relief feature	<ul style="list-style-type: none"> 2021 CABQ CAP includes items for green infrastructure that address heat island effect New Mexico Energy Grant can fund a variety of sustainability projects 	<p>BioPark</p> <ul style="list-style-type: none"> Brought to BioPark Conservation Committee, developing Task Force Collection of input on what constitutes a "heat relief structure" <p>Combined</p> <ul style="list-style-type: none"> Heat Action Plan Resilient communities grant (CSCI)



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Climate Action Goals and Targets

The BioPark established the following climate action goals through collaborative and evidence-based discussions. BioPark, NMBPS, and the City's Sustainability Office team members and leadership reviewed baseline data, peer benchmarking, and subject matter expert input for each.

<p>GOAL 1</p>  <p>Net-Zero Scope 1 & 2 GHG emissions by 2045</p> <p>TARGET 45% Scope 1 and 2 emissions reduction by 2035</p>	<p>GOAL 2</p>  <p>Employee Sustainability Engagement Score of 60 by 2030</p> <p>TARGET 30% employee active commuting mode split by 2030</p>	<p>GOAL 3</p>  <p>Ensure responsible use of water through reuse and efficient systems</p> <p>TARGET Establish improved baseline for facility water use by 2026 and track annually</p>
<p>GOAL 4</p>  <p>Sustainability and climate criteria are embedded into building, funding, and plant and animal population planning efforts</p> <p>TARGET Establish sustainable building design guidelines by 2028</p>	<p>GOAL 5</p>  <p>The ABQ BioPark is established as a leader in community-wide sustainability and a model campus</p> <p>TARGETS All guests will be within 3-5 minutes of a heat relief feature 20% of purchases made with net-zero or carbon neutral vendors by 2050 Complete campus-wide composting plan by 2027</p>	



ABQ BIOPARK