

# Greening the Gig: A 5-Year Sustainability Action Plan

In 2025, four graduate consultants from CU Boulder's Master of the Environment (MENV) program spent over 500 hours each conducting qualitative and quantitative research for Z2 Entertainment LLC's (Z2) venues, Boulder Theater and Fox Theatre. From their work, they developed a 5-year Sustainability Action Plan (SAP) for Z2, covering four categories: facilities, operations, communications, and funding. The team then created a website toolkit to aid other entertainment venues across the country in embracing sustainability.

## Context & Purpose



As the climate crisis becomes increasingly evident, more industries are becoming aware of the environmental impacts associated with their operations. The live music industry is no exception.

Z2, a long-standing pillar of the community, sought to understand where they could further strengthen their sustainability efforts to better align with Boulder County's ambitious climate goals.



Z2 partnered with CU Boulder's MENV program to gain the sustainability insights and guidance needed to reach their decarbonization and zero-waste goals.

## Annual Environmental Impact from US-based Concerts

400,000 tons CO<sub>2</sub>

Annual US concert emissions, or ~1 billion miles of driving a gas car

10,000 - 20,000 kWh

A single sold-out stadium concert's energy use, or roughly 1-2 households' annual use

116 million pounds

Annual US concert waste, which could fill ~9 football stadiums with trash

Source: Vora et al., 2024, Columbia University - "Unlocking Sustainability for Entertainment Venues"

## Methods

### Our approach included:

- 3 waste audits per venue
- Researching industry best practices in venue sustainability
- 1 water audit per venue
- GHG benchmarking
- Financial modeling
- Interviews with city officials, industry experts, and Z2 staff
- Survey of 266 fans
- Visits to other sustainable venues

These methods combined technical assessments with community-informed insights to build a realistic and actionable foundation for Z2's Sustainability Action Plan.

# Findings & Outcomes

The following highlights the most significant insights and outcomes from our research and recommendations to support Z2's sustainability goals:

## Facilities

- Coupling the electrification of HVAC systems at Boulder Theater with building envelope improvements can provide GHG emission reductions up to **80%**.
- They have installed a heat pump for an end-of-life HVAC system in Boulder Theater and, as a result, anticipate a **6%** reduction in natural gas-based GHG emissions by the end of 2026.
- Z2 is currently considering the installation of air curtains at both venues to improve the building seal during admission and reduce energy loss when doors remain open.

## Operations

- Waste audit data show Z2's current waste diversion rates are **25%** at Boulder Theater and **14%** at Fox Theatre. Incorporating waste diversion strategies, such as bin mapping and composting, can increase their diversion rates to **47%** and **46%**, respectively.
- They reincorporated composting behind the bars at both venues and in the kitchen and restaurant at Boulder Theater.
- They implemented recycling bins for paper products and separate bins for cans and bottles to decrease contamination rates.
- Z2 is installing aerators on water fixtures at their venues to reduce water use.

## Communications

- **74%** of their patrons responded that they would want sustainability messaging within their venues, leading to the incorporation of sustainability signage and posters.
- With their communications team, the graduate consultant team helped design a sustainability page for their website that will launch soon.
- The team co-created a sustainability mission statement with leadership to communicate commitment to sustainability and community impact.
- Sustainability-focused language is being implemented both in client facing spaces and within internal communications.

## Funding

- Many rebates, grants, and tax credits were identified to help offset the costs of replacing the roof at Boulder Theater, installing new energy-efficient HVAC systems, and making other sustainability upgrades.
- For the replaced heat pump, they received **~\$10,000** of funding from C-PACE and Xcel.
- A financial analysis was developed to evaluate and illustrate the potential savings associated with the energy improvements.

# Deliverables

The final deliverables include a customized 5-year Sustainability Action Plan for Z2 and a website toolkit to support venue operators nationwide.

## 5-Year SAP

A set of actionable recommendations that Z2 can use at their discretion. The recommendations were drafted in consultation with leadership, so they are as relevant and useful as possible.

## Toolkit

A broad, adaptable guide for entertainment venues looking to integrate sustainability into their operations, culture, and brand identity. The toolkit provides a framework for venues to explore what "going green" looks like in their own context, whether that means reducing waste, reducing energy use, improving fan engagement, or aligning staff and artists around shared values.

## Impact

This SAP equips Z2 with actionable measures that address energy use, building systems, waste management, and community engagement opportunities. Beyond the organizational benefits, the SAP will inform the toolkit website that supports the broader music and entertainment industry by demonstrating how sustainability can be operationalized. In doing so, it reinforces the value of environmental leadership, helping Z2 stay prepared for future regulations, manage financial risks, and deliver a better experience for patrons.

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