

# DECARBONIZATION STRATEGIES AT VAIL MOUNTAIN

## PURPOSE AND SCOPE OF THE PROJECT

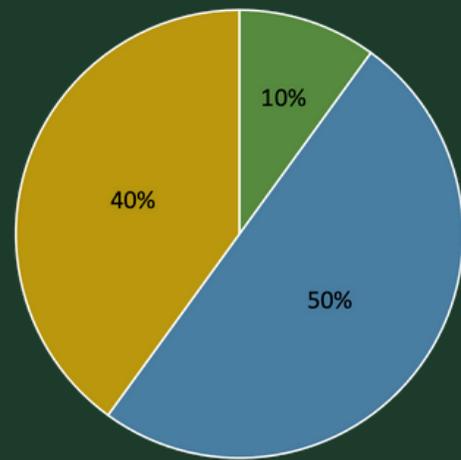
Vail Resorts' EpicPromise consists of three pillars:

- Commitment to Zero
- Community Impact
- EpicPromise Employee Foundation

As a part of their Commitment to Zero, Vail Resorts is working on capital improvements and energy upgrades at their facilities to achieve net zero emissions by 2030. For this project, our team analyzed a variety of energy loads in order to provide various strategies focused on decarbonizing an on-mountain dining facility at Vail Ski Resort.

Our research and findings for the facility can be utilized by Vail Resorts to achieve this alongside the Commitment to Zero across their international portfolio.

## NATURAL GAS BREAKDOWN BY END USE



- Cooking
- Space Heating
- Water Heating

In order to provide Vail Resorts with strategies for decarbonizing the building, we analyzed each sector's natural gas use.

## Phase I

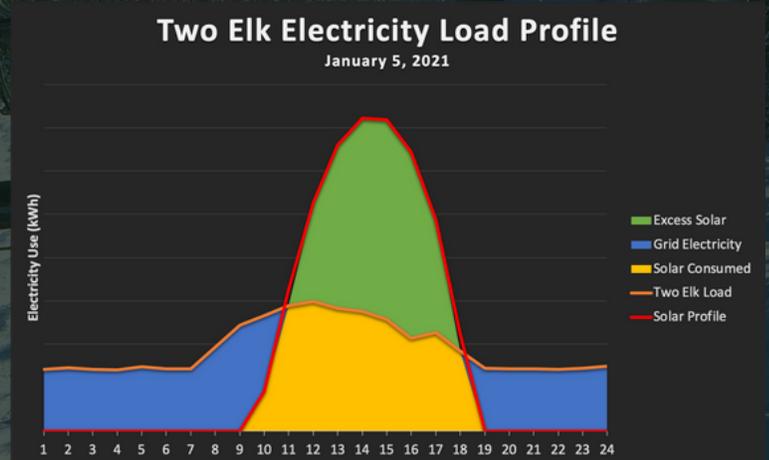
We started this project by researching:

- Various ski resort's climate action strategies
- Electrification and decarbonization options
- Policies and incentives at the utility, state, and federal levels

During this phase of the project, we also conducted an analysis of the building's current:

- Fuel use
- Energy use
- Greenhouse gas emissions profile

This provided the baseline for future analysis of potential decarbonization strategies.



## Phase II

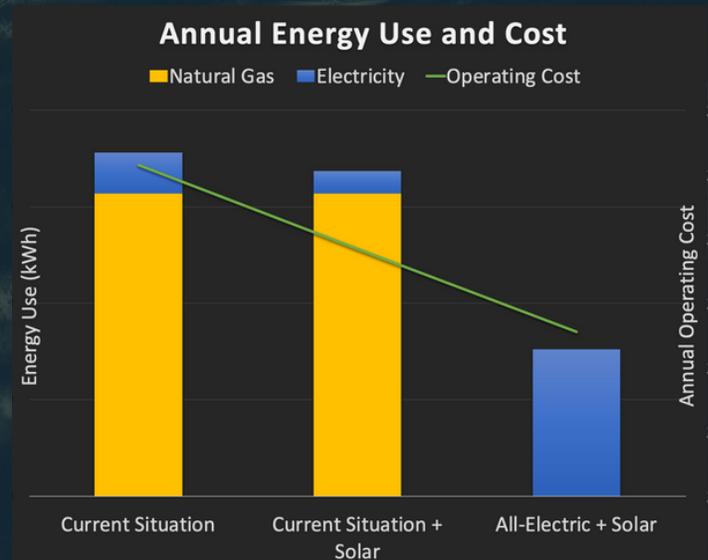
During Phase 2 of the project, we analyzed a variety of electrification and facility upgrade scenarios. Our scenarios consisted of three decarbonization strategies:

- Weatherization/Energy Efficiency
- Electrification
- Solar and Battery Storage

Within each strategy, we analyzed the cost, energy, and carbon emission impacts using 2021 as the baseline scenario.

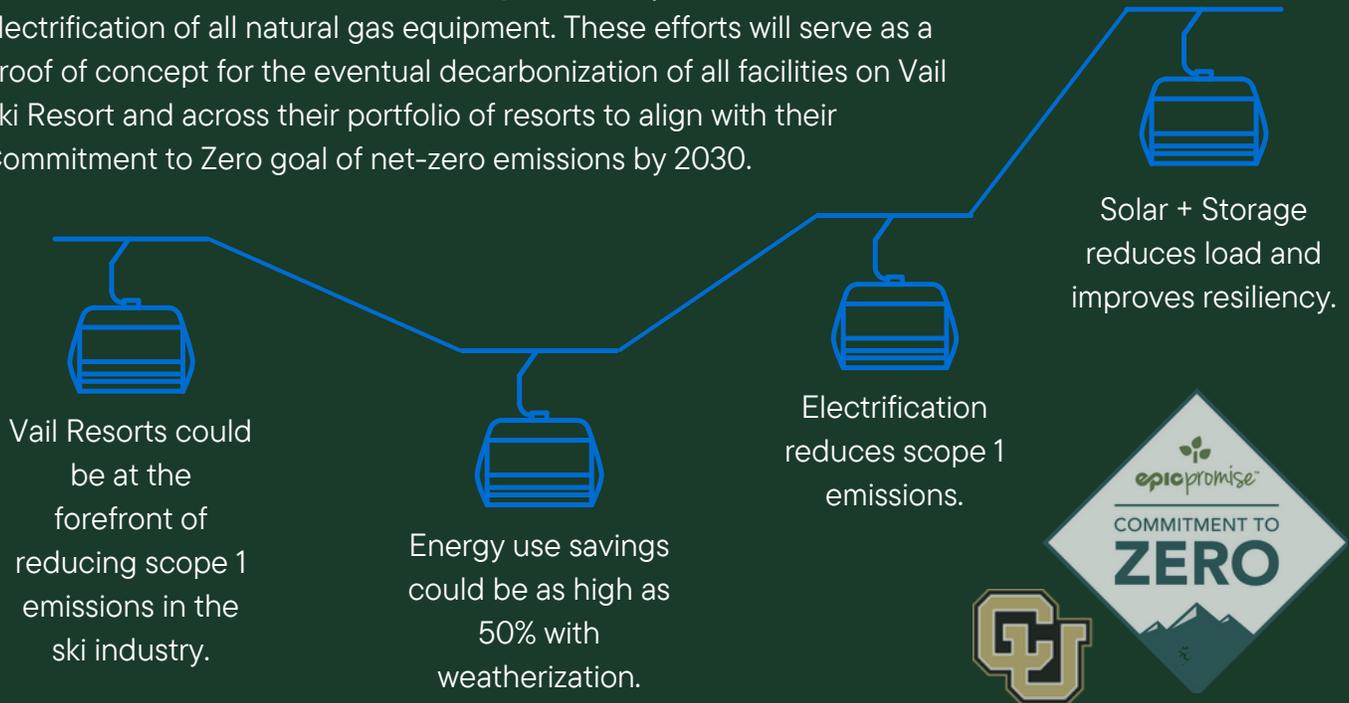
## Phase III

The last phase of this project consisted of compiling our research and results into a White Paper and providing recommendations for Vail Resorts. The White Paper focuses on our background research, and the cases and scenarios for each of the three decarbonization strategies. We also presented our findings to the sustainability team at Vail Resorts' Headquarters.



# PRELIMINARY RESULTS & KEY FINDINGS

Our analysis found that it would be beneficial for Vail Resorts to move forward with the installation of a rooftop solar array in tandem with the electrification of all natural gas equipment. These efforts will serve as a proof of concept for the eventual decarbonization of all facilities on Vail Ski Resort and across their portfolio of resorts to align with their Commitment to Zero goal of net-zero emissions by 2030.



# ACKNOWLEDGEMENTS

We would like to thank our capstone advisor, Derek Fehrer, for providing us with the mentorship and knowledge to complete this project in a professional manner.

We would also like to thank our partner at Vail Resorts, John-Ryan Lockman, and the rest of the Vail Resorts team for trusting us with this project, providing numerous opportunities to engage with stakeholders, and creating a space for us to learn the nuances of the practical application for building decarbonization.

