

# 2022

## SOLAR-POWERED E-BIKESHARE REPORT







# INTRODUCTION

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In 2022, WE-cycle and Skyhook Solar, [piloted the first solar-powered e-bikeshare network in the United States](#), using PBSC equipment. Building on the success of the 2021 pilot, Skyhook Solar Stations were deployed in 5 additional locations in the Roaring Fork Valley of Colorado. The expanded network included 7 Skyhook Solar Stations and powered WE-cycle's growing fleet of 52 e-bikes.

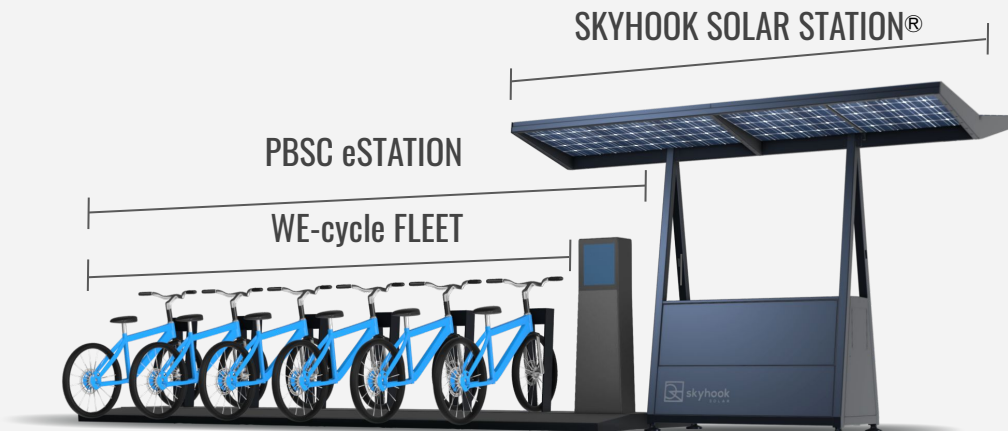
In the following pages, we report on the 2022 season's most interesting metrics: data analysis of solar-powered micromobility, the transformative popularity of e-bikeshare networks, and the growth of an innovative clean-energy movement in the Roaring Fork Valley of Colorado.

# DESIGN + BACKGROUND

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Skyhook's portable solar generators capture and store energy from the sun, provide power to the PBSC kiosk, and charge the WE-cycle e-bike batteries. Both reliable and flexible, this renewable energy solution avoids the infrastructure costs of grid connection and the battery swap challenges of traditional e-bikeshare systems.

In 2021, WE-cycle and Skyhook proved solar-powered e-bikeshare can change e-bikeshare operations for the better. In 2022, WE-cycle set out to expand this proven system rapidly and economically.



# 2022 SUCCESSES

## Magnifying the Benefits of E-Bikeshare

With an additional 26 e-bikes (a total of 52), WE-cycle saw an increase in the number of e-bike rides, riders, miles travelled, and overall popularity compared to 2021.

**19%**

of the WE-cycle fleet were e-bikes.

**50%**

of the rides were e-bikes.

**4.5x**

more rides per e-bike vs pedal bike.

**60%**

of riders preferred e-bikes over pedal bikes per the 2022 WE-cycle Rider Survey.

**3,893**

unique riders

took

**46,294**

e-bike rides

traveling about

**53,927**

miles\*



## Clean MegaWatts and Offsetting GHGs

Skyhook Solar Stations generated a total of **1.25 megawatt-hours of solar energy** during the 2022 season. This energy was used to charge WE-cycle e-bike batteries and power the PBSC kiosk as well Skyhook's own communications and fleet management micro computers.

**44,923 lbs**

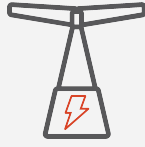
The estimated amount of carbon dioxide riders saved during the 2022 season based on WE-cycle data. Calculated with emissions benchmark estimates from the North American Bikeshare & Scootershare Association.\*\*

**1,406 lbs**

The estimated amount of GHG emissions that were mitigated due to carbon dioxide savings from using solar energy to power the e-bikeshare stations instead of grid energy.

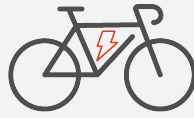


# 2022 COMPARED TO 2021



## E-Bike Fleet Doubled + 5 New Solar Stations

E-bikes accounted for 19% of the WE-cycle fleet. Solar Stations deployed in 5 new locations; a total of 7.



## E-Bike Rides Increased 3x

50% of all WE-cycle trips were taken on an e-bike, an increase of 20% as compared to 2021.



## GHG Offsets Increased 3x

Compared to 2021, GHG emissions offsets increased 3x with only 2x the number of e-bikes.

WE-cycle worked with the City of Aspen to locate a solar-powered e-bikeshare station at the Rubey Park Transit Center (pictured below) – an ideal choice for multi-modal transportation – a high-traffic transit-hub at the base of Aspen Mountain. Overall, the expanded network of Solar Stations powering e-bikes allowed for increased ridership and greatly improved GHG reduction, as compared to 2021.



RUBEY PARK TRANSIT CENTER STATION | ASPEN, CO

# FUTURE

At present, the WE-cycle / Skyhook network of solar-powered e-bikeshare stations has reached 7 total locations in Aspen and the Mid-Valley:

- Rubey Park Transit Center
- Galena St. | Hyman Ave.
- Galena Plaza
- Aspen Valley Hospital
- Aspen Highlands Base Village
- Basalt BRT Upvalley
- Willits BRT

The network has gained international recognition from bikeshare providers, press, and cities seeking clean energy micromobility solutions. As a result of statistically positive trends and the 2022 season's overall success, in 2023:

- More e-bikes will be incorporated into the WE-cycle system along with 2 new solar-powered e-bikeshare charging locations in Carbondale, CO.
- Skyhook Solar and WE-cycle will continue to pioneer solar e-bikeshare charging to improve integrated technologies along with their collaborating partners.



## Gratitude to Our Partners

**PBSC**<sup>®</sup>  
Urban Solutions



## CREDITS AND REFERENCES

All photos courtesy of [Thomas Balcom](#). Station diagram courtesy of [Skyhook Solar](#).

\* Estimated Distance Traveled by bicycle is calculated using the International Bike Share Standard of 7.456 mi/h (12 km/h) times the total trip duration of trips greater than or equal to 60 seconds yet under 2 hours. Trips over 2 hours max-out at 14.9 mi (24 km).

\*\* [Quantifying Greenhouse Gas Emissions Reductions](#)