

NYSP2I Evaluates the Greenhouse Gas Impact of CLIP.Bike's E-Bike Technology



Expected commercialization in the second half of 2020.



CLIP.Bike Inc.

Located in Brooklyn, New York, CLIP.Bike has developed a portable transportation technology, "CLIP," which easily transforms a traditional bicycle into a pedal assist e-bike.

Challenge

CLIP.Bike believes that its technology has the potential to convert urban commuters from modes of travel with high greenhouse gas (GHG) impacts (such as automotive) to biking. As the company moves towards commercialization, CLIP.Bike wanted to quantify the potential energy and GHG impact of their CLIP technology.

Solutions

CLIP.Bike requested assistance from the New York State Pollution Prevention Institute (NYSP2I) in determining the impacts of the CLIP on the complex New York City (NYC) commuter population. NYSP2I conducted a high-level comparative analysis of the potential energy use and GHG impact for CLIP.Bike's CLIP technology versus multiple modes of transportation such as cars, public transit, and walking.

Results

The results of the analysis suggest:

- Assuming the rider is pedaling about 50% of the time, the energy consumption and emissions related to using the CLIP determined to be about 5.59 Wh/passenger-km and 1.52 g CO_{2e}/passenger-km, respectively.
- When considering all modes of transportation and those commuters potentially switching to CLIP, there exists the potential to reduce the annual GHG emissions associated with commuters in NYC by approximately 12,900 MT CO_{2e}.

Challenge

- CLIP.Bike wanted to quantify the potential energy use and GHG impact of its bike retrofit technology, CLIP, on the NYC commuter population.

Solution

- NYSP2I conducted a high-level comparative analysis of the potential energy use and GHG impact for CLIP.Bike's CLIP technology versus multiple modes of transportation including cars, public transit, and walking to quantify the potential reductions associated with commuters switching to CLIP.

Results

- The potential exists to reduce the annual GHG emissions associated with NYC commuters by approximately 12,900 MT CO_{2e}.
- The potential exists to reduce the annual fossil fuel consumption of NYC commuters traveling via car by approximately 1.5 million gallons of gasoline.

Testimonial

- When considering commuters potentially switching from cars to CLIP, there exists the potential to reduce annual fossil fuel consumption of NYC commuters by approximately 1.5 million gallons of gasoline.

Note: The estimated GHG emission impacts calculated by NYSP2I at RIT are based on information and claims provided to NYSP2I by CLIPBike relative to its e-bike technology. It should be noted that this high-level analysis resulted in estimates and considered solely the use phase of a product life cycle. The raw material extraction, production, and end-of-life phases were not considered as part of this analysis. Moving forward, CLIP.Bike may consider a more comprehensive life cycle assessment to validate GHG and other environmental impacts.

"This has been a privilege and a pleasure to work with the NYSP2I team at RIT. Since the first meeting until the completion of the project, we have worked as one team, challenging the assumptions, making sure the methodology was sound, sharing research, and more. NYSP2I was also extremely supportive in delivering the study in record time.

Furthermore, the study resonated with the clean tech community providing tangible savings numbers behind CLIP's clean urban mobility claim."

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