Trisha Sweeney <trisha.sweeney@edcgov.us>

Fwd: Electric Scooters Emissions/Environmental Benefit

1 message

Vickie Sanders <vickie.sanders@edcgov.us> Wed, Sep 16, 2020 at 3:30 PM
To: Trisha Sweeney <trisha.sweeney@edcgov.us>, Wayne Lowery <walowery8@gmail.com>, Julia Mciver <mciverandcompany@gmail.com>, Kris Payne <krispayne999@gmail.com>, Jeanne Harper <jmharper2@comcast.net>, "Conwell Jr, Tom" <tconwell@ngkf.com>

Commissioners
Please do not respond to this email. I just received this information and Trish will add it to the agenda for tomorrow, but it is a lot of information so I wanted to get it to you as soon as possible. We will discuss the item tomorrow. What I did not realize was that in March you have us a list of questions that you asked staff to research. I have emails out to the Sheriff and to Risk, but I want to give you what I have so you have some time to read the information.

Trish,
Please post this to the agenda.

Vickie Sanders
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---------- Forwarded message ---------
From: **Lisa Petersen** <lisa.petersen@edcgov.us>
Date: Mon, Sep 14, 2020 at 6:39 PM
Subject: Electric Scooters Emissions/Environmental Benefit
To: Vickie Sanders <vickie.sanders@edcgov.us>, Dave Johnston <dave.johnston@edcgov.us>

Well, it appears from recent studies that E. Scooters do not provide much benefit to the environment. I found some articles on recent studies that appear to agree on this conclusion.

There was a study performed at North Carolina State University that most articles cite. I'll go over some highlights of this study and provide the article links if you want to review them.

NCSU 'Life Cycle Assessment' looked at the making, shipping, charging, collection and disposing of the scooters - the aluminum that goes into the frame, the lithium-ion battery, the transport from China to the U.S., the independent contractors who are driving around in vehicles at night to pick up/charge/return and the emissions associated with these activities. This study's conclusion was that the scooters produced about half the emissions (200 grams/mile) of a standard automobile (415 grams/mile).

A survey of users in Raleigh NC found that 34% would have used a car or ridesharing service, 50% would have biked or walked, 11% would have taken the bus, 7% would have skipped the trip. With this taken into account, 2/3 of scooter rides generate more GHG than the alternative. Scooter lifetime (1-2 months) is a weighty factor on grams/mile reduced. Another statistic given stated 43% of emissions are from additional fleet vehicles driving around the city to search out and pick up the scooters.

The article reported the Portland Bureau of Transportation found that only 34% of the city's riders took an e-scooter instead of driving their own car, or using a ride-sharing service or taxi. In fact, Lime itself found that about "1 out of every 3 trips" replaces a car ride, in surveys across 26 cities.

This link is an MIT Technology Review that mostly focuses on the NCSU research:
https://www.technologyreview.com/2019/08/02/646/electric-scooters-arent-so-climate-friendly-after-all-lime-bird/#:~:text=Researchers%20at%20North%20Carolina%20State,Your%20ride%20was%20carbon%20free.%E2%80%9D

Lime acknowledged the logistical issues and is looking at alternatives to the current program, like not picking up all scooters each night and using electric vehicles to do the pick up. I am apprehensive that one of the actions considered is the purchase of emissions offsets.

A more recent article (improving upon the author's earlier article) is found at:
https://chesterenergyandpolicy.com/2019/01/28/its-a-bird-its-a-lime-its-dockless-scooters-but-can-these-electric-powered-mobility-options-be-considered-sustainable-using-life-cycle-analysis/

This author's life cycle analysis (there is a downloadable spreadsheet shared in the article) used 100 overnight chargings as an assumption for a typical use term. But then he stated, "I did share my preliminary results with an industry insider who told me that anecdotally the lifetime for dockless scooters is very low and the typical approximation used within the industry is an average of 45 days, which can drop to as few as 23 days in particularly 'contentious' markets." Another interesting statement *regarding the battery manufacture only*, "After inputting the materials into my modified GREET Model, the manufacture of the scooter battery accounts for **19,824 grams of CO2-equivalent** (CO2e) of GHG emissions and the scooter body and tires account for **184,247 grams of CO2e**, for a total manufacturing emissions of **204,071 grams of CO2e**. Spread out over the 750 miles of the scooter's lifetime, these emissions come out to **272.1 grams of CO2e per lifetime scooter-mile**. There are additional statements for assembly, transport, collection and charging, and disposal. The full life cycle is summed up thus:

Assembling all these figures together gives the following results: a dockless electric scooter, over the course of its 500 lifetime rides and 750 lifetime miles, can be expected to contribute between **240.1 kg of CO2e** (using the best-case collection & redistribution) and **557.1 kg of CO2e** (using the worst case). This author's conclusion: *Scooters could be, and likely are, replacing options that are less carbon-intensive (biking, walking, public transit) just as often as they are replacing the more carbon-intensive act of driving.* This seems to be the consensus.

All articles I reviewed indicated that the scooters are very often abused, used for stunts, thrown in water bodies, vandalized or beat up, burned, torn apart... all largely influencing life cycle across the board.

Below are links to more articles that appear to concur in the above article's conclusions, and predictably cite the NCSU study.

https://www.cbsnews.com/news/scooters-are-worse-for-the-environment-than-many-think/

https://www.bbc.com/future/article/20200608-how-sustainable-are-electric-scooters

http://www.kykernel.com/opinion/are-lime-scooters-worth-the-convenience/article_9926e522-1c76-11ea-bcd0-f7c48fcdaeba.html

I'm not sure where we go from here, but I hope this helps.

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