HOW E-BIKE INCENTIVE PROGRAMS ARE USED TO EXPAND THE MARKET

This project will deliver an update to the 2019 white paper published by McQueen et al. under the same title.

Background
- There is a desire to promote the purchase of electric bicycles (e-bikes) in order to meet emissions, vehicle miles traveled (VMT), and/or mode share targets.
- Purchase Incentive programs have emerged as a popular technique.
- There are many 2019 active, proposed, or closed programs in the US and Canada.

Program Context
- E-bikes are shifting from a novelty or recreational vehicle to a viable mode enriching the transportation network.
  - E-bike sales increased 54% between 2020 and 2021 (Bicycle Network).
  - E-bikes are a viable low-carbon substitute to many auto trips (Max-Achter 2022).
  - They provide associated emissions, PM, and quality of life benefits.
- Due to pedal assistance, e-bikes are more accessible for a wider range of demographics and use cases than conventional “conventional” blue bikes.

Study Questions
- How can price be used as an instrument to bridge the “chasm” of e-bikes’ technology adoption curve?
- What are the current trends in e-bike incentive programs?
- What are the best practices administering e-bike incentive programs?

Project Goals
- Summarize the incentive programs’ design philosophies, structures, and techniques.
- Provide best practices for the development of future e-bike purchase incentive programs.

Methods
- Policy analysis of existing programs
  - Google search, Google Alerts
  - Program website pages and application materials
  - Program manager interviews
- Literature review for existing incentive philosophies

Results
- 53 e-bike purchase incentive programs were identified in the US and Canada.
- 28 are active, 16 are in a pilot phase 1 and 2 are approved by legislators but are awaiting implementation; are proposed; and 18 have been proposed or are in various stages.
- 35 percent of programs are in partnerships (17% with another state, 19% with local governments, and 5% with point-of-sale discounts (24% of programs).
- The average amount of funding is $21,500 for one-time rebates, and 10% to 60% for rebates based on purchase price.
- 15 of the 42 (36%) active, pilot, or closed programs include additional benefits for low-income populations.

What is an E-Bike?
- Electric motor (typically less than 750W)
- Pedals (i.e. can be ridden with human power)
- May or may not have a throttle depending on local laws
- Be ridden without pedaling
- Generally described and regulated using a 5-class system

<table>
<thead>
<tr>
<th>Max. Speed (mph)</th>
<th>Tricycle</th>
<th>Electric Bicycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Class 2</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Class 10</td>
<td>15</td>
<td>0</td>
</tr>
</tbody>
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Program Structures
- Discount mechanism
- Incentive amount (Maximum Incentive for % Based Programs)
- Incentive Amount for Post-Purchase and Point-of-Sale Rebates

Approaches to Determining Incentive Levels
- Function of funding and desired number of recipients
  - Program funding × total number of recipients
  - Can includeConsideration for additional targets for target groups (low-income, essential workers, etc.)
  - Includes state and city programs
- Greenhouse Gas (GHG) Equivalents
  - Cost savings for vehicle replacement
  - Avoided cost for emissions standards (e.g. $300 per e-bike lifetime)
- Data sources include projections of savings to consumer (2025/2030)
  - Cost savings for vehicle replacement
  - Brand new model e-bike price estimate

Common Challenges in Program Administration
- Product pipeline issues
- Projects require that e-bikes be purchased from local dealers may run into supply issues, especially among specific or low-price models, reflecting current industry-wide trends.
- Difficult paperwork: more complex qualification for participants leads to higher administrative costs and lower rates of program satisfaction
- High administrative costs: partnering with existing programs for outreach and/or income verification can help to minimize administrative overhead.

Knowledge Gaps and Future Work
- Challenges to realizing the intent of incentive, and external cultural or environmental factors on participation rate in an incentive program, especially across different demographic groups, are not well understood.
- Formal study has been completed on e-bike price elasticity, but conventional bicycle and electric vehicle incentives.
- These dynamics will be investigated in a national study (funded by the authors of this paper.)

Existing and Proposed Incentive Programs

Scan here to see our live inventory of existing and proposed e-bike incentive programs in the US and Canada, the 2019 edition of this report, and other e-bike related research from TRIC, or visit http://www.massachusetts.gov/energy/e-bike-incentives

Credit: Highway Trust Fund for Commute.Neo Electric Bicycle
- Would provide a tax deduction credit at 20% of purchase price for bike purchases
- Caps at $3,000 credit
- Maximum bike purchase price at $4,000
- Excludes most used bike models
- Incentive amount increases off MSRP over $3,000
- Introduce Electric Bicycle Incentive Kickstart for the Environment (E-Bike)

H.R. 5376 Build Back Better Act
(PENDING APPROVAL)
- Funding
- Tax credits for commuters

Equity Considerations
- Because of the high price at which e-bikes, many consumers, particularly those in low-income groups, may be priced out of the market, people the presence of the financial incentive. Many existing programs address this issue through income-qualified or tiered benefits for lower-income levels.

Best Practices
- Use a “targeted universality” approach to support target groups.
- Use incentive programs to give a higher rate of participation because they induce new purchases, especially when set aside for low-income groups.
- Use high-value incentive support people otherwise priced out of the market.
- Partner with local and state agencies to understand and connect with participants.
- Partner with local bike shops for outreach, access to service, and ability to demo bikes.
- Make the application process simple online, be best for tracking and simplicity.