MSTRS EV Workgroup Update

December 13, 2024

Reviewing the Charge

1. What information is useful to consumers contemplating an EV purchase?
   a. What information is not currently available?
   b. What existing information could be improved?
   c. What information is needed for understanding EV efficiency across BEVs and PHEVs?

What?

2. What data and testing does EPA need to collect or conduct to provide the consumer information above?
   a. Does all the information need to be derived from testing of individual vehicles, or can data be collected and used to estimate effects (like the effect of temperature on EV range)?

How?

High Level Themes

- Provide the right level of detail at the appropriate place
  - Vehicle Label - keep it simple
  - Use of QR codes for deeper information from the label
  - Fueleconomy.gov - detailed information
- Balance the need for more consumer information with industry testing burden
- Seek alignment between CARB and EPA

Data Collection Efforts

- CARB Survey #1
  - Status: Complete
  - Survey sample: 2400+ Americans
- Consumer Reports Survey
  - Status: Preliminary results
  - Survey sample: 297 existing EV owners
- Ford/Industry Survey
  - Status: Survey launched
  - Survey sample: 400 customers
- CARB Survey #2
  - Status: In the field
  - Survey sample: general population

Categories of Information Identified as Important

- Efficiency
- Range
- Charging Speed
- Fueling Cost
- Battery Information

Energy Efficiency Information

- **Summary of group discussions so far**
  - MPGe resonates with some EV owners
    - It may still have value as a comparative metric
  - Miles/kWh is most consistent with the way people have been thinking about vehicle efficiency for a long time
- **Potential approach**
  - The group is considering miles/kWh as a standard efficiency metric for EVs.
    - Would not require additional testing
- **Key remaining questions**
  - Is there value in keeping both MPGe and miles/kWh for now?

Range Information

- **Summary of group discussions so far**
  - General agreement that a highway range value would be important
    - 70 mph speed current focus for highway range
    - Backed by CR preliminary survey results
  - There is also interest in high and low temperature range metrics
- **Potential approach**
  - Add a highway and possibly a low and high temperature ranges
    - Highway range on label
    - Additional range information on fueleconomy.gov and/or QR code
- **Key remaining questions**
  - How can we reliably generate high and low temperature range estimates?

Range Testing

- **Summary of group discussions so far**
  - Updates to **SAE J1634** currently being finalized
    - Will allow for measuring a constant speed highway range at 70 mph from 2-cycle testing
    - EPA would need to approve the use of the updated standard once finalized
- **Potential approach**
  - Range information at high (95 degrees F) and low (20 degrees F) could possibly be derived from the existing 5 cycle test
  - Industry is broadly resistant to requiring 5 cycle testing
- **Key remaining questions**
  - What is the best approach to using derived factors to estimate high and low temperature range performance?

DC Fast Charging Speed Information

- **Summary of group discussions so far**
  - Strong need for a standard DCFC speed metric
  - Some debate within the group and in preliminary survey data over if a time-based metric or a miles per time metric is more useful
- **Potential approach**
  - Miles of range added per 10 min, averaged from 10%-80%, on the fastest charger a vehicle can accept charge from, under normal conditions
- **Key remaining questions**
  - What is the correct metric for charging speed?
  - Do we need to provide charging speed under alternative conditions?

DC Fast Charging Speed Testing

- **Summary of group discussions so far**
  - SAE J2953/4 published January 2024
  - Currently being converted into SAE/ISO 12906, finalization expected in early 2025
- **Potential approach**
  - The group is considering using the first industry standard for fast charging speed testing
- **Key remaining questions**
  - How best to derive time and range-based charging metrics using this standard?

Fuel Cost Information

- **Summary of group discussions so far**
  - Cost information would be more valuable if personalized
  - General agreement on keeping high level cost information on the label
    - Ongoing debate over 5 years, 1 year, or 1 month timescale?
- **Potential approach**
  - Provide a QR code that takes consumers to a standard tool that allows for more personalized cost information
    - Preliminary results show 84% of CR survey respondents supported this idea
- **Key remaining questions**
  - Are the current 5-year fuel savings and 1-year fuel cost metrics on the label still the correct metrics?

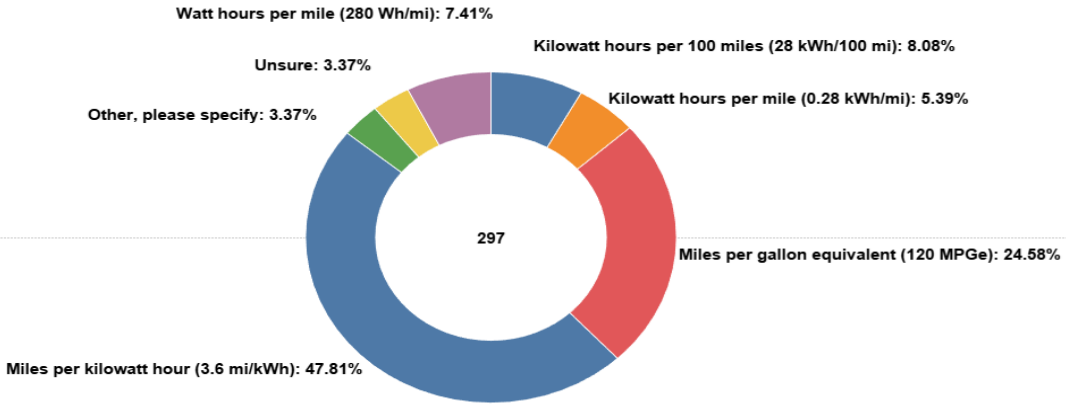
Battery Information

- **Summary of group discussions so far**
  - Some information on the battery should be provided to consumers
  - Continued of debate over how much and where
- **Potential approach**
  - Include battery size and warranty information on the label
  - More detail provided online
- **Key remaining questions**
  - Should total or usable or both capacities be presented on the label?
  - Is there anything we can say in a standardized way about battery longevity?
  - Should information about V2x capabilities be included?

Preliminary Consumer Reports Survey Results

Energy Efficiency Survey Data

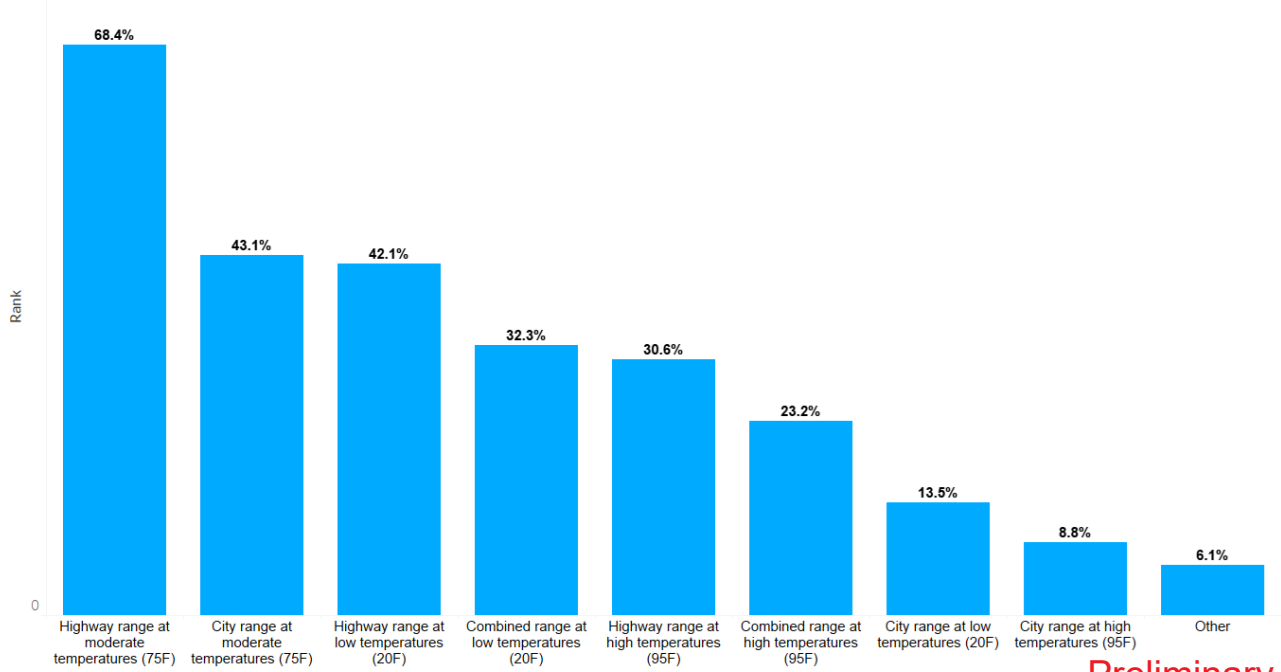
Which of the following efficiency metrics would you find most useful for understanding the energy consumption of your EV?



Preliminary

Range Survey Data

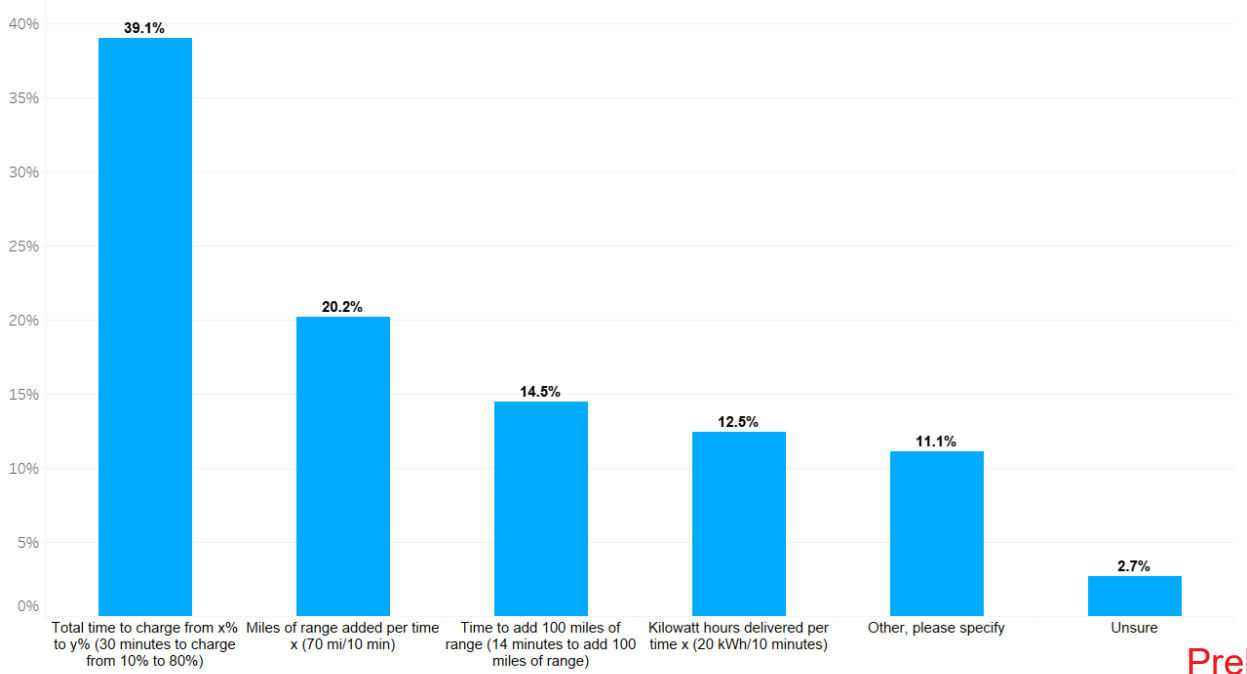
The EPA reports EV range for combined city and highway driving at moderate temperatures. Which, if any, more specific EV range values would you find most useful to know before buying a new EV?



Preliminary

DC Fast Charging Speed Survey Data

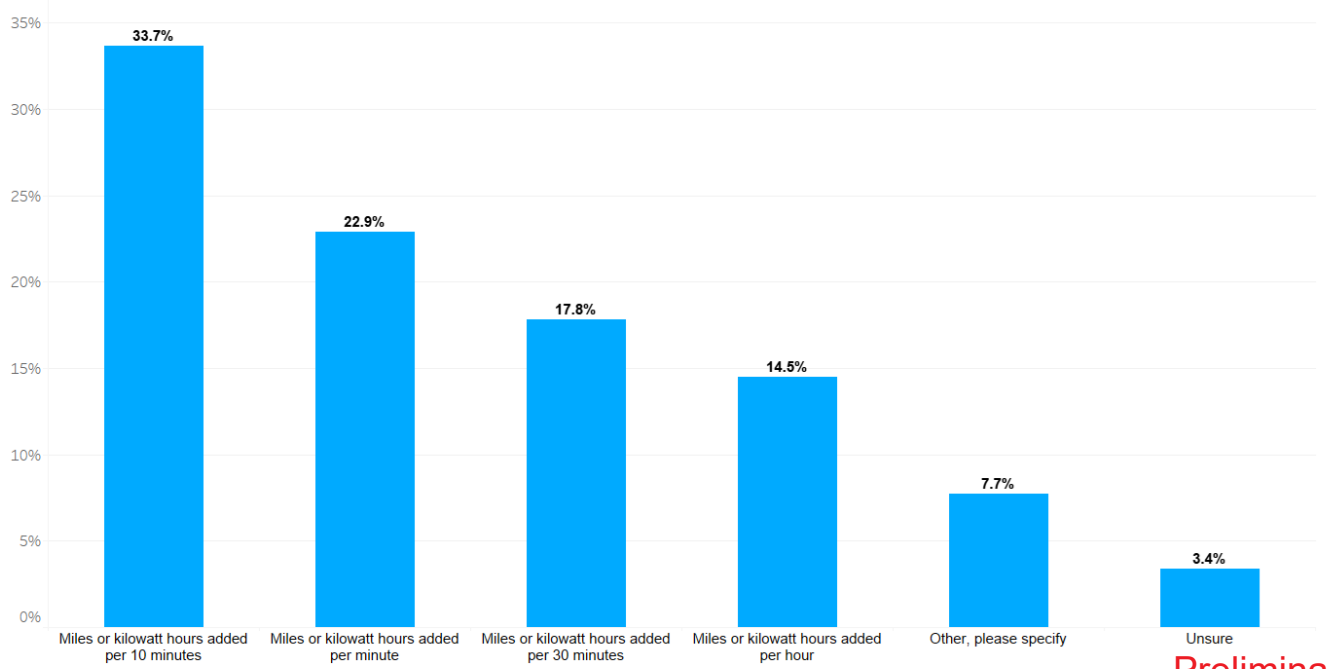
If the industry were to standardize how it discussed EV DC fast charger speeds, which measurement of DC fast charging speed would you find most useful?



Preliminary

DC Fast Charging Speed Survey Data

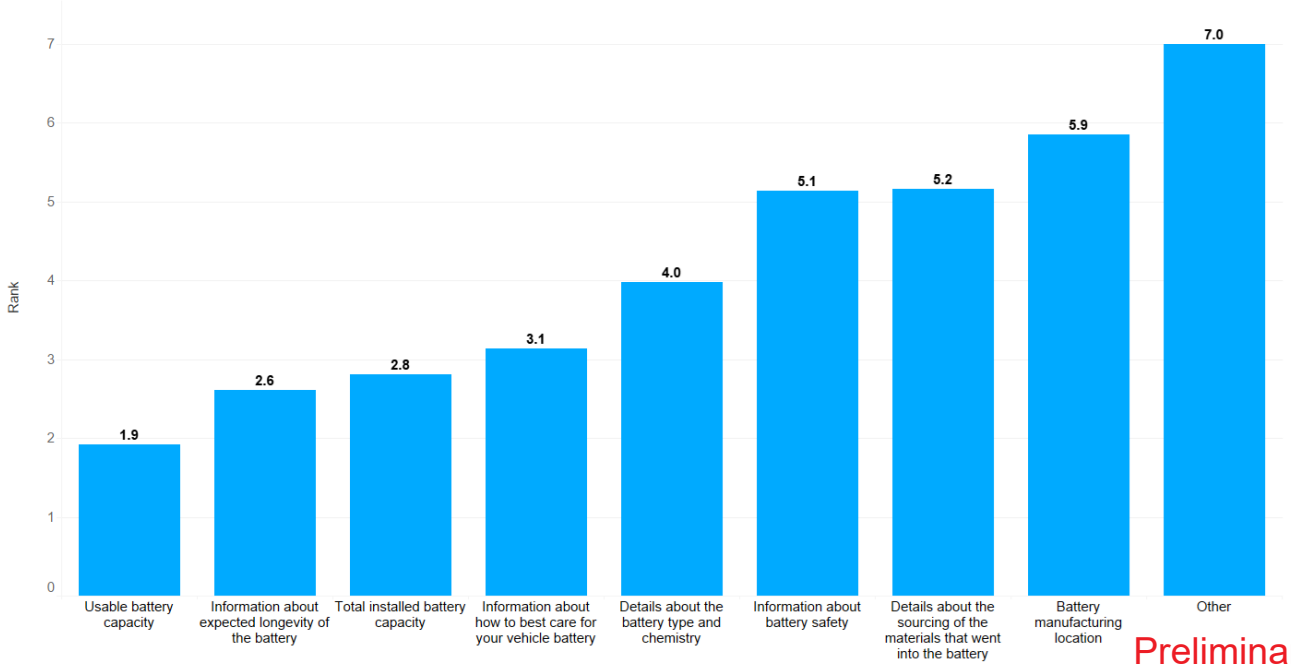
If DC fast charging speed was presented as miles added or kilowatt hours added per some unit of time, which time frame do you think would be most appropriate to use?



Preliminary

Battery Information Survey Data

Rank Average: Please rank the battery information that you would find most useful to have about an EV you were considering buying



Preliminary

Next Steps

- Continue data collection efforts and compile results
- Focus on answering the key questions identified so far
- Further evaluate charge 2 (testing)