Do consumers cross-shop ICEVs, HEVs, and PEVs?


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It is assumed they do, or that it would be a good thing if they did

- Analysts
- Automakers and dealers
- Automotive press

- Do consumers?
  - No.
Study Design

• Plan D: Convenience sampling
  • Vehicles parked on UCD campus
    • PHEVs and BEVs first, then corresponding ICEV and HEV variants
  – Convenience sampling strictly limits results to sample
    • The half of the sample that are ICEV/HEV buyers are drawn from 98% of car owners
  + Focused look at a comparatively rich PEV eco-system
    • PEVs and PEV drivers; special financing offers from PEV manufacturers; and, charging in many parking facilities
Resulting in these vehicles...

Make-Model  | ICEV | HEV | PHEV | BEV
--- | --- | --- | --- | ---
Fiat 500   |       |     |      |     
Ford C-Max |       |     |      |     
Ford Focus |       |     |      |     
Ford Fusion|       |     |      |     
Toyota Prius|       |     |      |     

...driven by these people

- Female/male
- Student/staff/faculty
  - Anticipated age, income difference between students and staff/faculty
- Live in Davis/Commute from out of Davis
ICEV and HEV drivers

• None cross-shopped PEVs
  • Those who knew PEVs existed…
    • Dismissed PEVs at the first sign of a potential problem
      • Price too high; no knowledge or consideration of incentives
      • Range too short; confused about HEV/PHEV/BEV distinctions; wrong about vehicle range, no knowledge of charging
      • Can’t charge at home; can’t imagine a PEV without home charging; no knowledge of other charging
  • Those who didn’t know PEVs exist…
    • They did not consider PEVs at all because, well, they don’t know PEVs exist
Ford Fusion in CA: MSRP vs. Price
Paid by powertrain flavor

Based on 15,157 vehicles reported by Experian.

<table>
<thead>
<tr>
<th></th>
<th>MSRP, mean</th>
<th>Price paid, mean</th>
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<tbody>
<tr>
<td>Fusion ICEV</td>
<td>$24,400</td>
<td>$26,800</td>
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<tr>
<td>Fusion PHEV</td>
<td>$36,300</td>
<td>$33,400</td>
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<tr>
<td>( \Delta \text{PHEV-ICEV} )</td>
<td>$11,900 (<del>50%</del>)</td>
<td>$6,600 (<del>25%</del>)</td>
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PEV owners

• Some attention to HEVs.
• Generalization that PEV owners did not cross-shop ICEVs is largely substantiated.
  1. PEVs only
     • Volt, Tesla, C-MAX, Prius Plug-in
  2. HEVs as gateways to PEVs (among people unfamiliar with PEVs)
     • Cars she drove: Fit (ICEV) (“cheap”), Prius (HEV) (“expensive, no deals”), Fiat 500e, Fiat 500 (ICEV) (“cheap and clunky” compared to BEV).
       Cars she did not drive: SMART (too small), Nissan (too long to wait—info. from on-line message boards), Ford (doesn’t like to buy American), Honda and Toyota (didn’t think they offered leases).
  3. HEVs considered with PEVs (among those familiar with PEVs)
Interpretations: Different questions; different engagement

- ICEV/HEV buyers: “Why would I buy a PEV?”
  - If they haven’t heard of PEVs being for sale, they haven’t asked anything

- PEV buyers: “How do I get a PEV?”

- ICEV/HEV buyers, lack engagement, either
  1. Simply don’t they know PEVs are a possibility, or
  2. Have no impetus to solve even the first imagined problem and thus none to explore whether there is a second or third.

- PEV buyers have impetus to solve one problem and move on to the next until they own a PEV

“It takes two good reasons to buy a PEV and one flimsy excuse not to.”
  Gil Tal
Market Implications

• Create Awareness—of everything, still
  • PEVs, really
    • The distinction between HEVs, PHEVs, and BEVs (and FCEVs?)
  • Incentives
  • Range, charging, and their relationship

• Instigate engagement