Fleet Data Quality
Understanding and Improving Your Agency’s FAST Fleet Data Quality Metric
We are...

Ron Stewart / Sharath Kallaje
FAST Support Team
Idaho National Laboratory
We’ll cover...

- Thinking about fleet data quality
  - ... from a fleet manager’s perspective
  - ... from FAST program’s perspective
- Understanding FAST’s review process
- Understanding FAST’s data quality metric
- Improving fleet data quality
  - ... including FAST’s data quality metric
- Q & A
Thinking about data quality

Fleet manager’s perspective
● Complete?
● Correct?
● Current?
● Available?

FAST program’s perspective
● Validation
● Review & feedback
● Quality metric

… all provide some insight into some those same aspects of quality
Understanding FAST’s review process (1)

● Data is validated as it is loaded in FAST
  ○ Blocks data which can’t be complete or correct
  ○ Flags data which may be suspect

● Key points
  ○ Understand the validation rules
  ○ Understand how to access validation results
Understanding FAST’s review process (2)

● FAST team reviews agency submission when complete
  ○ High-level measures for year-to-year consistency
  ○ Vehicle-level measures for specific types of quality issues
  ○ Written feedback and detail provided to agencies
  ○ Opportunity for agency to respond and update submission

● Key points
  ○ Understand intent of review and feedback
  ○ Understand role of agency response to review
Understanding FAST’s review process (3)

- FAST team assembles “concerns per vehicle” metric
  - Metric based on subset of validation flags and review measures
  - ... adjusted based on agency response to feedback
  - ... and divided by number of vehicles reported

- Key points
  - Understand what each included measure is looking at
  - Understand role of agency response to feedback
Understanding FAST’s review process (4)

- FAST team communicates metric to agency
  - Provided to fleet POCs and agency leadership
  - Includes indication of improvement / regression
  - Includes comparison to overall federal fleet
  - Includes priority areas for agency improvement

- Key points
  - Is agency’s submission getting better?
  - What are the key areas for improvement?
FAST’s data quality metric (1)

- Which validation warnings go into FAST’s quality metric?
  - OC-1.5: Vehicle acquisition cost inconsistencies
  - F-2-2: Fuel consumption inconsistent with vehicle fuel type/configuration
  - F-2.3: Vehicles consuming B100 w/o reporting diesel consumption
  - F-2.4: PHEVs reported w/o electricity consumption
  - F-4.6: Vehicles with questionable fuel efficiency (also review measure M6)
  - F-5.5: Vehicles with questionable high per-unit fuel cost
FAST’s data quality metric (2)

● Which review measures go into FAST’s quality metric?
  ○ M-6: Vehicles with questionable fuel efficiency (validation warning F-4.6)
  ○ M7: Year-to-year consistency of vehicle reporting
    ■ a) Vehicles with current-year acquisition dates also present in prior year submission (validation warning OW-1.3)
    ■ b) Vehicles with prior-year acquisition dates missing from prior year submission (validation warning OW-1.4)
    ■ c) Vehicles in current-year submission reported as disposals in prior-year submission (validation warning OW-4.4)
    ■ d) Vehicles in prior-year submission w/o disposal information missing in current-year submission
    ■ e) Vehicles in prior and current submissions with changes to static attributes (validation warning A-1.5)
  ○ M8: Vehicles with placeholder attributes
### FAST’s data quality metric (example)

<table>
<thead>
<tr>
<th>Measure</th>
<th>FY 2020</th>
<th>FY 2021</th>
<th>FY 2022</th>
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<tbody>
<tr>
<td>Review Measure 7(a)</td>
<td>6</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Review Measure 7(b)</td>
<td>144</td>
<td>54</td>
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<tr>
<td>Review Measure 7(c)</td>
<td>118</td>
<td>189</td>
<td>222</td>
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<td>Review Measure 7(d)</td>
<td>83</td>
<td>102</td>
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<td>Review Measure 7(e)</td>
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<td>Review Measure 8</td>
<td>1,321</td>
<td>1,812</td>
<td>2,131</td>
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<tr>
<td>Validation warning OC-1.5</td>
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<td>5</td>
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<td>Validation warning F-2.2</td>
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<td>399</td>
<td>326</td>
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<td>Validation warning F-2.4</td>
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<td>57</td>
<td>53</td>
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<tr>
<td>Validation warning F-4.6</td>
<td>636</td>
<td>424</td>
<td>266</td>
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<tr>
<td>Validation warning F-5.5</td>
<td>400</td>
<td>1</td>
<td>172</td>
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<tr>
<td><strong>Total Concerns</strong></td>
<td>4,080</td>
<td>3,391</td>
<td>3,813</td>
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<tr>
<td><strong>Vehicles Reported</strong></td>
<td>8,139</td>
<td>8,370</td>
<td>8,549</td>
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<tr>
<td><strong>Concerns per Vehicle (CpV)</strong></td>
<td>0.50</td>
<td>0.41</td>
<td>0.45</td>
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<tr>
<td><strong>Year-to-year Change in CpV</strong></td>
<td>n/a</td>
<td>-0.09</td>
<td>+0.04</td>
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</tbody>
</table>

- **Overall metric**
  - Getting better or worse?

- **Where are the concerns?**
  - Getting better or worse?
FAST’s data quality metric (more)

- FAQ in FAST’s Help
  - How is the metric intended to be used?
  - What goes into the metric?
  - How is the metric calculated?
  - Which measures are included in the metric?
  - An example
  - How was the federal fleet scored in recent years?

Improving fleet data quality (1)

- **Prioritize improving data quality**
  - What’s feasible?
  - What’s most important?
  - Where are the biggest gains?

- **Measure it**
  - How can you tell if it is getting better?
  - Start measuring / monitoring early
Improving fleet data quality (2)

- Find and fix problems at / close to the source
  - Fix the *cause* of the problem
  - Start finding / fixing early

- Participate in the post-submission review
  - Ensure metric is representative
  - Use review to inform improvement priorities
Improving fleet data quality (3)

- **Prioritize / Measure / Find & Fix**
  - On-going / continuous activity
  - These (should) form a feedback loop

- **Primary intent: Better data to manage your fleet**
  - By-products: simpler EOY reporting, improved quality metric
Q & A
<table>
<thead>
<tr>
<th><strong>FAST program contacts</strong></th>
</tr>
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<tbody>
<tr>
<td><strong>DOE Federal Energy Mgm’t Program</strong></td>
</tr>
<tr>
<td>Jason Koman</td>
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<tr>
<td><a href="mailto:jason.koman@hq.doe.gov">jason.koman@hq.doe.gov</a></td>
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<td><strong>GSA Office of Government-wide Policy</strong></td>
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<tr>
<td>James Vogelsinger</td>
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<td><a href="mailto:james.vogelsinger@gsa.gov">james.vogelsinger@gsa.gov</a></td>
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<td><strong>FAST Help</strong></td>
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