Alternative Technology Recap

Jonathon Yee
Director of Fleet and Facilities Maintenance
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INTERcity TRANSIT

Electric Bus Outreach

- Peer Agencies Currently Engaging EV
  - King County Metro -Seattle
  - Pierce Transit -Tacoma
  - LINK –Wenatchee
  - Whatcom -Bellingham
  - BFT -Richland
  - Valley Transit -Walla Walla
  - STA –Spokane
  - C-TRAN –Vancouver
  - Tri-Met –Portland
  - LTD -Eugene

King County Metro –Seattle, WA.

Eleven buses currently in service in Bellevue

- Range:
  - Fast charge, short runs, ~25 miles per run
    - Testing six for slow charge with 140-mile range
- Infrastructure:
  - Building a new 120 electric bus satellite base
  - Used two electrical consultants for utility evaluation and site planning
- Vehicle performance:
  - Currently evaluating/performance testing:
    - New Flyer
    - BYD
    - Proterra
- Future plans:
  - Plan to evaluate Gillig EV as soon as available
  - Rapid expansion of EV fleet
  - Second Electric Base

Pierce Transit –Tacoma, WA.

Three Proterra buses received in November 2019

- 22 month lead time

- Range
  - Specified the highest capacity available
  - Placed into service on their shortest routes
  - Cold weather decreased range 20%
  - Range has been ~110-miles during less-than-warm months
    - Charge time ~six-hours per bus for 110-miles
- Infrastructure:
  - Charger manufacturer has had several technical issues
  - Local utility is charging significantly more than planned
    - Had to devise a solution to better manage utilities while charging to control costs
  - Estimate $2.7M on charging infrastructure for 30 electric buses
- Vehicle Performance:
  - Proterra buses have had several technical issues
  - Cost per mile: EV is 58% higher when compared to a diesel bus
- Future Plans:
  - Received a grant to purchase three in 2019
  - Hoping to purchase Gillig EV

Valley Transit –Walla Walla, WA

- Ordered four BYD buses in 2017, still not in service as of July 2019.
  - Delays attributed to BYD factory and Trolley
- Manufacturer support:
  - “BYD has no parts department, has provided no manuals or schematics, and takes four months to return a call”
- Infrastructure:
  - BYD devices not UL approved, so VT is having to engineer their own charging solutions
  - Hoping BYD bus will go ~120 miles

Hydrogen Fuel Cell

- Sunline Transit
  - Experience:
    - Running FCEBs for 20 yrs – currently expanding
      - Varied makes/models
    - Range - up to 300 miles
    - On-site Hydrogen plant
      - Expanding production
    - Minimal route planning impact

- Champaign-Urbana MTD
  - Planning:
    - 60-foot articulated (2 New Flyers)
    - On-site infrastructure – built for expansion
    - Used non-profit (CTE) in research and finding funding

Summary

- Not much has changed since our last update in April
- Manufacturer challenges
  - Parts and technical support, Delayed delivery, Utility challenges
- Range experience
  - KCM: short range / fast charge currently under 30
  - Pierce Transit: Slow charge (6-hours) currently ~100
  - Valley Transit: Not yet in service
  - Effects of hot and cold weather
  - Range is dependent on driver habits and finesse
- Costs
  - Utility rates and capacity
  - Vehicles (acquisition, battery replacement/disposal

Peer Recommendations

- Wait – or - Do your research and proceed cautiously
  - Start with small scale
- Published range from manufacturers is optimistic.
- Partner with the utilities early.
- Emergency Planning and Response
  - Consider transit's role in local and regional emergency response and ensure the mission can be carried out
  - Plan for appropriate backup power for charging during emergencies.

Our Strategy

- Continue to explore and track evolution of new low/zero emission technologies
  - Continue to learn from peer agencies
  - Get involved in industry groups to stay current with technology and trends
- Keep our Goals in mind as we consider integration of new technologies.