Ground Support Equipment (GSE) Electrification

Adam Walters – Environmental Services
• Drivers of GSE Electrification at Southwest
  • *Why do we electrify at certain Stations?*

• Grant Funding – Challenges and Lessons Learned
  • *Funding Types and the “Strings Attached”*

• What’s Next in Nevada?
  • *A peek at Stations scheduled to go Electric*
Drivers of GSE Electrification at Southwest

• Regulatory
  • State/Regional – NOx regulations to meet NAAQS, MOUs
  • Currently no Federal GSE Regulations, except for emissions standards on new engines

• Lease Agreements and Airport Commitments
  • Community Benefits Agreements, NEPA

• Fleet Turnover/Sustainability

• Incentives – VW Grants, Infrastructure Grants
GSE Grant Funding - Infrastructure

FAA’s Voluntary Airport Low Emissions (VALE) Grant - *Primary funding mechanism for electrification projects at airports*

- Airport buy-in (Thank you LAS & RNO!)
- Adequate power to the airport – power load study?
- Consults available to help with application/engineering
- Funding typically covers 75% of infrastructure costs, includes engineering
- VALE will fund gate power and air conditioning units for the aircraft
- Minimal reporting obligation once complete
GSE Grant Funding

Volkswagen Environmental Mitigation Trust ($14.7 Billion VW Settlement)

• 1.2 Billion divided between states for independent projects
• Worked closely with A4A to request each state to include GSE for eligibility
• Identify aging fleets – bag tugs, belt loaders, pushbacks = 80% of operation
• Applications can be > 40 pages, includes emissions and cost analysis
• Funding is awarded based on $$-per-ton of NOx removed (mitigated)
  • Try to have infrastructure funded via other means – typically ½ the cost to “electrify” at Southwest
Recent Projects

- **LAS** - $3.2 Million for 109 electric BTs and BLs, $1 Mil for 16 PBs (2023)
  - Process began in 2016 – COVID delays
  - Extensive surveys on where to put chargers
  - Existing age of fleet averaged 30 years
- **RNO** - $674K electric BTs and BLs (2023)
- **ABQ** - $423K 3 old PBs to LEKTRO
- **MCI** - $275K towards BTs (2022)
- **PHL** – Application opens 2022
- **SAT** – Application opens 2022

**Since 2019, Southwest has been awarded $4.57 Million to convert old GSE to electric!**
GSE Grant Funding – “Strings Attached”

Vehicle Destruction Requirements

- Drain all fluids and remove battery
- 5 inch hole in the engine block
- Cut Chassis or completely render unit inoperable

Documentation – Be Prepared!

- Photos of engine serial #s, hole in block, cut chassis, etc.
- Scrap yard receiving documentation/weights
- Pictures of new electric vehicles
- Copies of new electric purchase orders
- Copies of shipping receipts
GSE Grant Funding – Lessons Learned

Data Integrity
- Engine models, serial numbers, horsepower and engine model year
- Engine hours are used to calculate grant funding amount

Pictures/Documentation
- Photos of existing engine serial #s and engine block
- Side profile of existing unit with

Labor and equipment needed to prepare scrapped vehicles
- Drain fluids, pull battery, pull parts, load on Roll-Off
- Coordinate with scrap yard in advance - stage vehicles in the yard?
What’s Next?

At Southwest, GSE will continue to transition to electric:

• Sustainability goals to for both Airports and Airlines
• Airports are seeking higher levels of Carbon Accreditation
• Innovation expanding to other GSE types
  • Infrastructure footprint becoming smaller/more affordable – similar to on-road lithium powered cars

Existing and Future Projects: LAS, SAT, RNO, PHL, BOS, SLC, MCI, LGA

• 31% of all eligible Southwest GSE is electric = 1500 vehicles