



Biddeford Saco Old Orchard Beach Transit: Electric Bus, Charging, and Microgrid Maintenance

Team Member Survey Findings

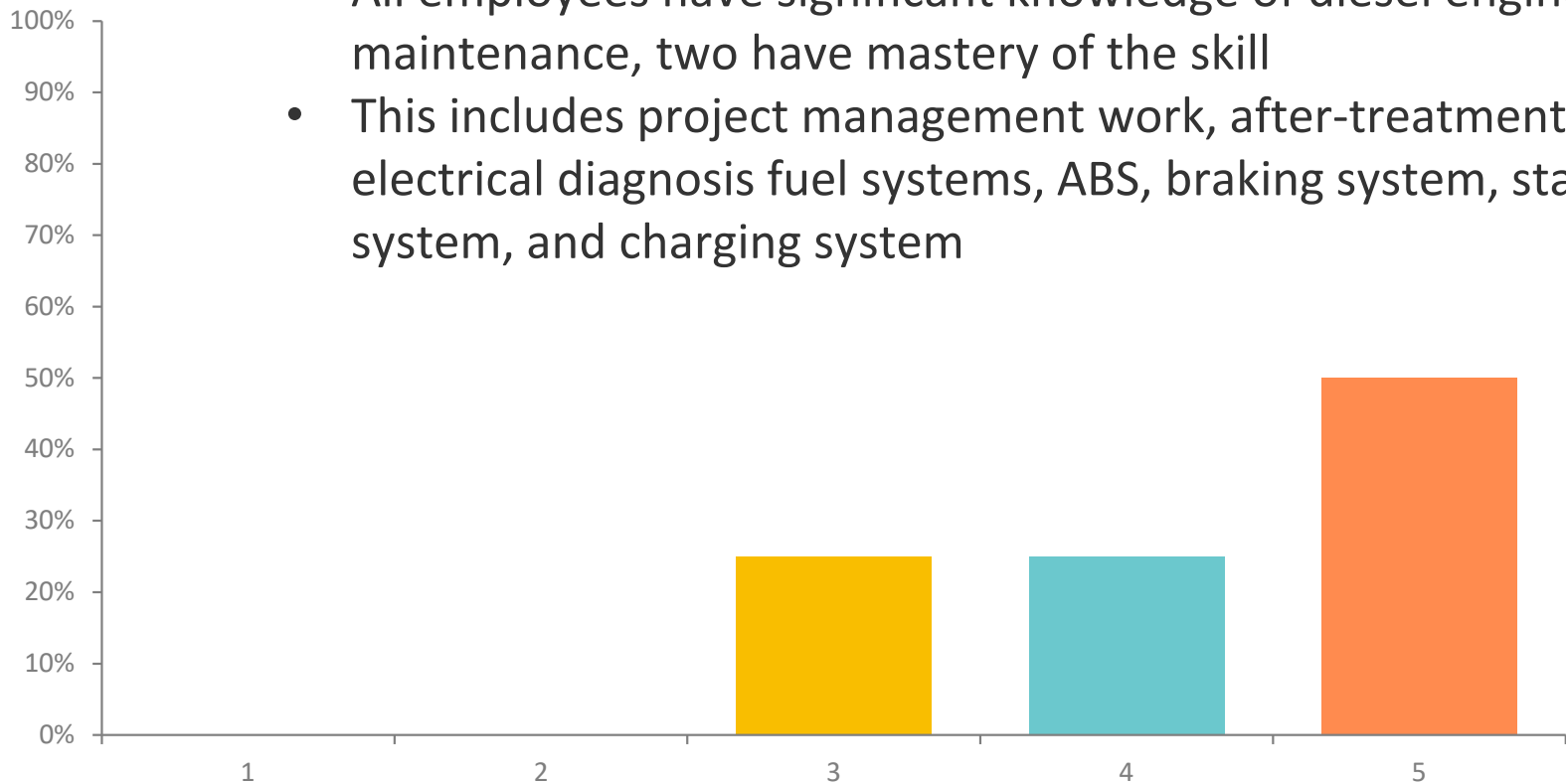
September 13, 2024



Summary of Survey Findings

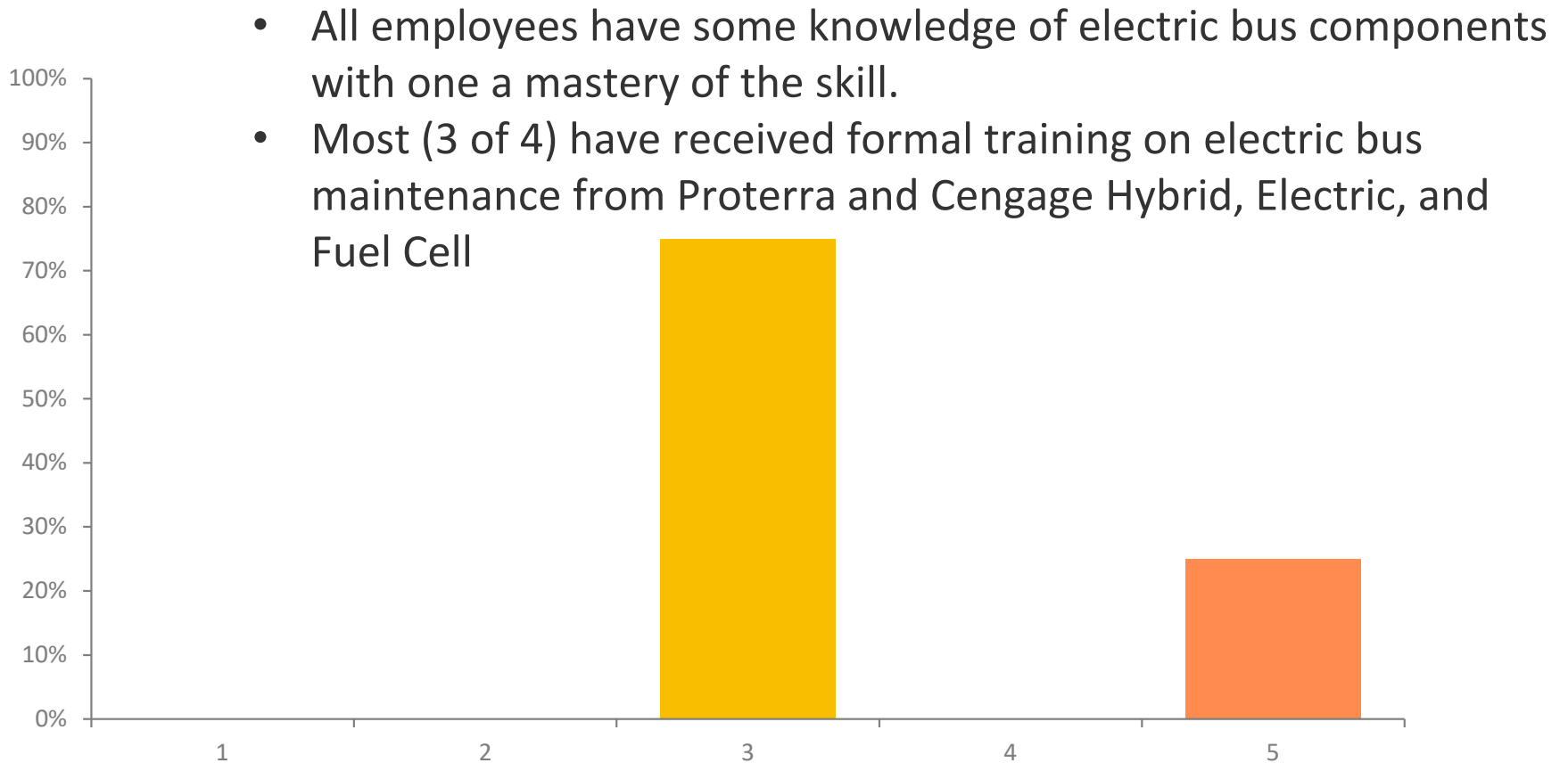
- While most (3 of 4 respondents) have some electric bus and charging training, many were with different manufacturers and in different styles of training. This provides an opportunity to standardize training for all team members in this area.
- There is also an opportunity to standardize training for all team members on troubleshooting vehicle systems, fleet management and maintenance software, and team-building skills.
- While team members are familiar with microgrid systems and their components, none have formal training. Microgrid training will be required.
- Three stated that more training is needed in charging, hybrid bus training, the shop fleet manager program, and layout, and one stated that it is needed in all areas mentioned in the survey.
- There were specific requests for 1) ongoing training in each team member's accountability areas, 2) more ASE-style training, and 3) gradual training over time rather than all at once. These requests highlight the need for continuous learning and development within the team.

Knowledge of diesel engine maintenance (1-5 scale: 1 = no knowledge and 5 = mastery of skill)



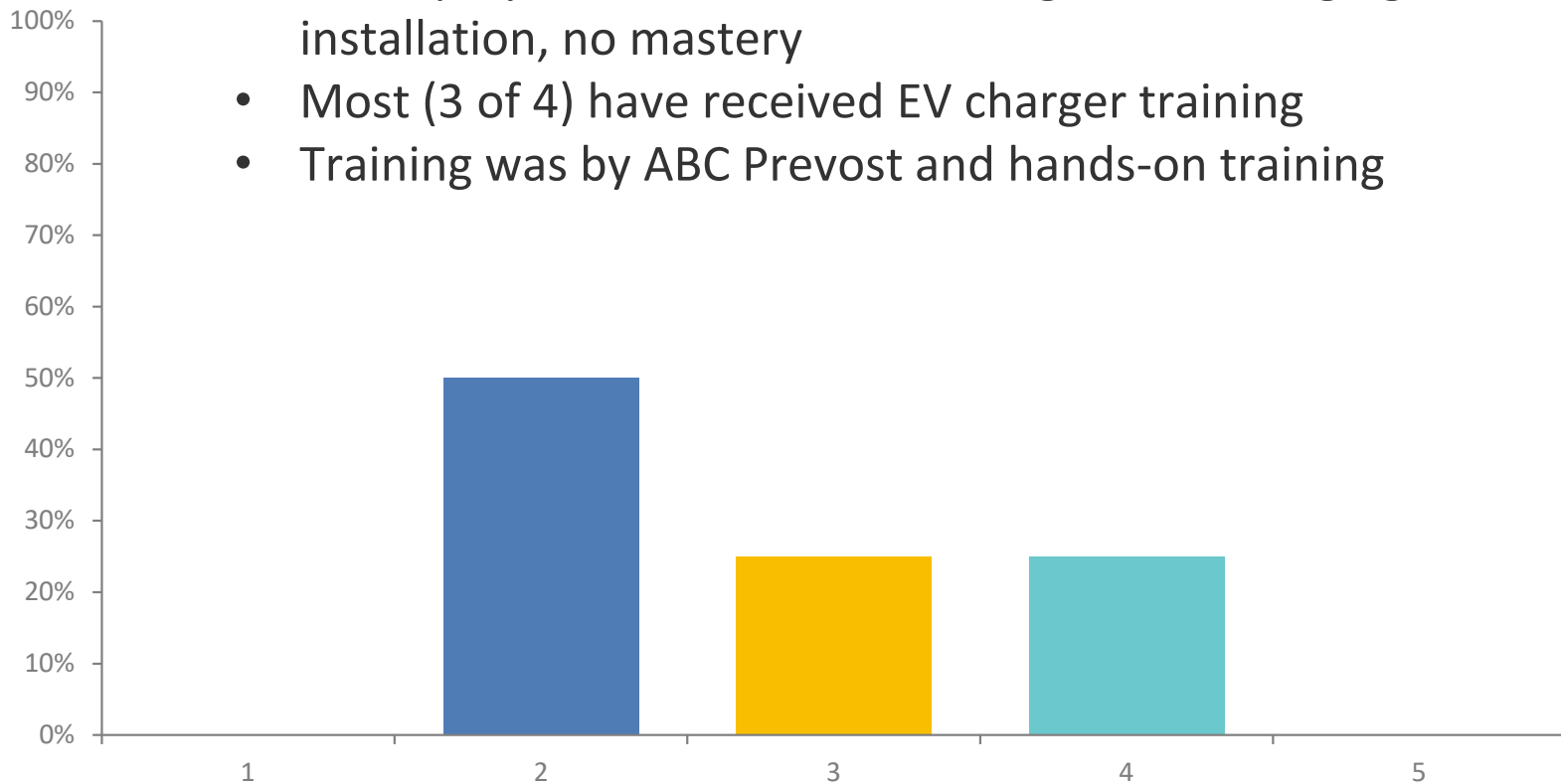
- All employees have significant knowledge of diesel engine maintenance, two have mastery of the skill
- This includes project management work, after-treatment, electrical diagnosis fuel systems, ABS, braking system, starting system, and charging system

Knowledge of electric bus components, like motors, batteries, and power electronics (1-5 scale: 1 = no knowledge and 5 = mastery of skill)



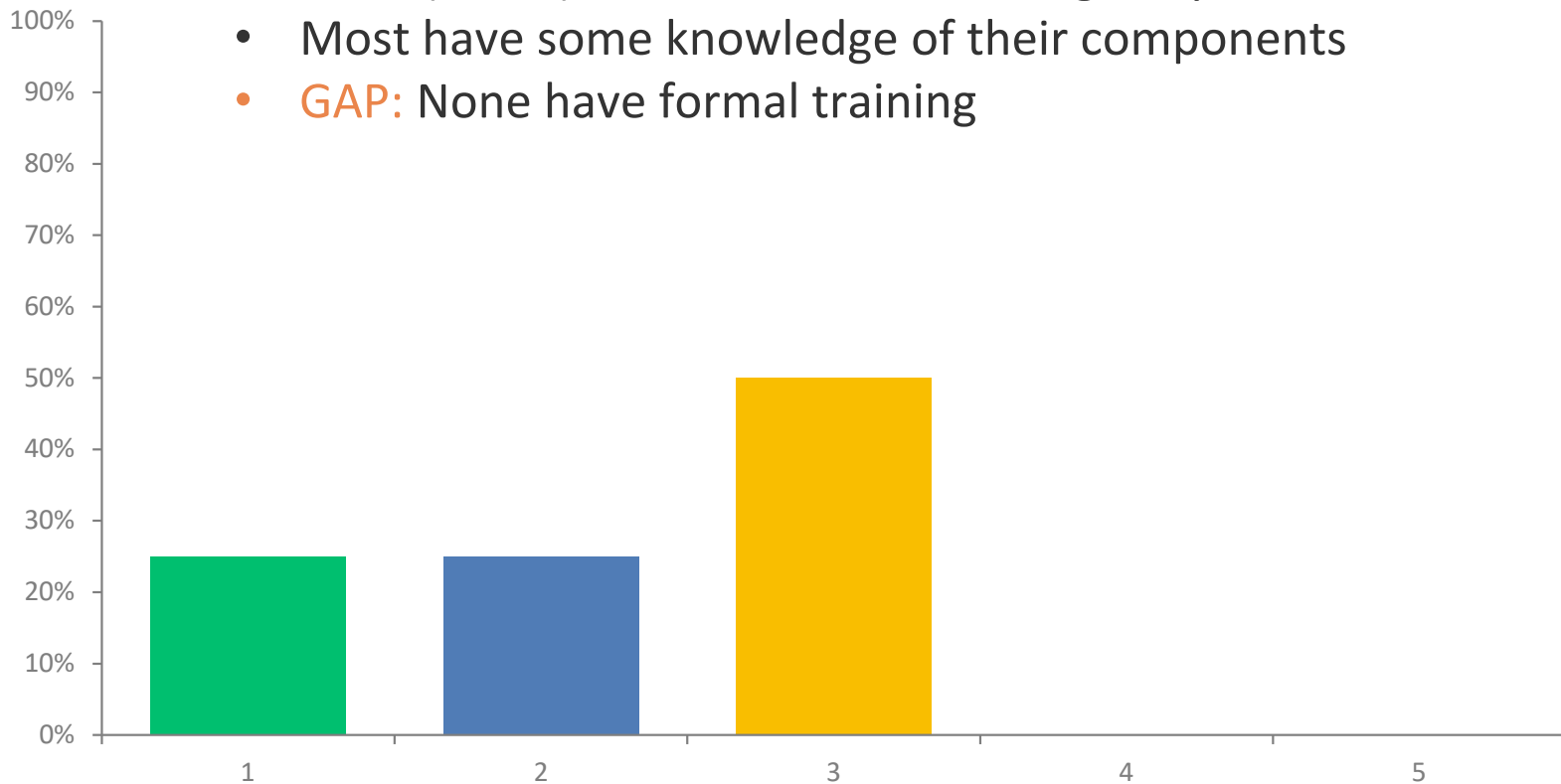
Knowledge of EV charging stations regarding installation and maintenance (1-5 scale: 1 = no knowledge and 5 = mastery of skill)

- All employees have some knowledge of EV charging and installation, no mastery
- Most (3 of 4) have received EV charger training
- Training was by ABC Prevost and hands-on training



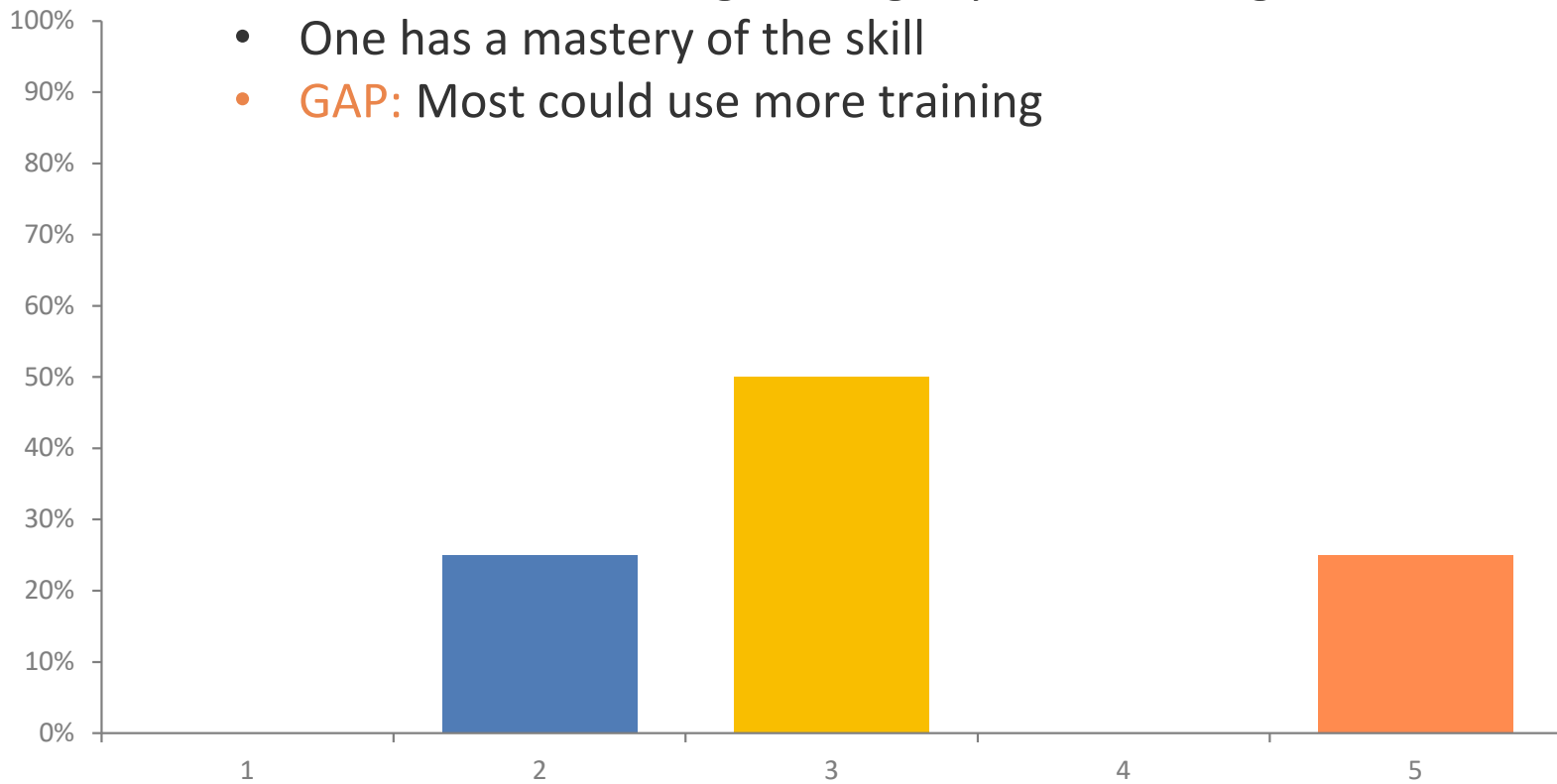
Knowledge of microgrid components (1-5 scale: 1 = no knowledge and 5 = mastery of skill)

- Most (3 of 4) are familiar with microgrid systems
- Most have some knowledge of their components
- **GAP:** None have formal training



Knowledge of high-voltage electrical systems (1-5 scale: 1 = no knowledge and 5 = mastery of skill)

- All have received high voltage system training
- One has a mastery of the skill
- **GAP:** Most could use more training



Comfortable using diagnostic tools and software?

Most (3 of 4) are comfortable

Experience with diagnosing and troubleshooting vehicle systems?

Most have some training. One has shadowed a technician and one has Proterra training. One has advanced diagnostics, feature and parameter programming, reflashing modules and component installation. **GAP:** With one team member having no training, there is an opportunity for training here.

Proficiency with maintenance management and software?

Most rated a 3 of 5, with one having a mastery. **GAP:** Opportunity for training.

Experience with fleet management and maintenance tracking software?

Most have training through Dossier, Proterra, Chargepoint and Cummings. One looked into Fullbay. **GAP:** Opportunity for training on same system.

Where do you feel you need more training?

Charging, hybrid bus training, shop fleet manager program and layout, and one said all areas. **GAP:** Opportunity for training in these areas. Special request for ongoing training in accountability areas, and more ASE-style training. Request to be training over time vs. all at once.

Recent learning or upskilling?

Reprogramming features and parameters on three hybrid units; deisel force EGR cleaning and diagnosis; fall protection

Preferred type of training?

All prefer hands-on training with the equipment or systems

Ability to adapt to new technologies?

75% ranked 4 of 4, with one 5 of 5.

Rate your ability to work in a team.

50% ranked 5 of 5 and 50% ranked 4 of 5. **GAP:** Opportunity for team building.

Leadership roles in maintenance?

100% have had leadership roles. Overhauling projects and production lines; evaluating and repairing of used buses; instruction on electrical diagnosis and programming; all maintenance projects.