



SFMTA



In-Motion Charging Trolley Update

Briefing – Engineering, Maintenance & Safety Committee,
Citizens' Advisory Council

August 27, 2025

In-Motion Charging



- Trolleys are an important part of the SFMTA's ZEV Program.
- In-Motion Charging (IMC) offers improved off-wire range and performance for trolleys.
 - Includes greater-capacity batteries and faster charging hardware.
- IMC technology has been successfully deployed at scale in Europe, and KCM is in the process of converting 150 buses to IMC.

IMC Pilot Program

- Two existing 40' and 60' trolley buses each converted to IMC.
- Pilot Goals:
 - Find replacement for obsolete battery packs
 - Evaluate IMC technology in SFMTA revenue service



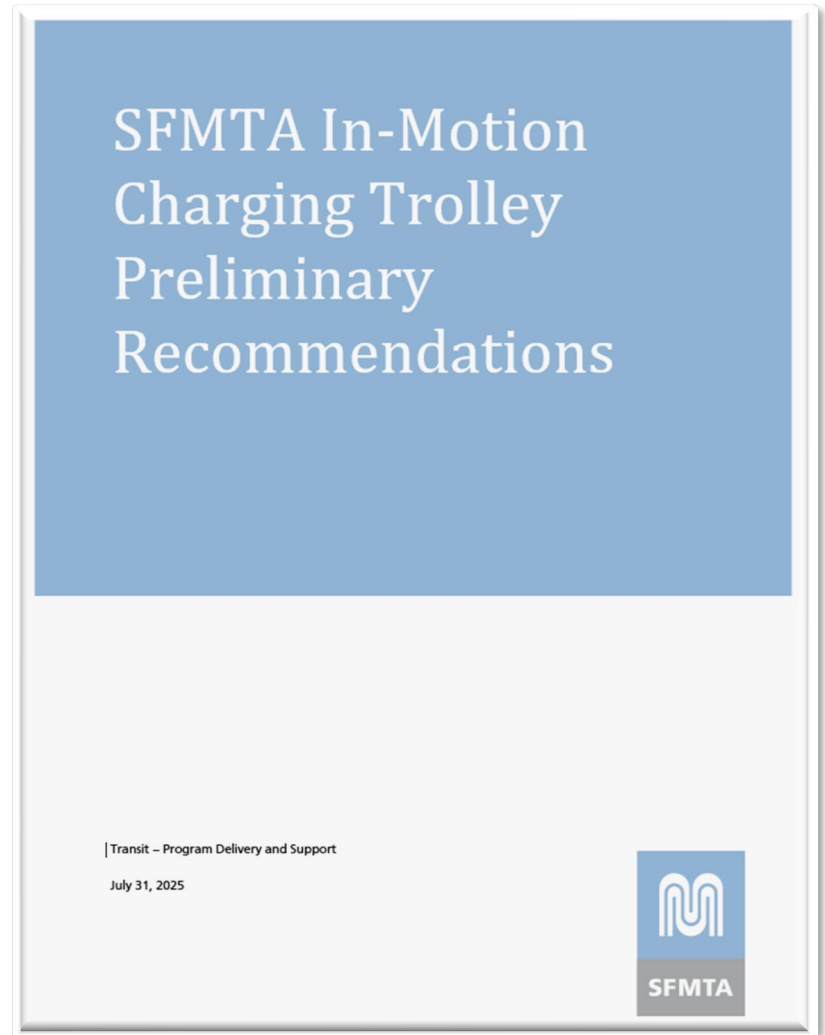
IMC Pilot – Initial Findings

- Off-wire range: 8 miles (40'), 4.5 miles (60')
- 40' buses have good gradeability, but 60' buses have limited peak power output.
- Pilot buses have problematic hardware and will require improvements before large-scale deployment.



IMC Pilot – Recommendations

- IMC Preliminary Recommendations report released in July 2025.
- IMC buses need time to mature before they can be deployed at large scale in SF.
- Convert existing 40' trolley buses to IMC buses during mid-life.
- Need to conduct further analysis before large scale IMC deployment.



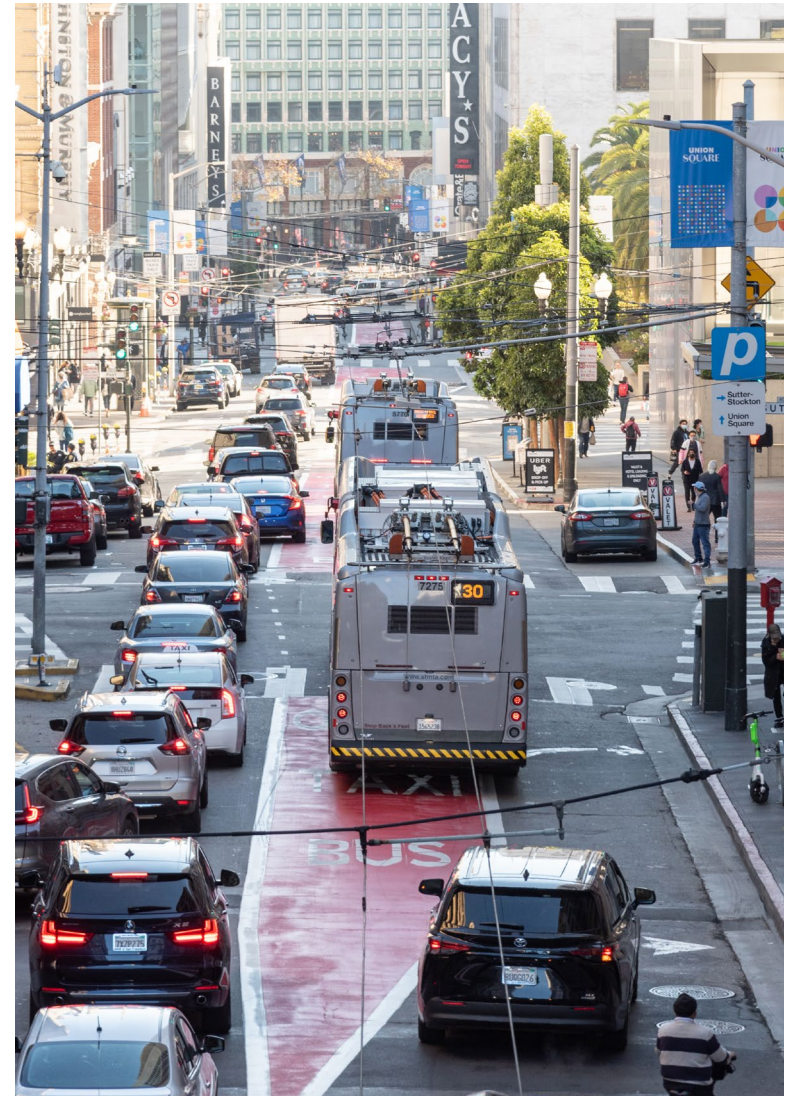
Considerations for Trolley Expansion

- Repair of existing infrastructure needs to be prioritized.
- Power analysis of existing infrastructure required for IMC fleet.
- IMC expansion will likely be expensive and met with public resistance.



Considerations for Trolley Expansion

- Need to focus on availability of trolleys; currently only one trolley manufacturer.
- Trolley propulsion components currently supplied by only one manufacturer in Germany.
- Other ZE technologies are readily available in North America.



Considerations for Trolley Expansion

- Trolleys are complicated to operate and maintain and cannot be operated on freeways.
- Automated depolling & repolling required to properly utilize IMC technology.
- SFMTA to determine which routes can be converted without additional overhead wire.

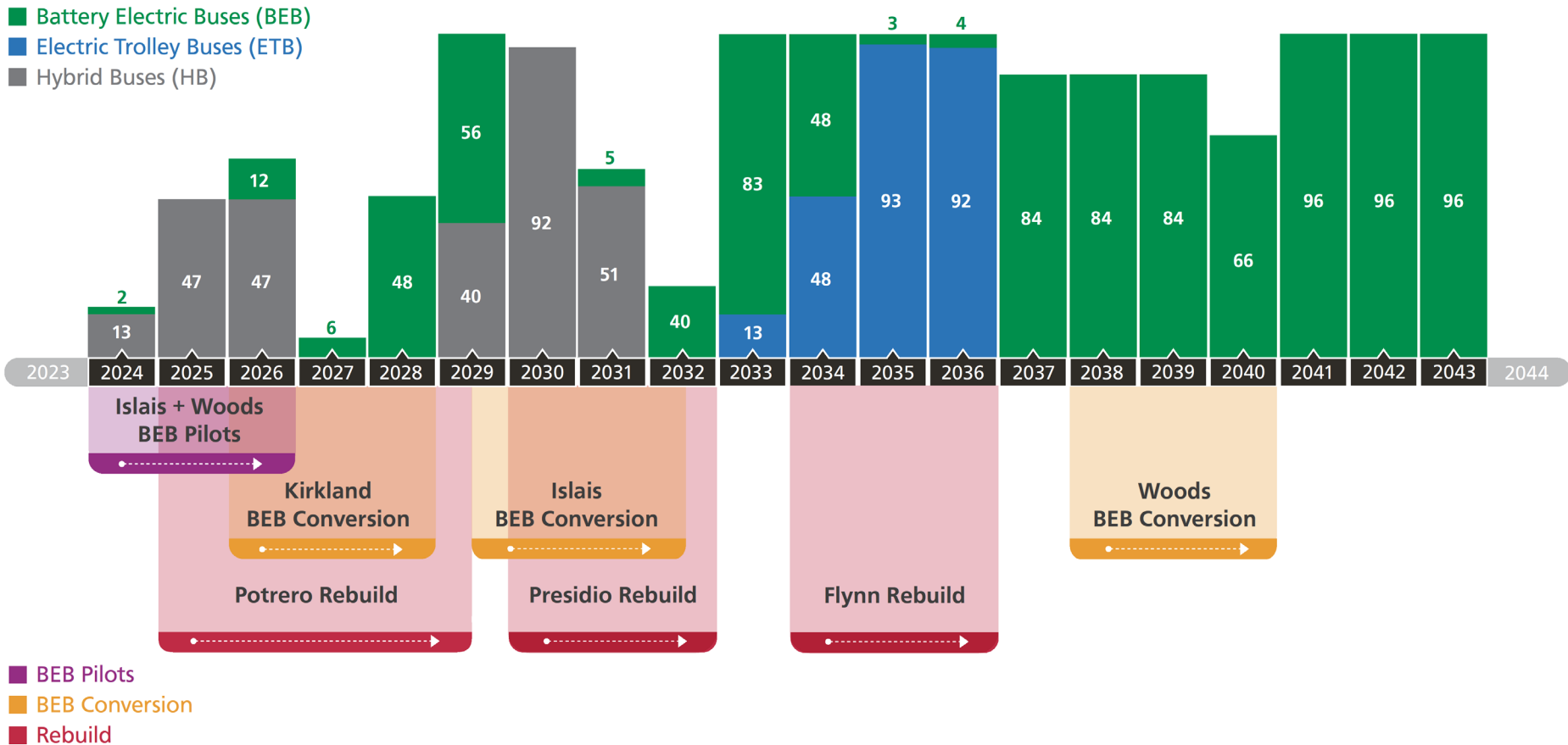


Next Steps for IMC Trolley Buses

- Partner with Solaris Bus to perform trolley pilot program.
- Perform load study to determine impact of IMC buses.
- Monitor King County Metro IMC pilot progress.
- Develop timeline and strategy for midlife overhaul and IMC conversion.
- Focus on reliable depolling/repolling solution.

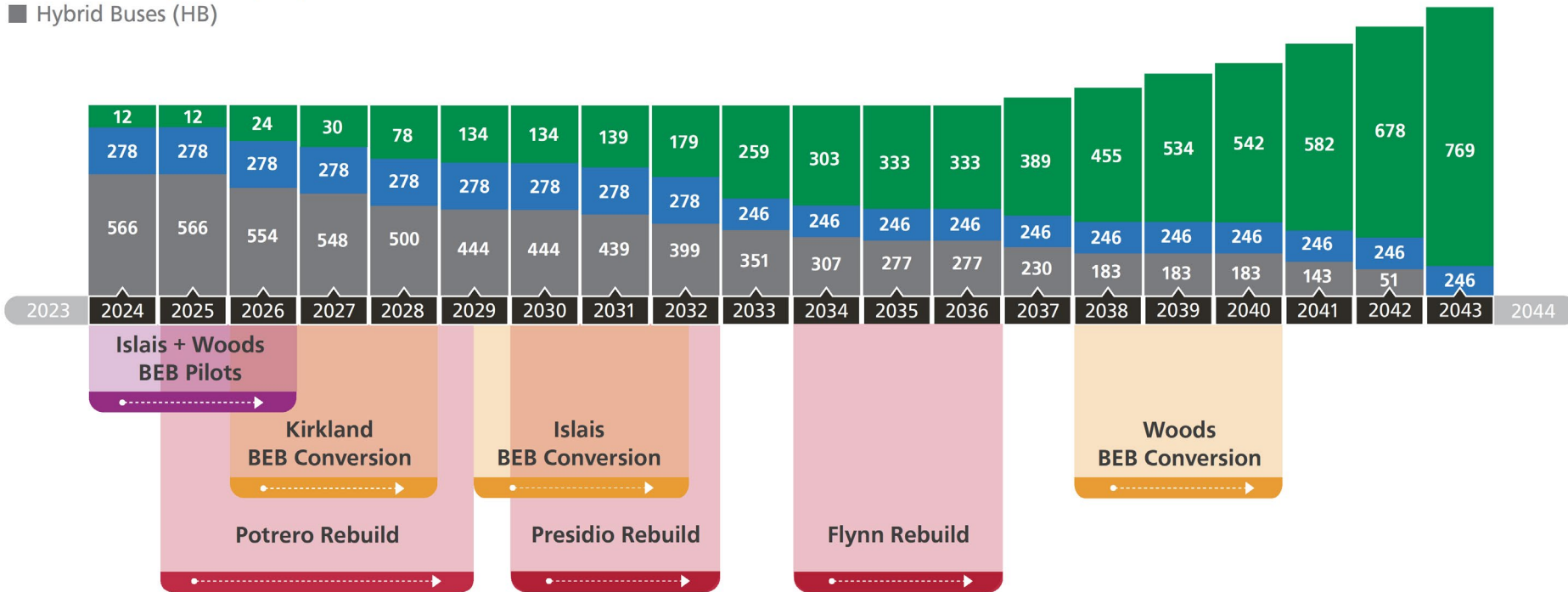


Hybrid and ZEV Procurements



Future Fleet Composition

- Battery Electric Buses (BEB)
- Electric Trolley Buses (ETB)
- Hybrid Buses (HB)



- BEB Pilots
- BEB Conversion
- Rebuild

A blue-tinted photograph of a San Bruno Rapid bus at a station. The bus is white with a red stripe and has the number 8801 on its front. The destination sign above the windshield reads "9R SAN BRUNO RAPID Downtown". A person with a backpack is boarding the bus, while others are walking on the sidewalk. The license plate is 169 055. The text "Thank you" is overlaid in the center of the image.

Thank you