



SFMTA



Zero Emission Transition Plan

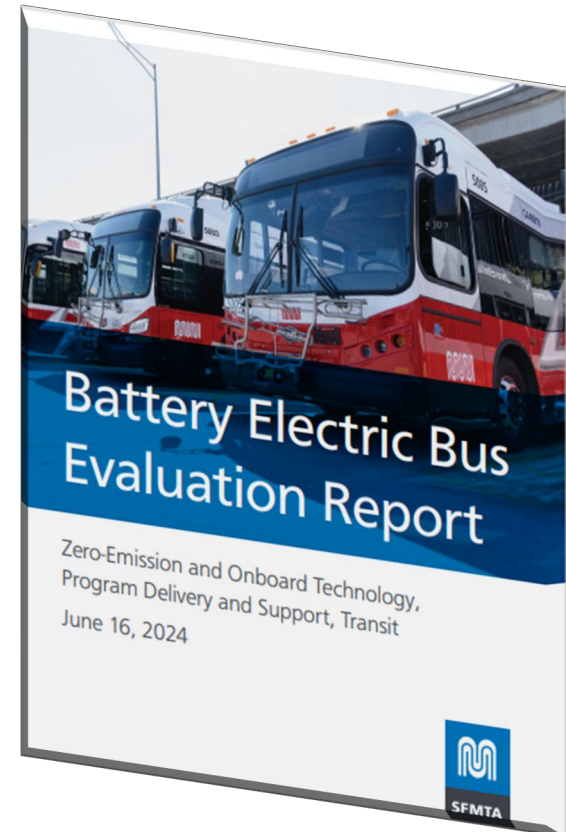
Briefing – SFCTA Community Advisory Committee

February 26, 2025

Item 7

Pilot Evaluation Results

- The SFMTA should seek to procure buses from multiple manufacturers.
- New Flyer and Gillig are currently the only viable US manufacturers for the SFMTA's future battery-electric bus (BEB) procurements.
- Solaris, the largest zero-emission bus manufacturer in Europe, is planning to establish a presence in the US market.



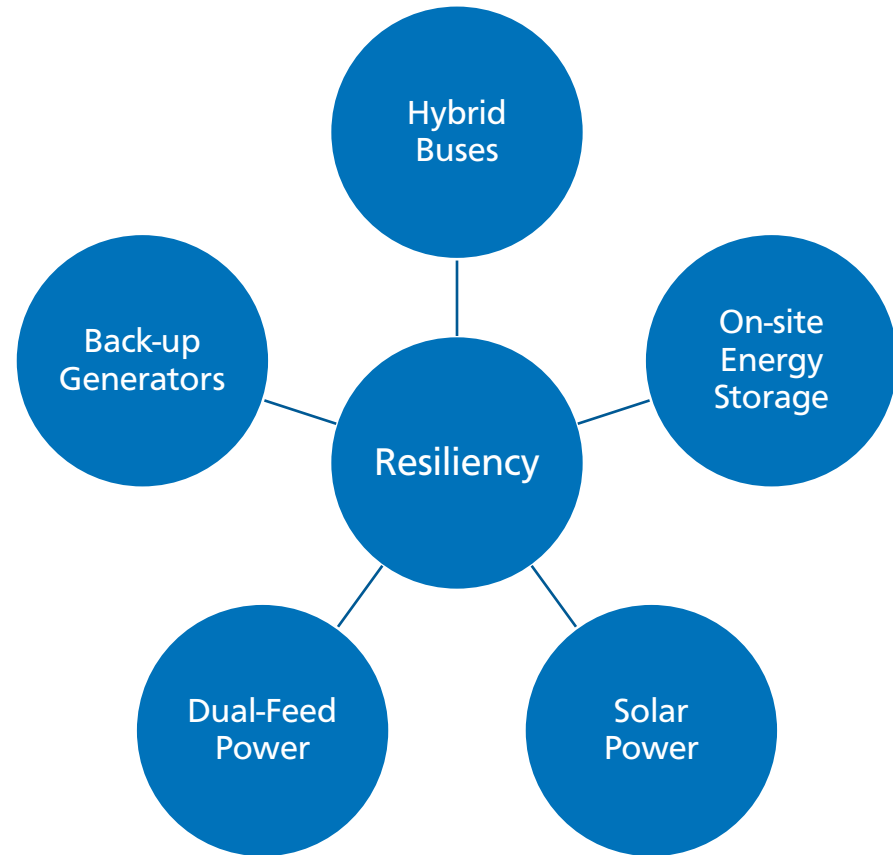
Lessons Learned

BEBs and Resiliency

- Role of BEBs in a natural disaster are unknown.
- Microgrids, dual-feed power, and back-up generators may be key to resiliency in future.

Procurement Strategy

- Procure buses from multiple manufacturers.
- Work with industry to mitigate risk and uncertainty.



Lessons Learned - Workforce

Training & Workforce Readiness

- Minimal training needed to transition staff
- Expanded workforce for infrastructure maintenance

Labor Task	Union
BEB Maintenance	Local 1414
Trolley Maintenance	IBEW Local 6
Overhead & Charging Infrastructure	IBEW Local 6
Electronic Component Repair	IBEW Local 6



Lessons Learned - Technology

On-board Battery Capacity

- Analysis of pilot vehicles shows we can reduce battery capacity in future procurements.

Preferred ZE Technology for Hybrid Replacement

- BEBs are similar in design, operation, training, and versatility.



Upcoming Procurements

- The SFMTA is seeking approval for the following procurement:
 - **4 40-ft and 3 60-ft BEBs from New Flyer**
- By the end of Q1 2025, the SFMTA will also seek approval for the following procurements:
 - 5 40-ft BEBs from Gillig
 - 3 40-ft and 3 60-ft BEBs from Solaris



Trolley Bus Future



- Trolleys are an important part of the SFMTA's ZEV Program.
- In Motion Charging trolleys are promising, Pilot in progress
- The SFMTA will continue to procure trolley buses.
 - Formed a consortium of North American trolley bus operators.
 - Partnering with Solaris, leading OEM of trolleys in Europe.

IMC Program Update

- Two existing 40' and 60' trolley buses each converted to IMC
- Pilot Goals: Test validate upgraded Battery Pack
- Existing Battery manufacturer is Obsolete
- Only one manufacturer in NA, technical support and part supply is out of Germany.



IMC Program Update – Cont.

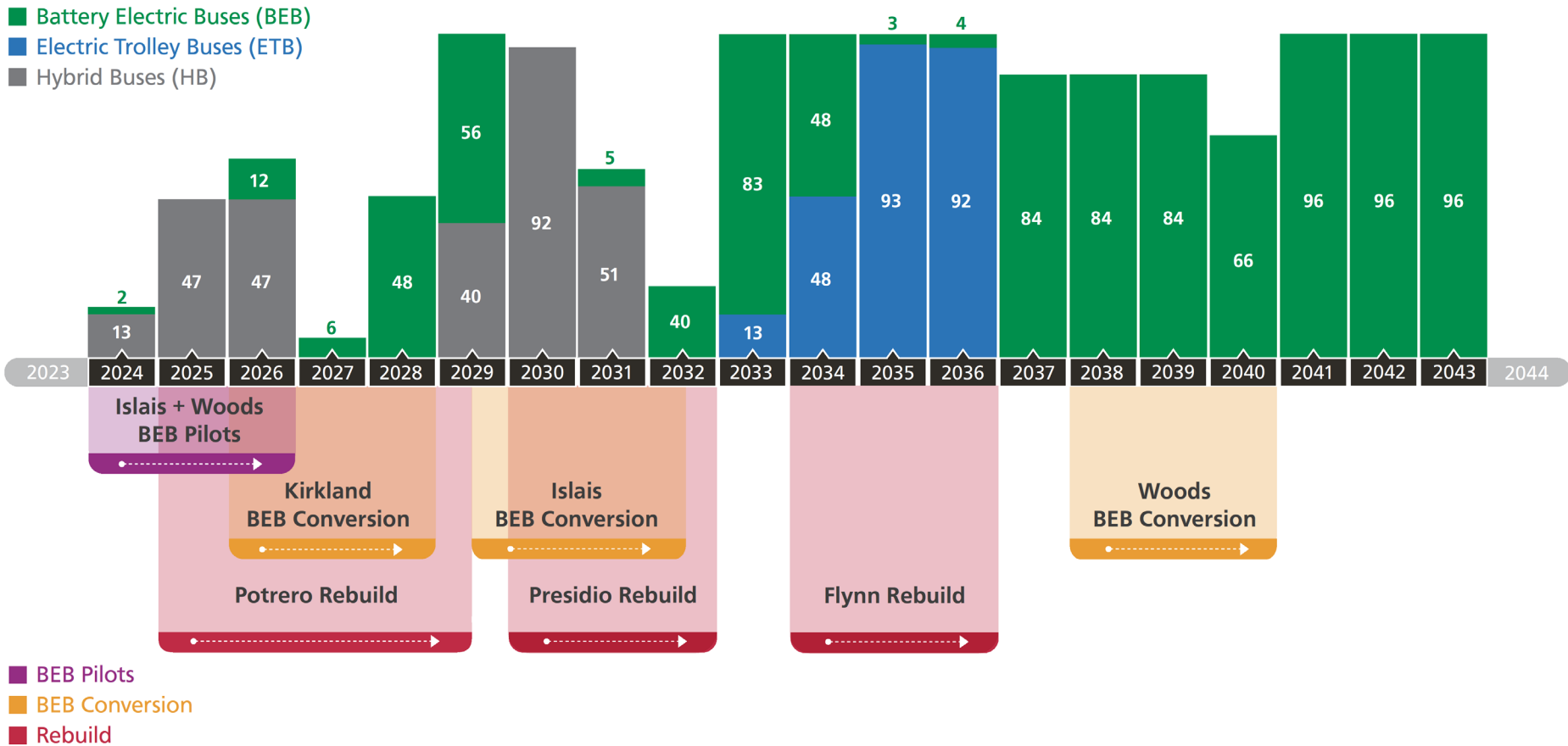
- IMC buses need more time to mature before they can be deployed at large scale in SF's operating environment
- IMC Preliminary Recommendations report in progress.
- Convert existing Trolley buses to IMC buses during mid-life.
- Need to conduct further analysis before large scale IMC deployment.



Considerations for Trolley Expansion

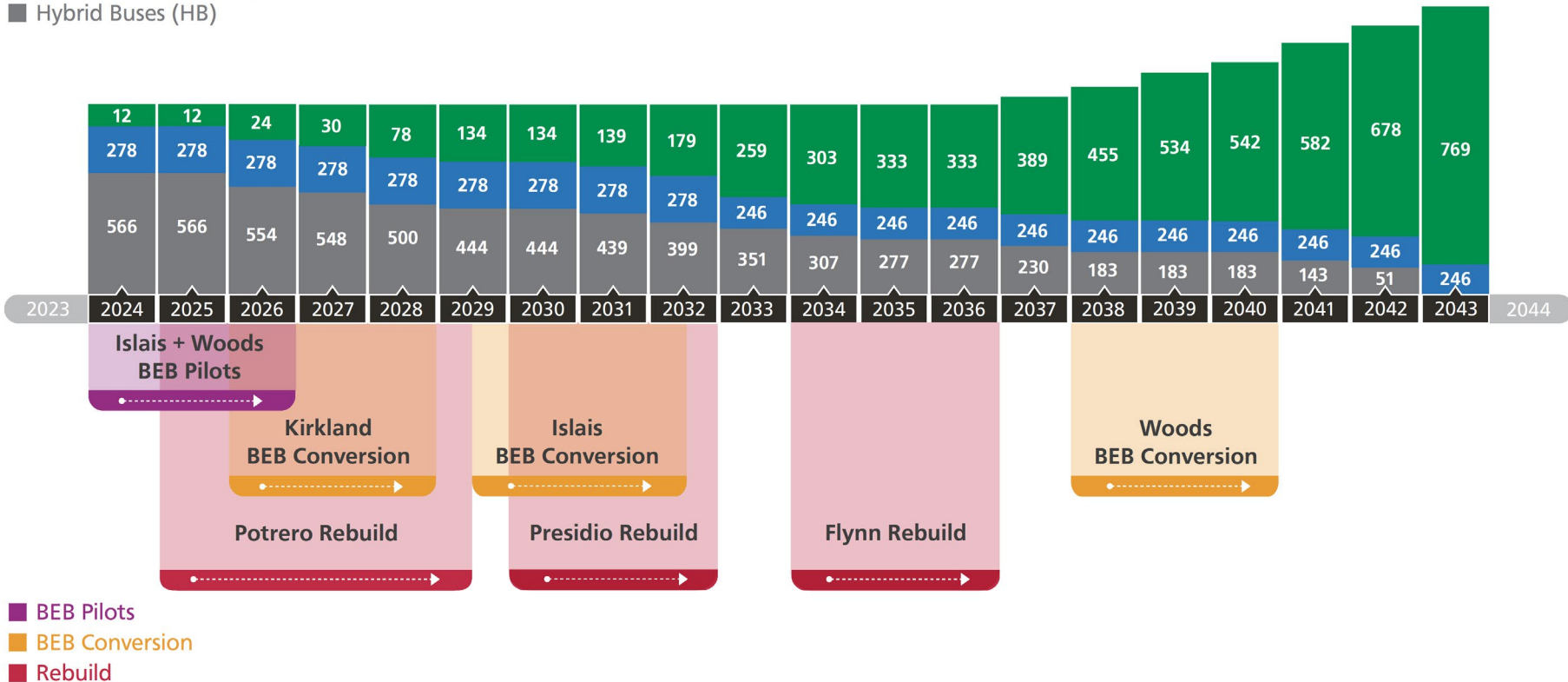
- May be able to run IMC trolley buses on routes with partial overhead coverage
 - Further detailed analysis is required to understand the impact on the overhead wire infrastructure and existing substations
- Focus on ensuring availability of trolleys in North America market
- State of good repair needs for trolley network should be prioritized over expansion
- Massive build-out of trolley network would be costly and be met with public resistance
- Still working on reliable and quick process for reconnecting with overhead wires after off-wire segments

Hybrid and ZEV Procurements



Future Fleet Composition

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





Thank you