WETA
WATER EMERGENCY
TRANSPORTATION AUTHORITY

Presentations for Sept. 12, 2023 Board of Directors Meeting

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Item 5e: Monthly Operations, Ridership & Recovery Report

FERRY SYSTEM PERFORMANCE ANALYSIS

September 12,
2023

San Francisco Bay Ferry
A SERVICE OF WETA

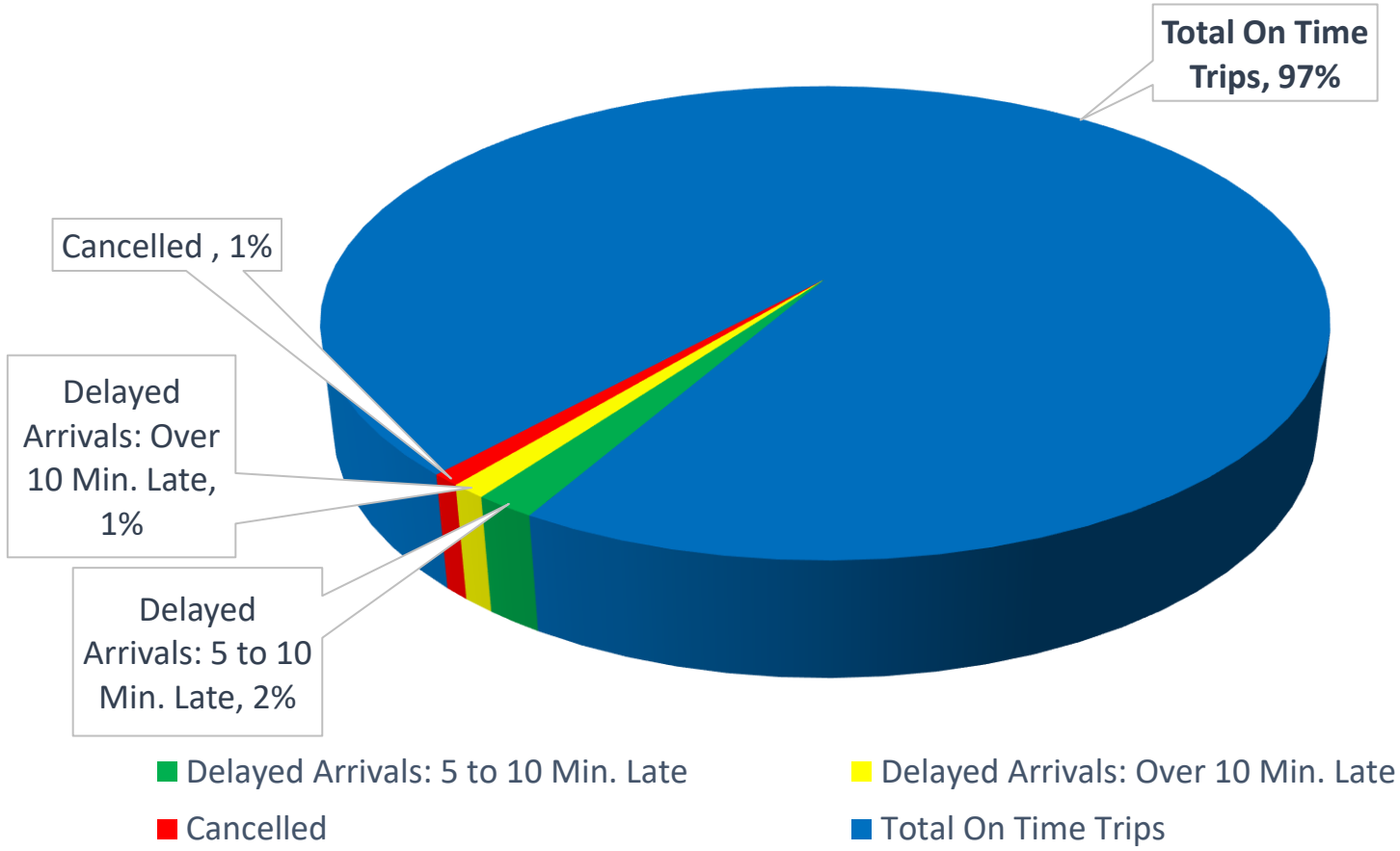
BACKGROUND & OBJECTIVES:

- The Operations Division developed an Excel-based tool to track ferry on-time performance and service reliability.
- Tool utilizes daily vessel arrival and departure data generated by Swiftly, WETA's real-time vessel tracking system.
- Performance tool will allow WETA to:
  - Enhance ability to monitor and analyze on-time performance and reliability over time and in-depth by route, vessel, date, and other parameters.
  - Identify opportunities for further improvements
  - Monitor how performance compares to other major public ferry operators nationally and other regional transit operators

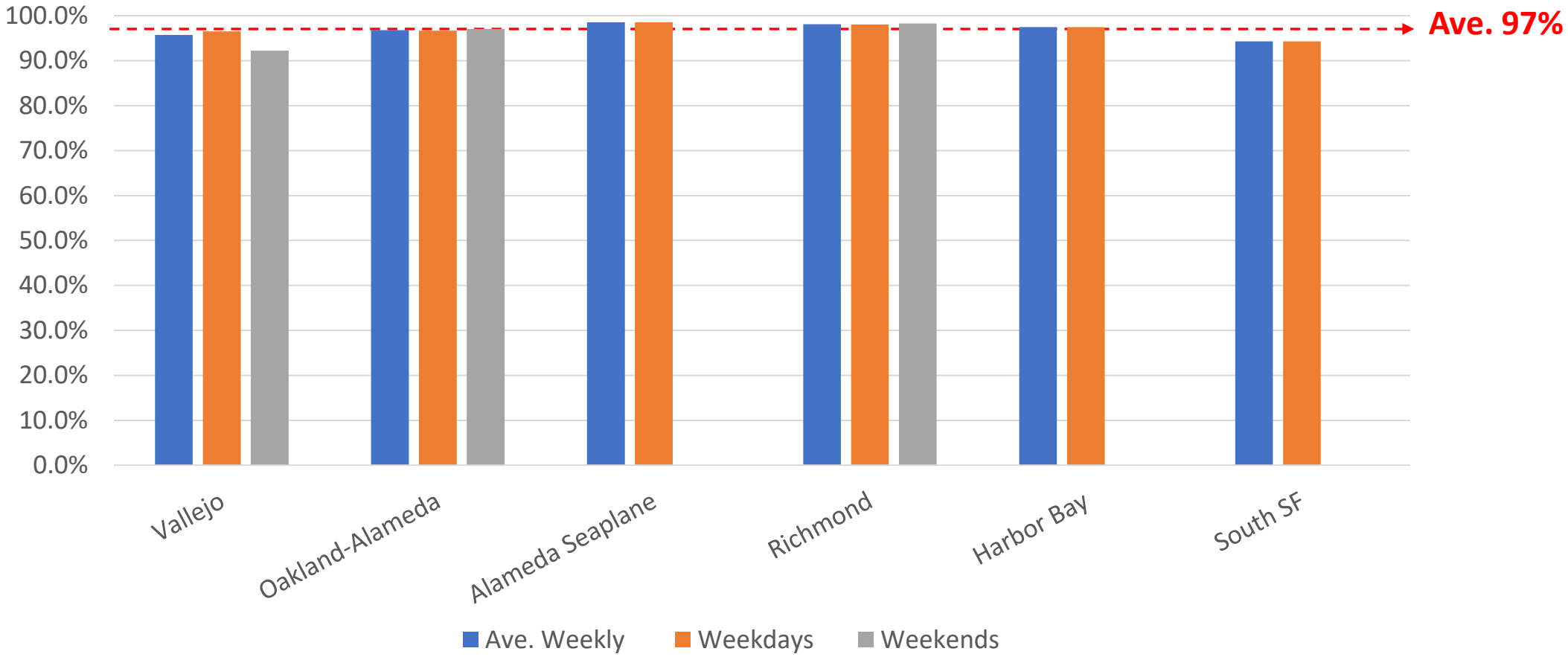
KEY PERFORMANCE METRICS:

- On-Time Performance: The percentage of total trips that arrived early, on-time, or less than five minutes after the scheduled arrival time.
- Service Reliability: The percentage of scheduled trips that were operated, after adjusting for trips cancelled.
- Late Trip: Any trip that arrives five minutes or more past the scheduled arrival time.
- Comparison to other Ferry Operations
  - Golden Gate Ferry
  - Washington State Ferries
  - Kitsap Transit
  - Staten Island Ferry
  - NYC Ferry
  - Massachusetts Bay Transportation Authority (MBTA) Ferry

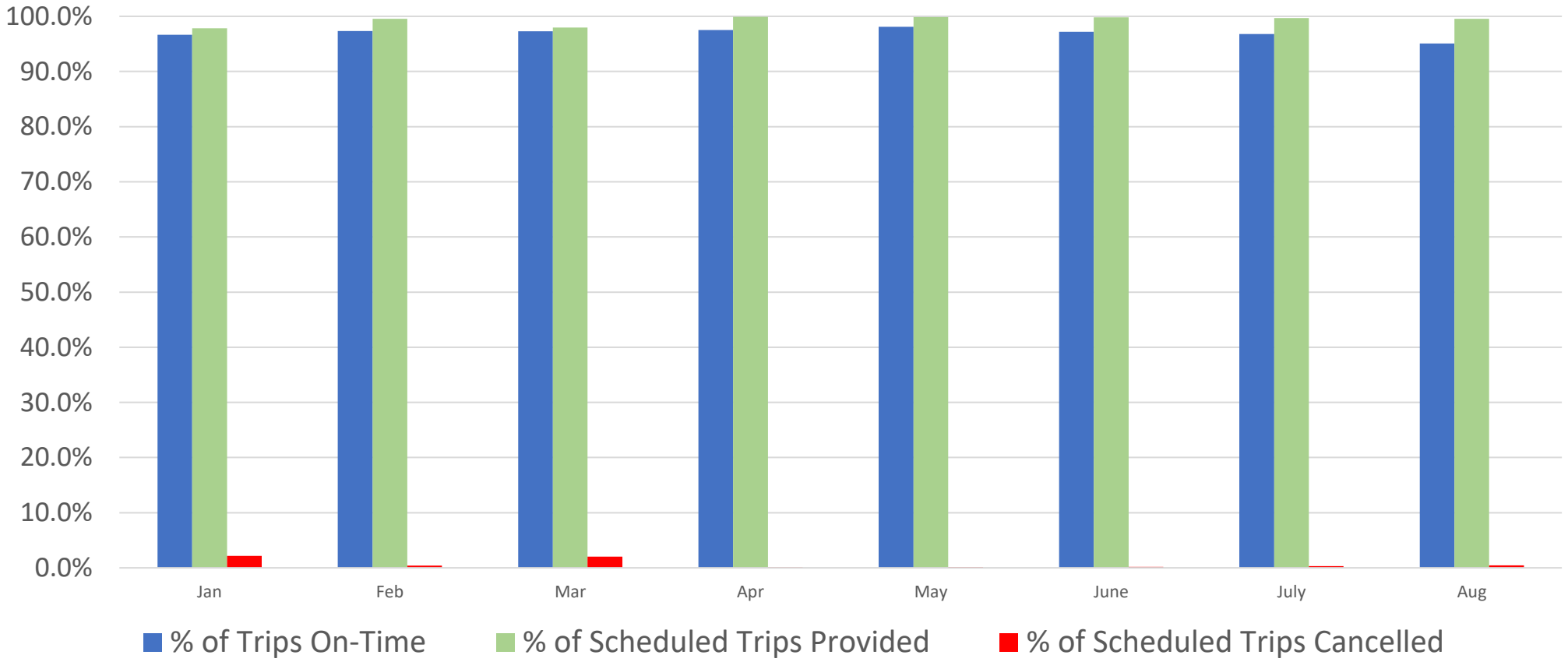
ON-TIME VS. DELAYED & CANCELLED TRIPS: YTD JAN. – AUG. 2023



% OF TOTAL TRIPS ON-TIME BY ROUTE, WEEKDAYS VS. WEEKENDS



% OF TOTAL TRIPS ON-TIME, PROVIDED & CANCELLED BY MONTH



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ON-TIME PERFORMANCE & RELIABILITY BY MONTH (JAN.-AUG. 2023)

	% of Trips On-Time	% of Scheduled Trips Provided	% of Scheduled Trips Cancelled
January	96.7%	97.9%	2.1%
February	97.3%	99.6%	0.4%
March	97.3%	98.0%	2.0%
April	97.5%	99.9%	0.1%
May	98.1%	99.9%	0.1%
June	97.2%	99.8%	0.2%
July	96.8%	99.7%	0.3%
August	95.1%	99.6%	0.4%
Average (YTD)	**97.0%**	**99.3%**	**0.7%**

WETA ON-TIME PERFORMANCE & RELIABILITY VS. OTHER OPERATORS (2023 YTD)

	% of Trips On-Time	% of Scheduled Trips Provided
Golden Gate Ferry	96.6%	98.9%
WA State Ferries	83.7%	97.9%
Kitsap Transit Ferry	98.2%	98.5%
MBTA Ferry	99.2%	99.4%
NYC Ferry	83.3%	97.4%
Staten Island Ferry	94.3%	99.4%
Ave. for All Comps	**92.6%**	**98.6%**
WETA	**97.3%**	**99.2%**
BART	68.8%	n/a
MUNI	83.3%	n/a
AC Transit	74.0%	n/a

SUMMARY OF FINDINGS:

- WETA's on-time performance and service reliability remains consistently high from month-to-month in 2023 (Jan.-Aug.).
- Year-to-date on-time performance averaged **97% systemwide.**
- Year-to-date service reliability averaged **99% systemwide**, with **less than 1% of total trips cancelled.**
- On-time performance is generally consistent for weekends and weekdays, and across routes, with minor variations from month-to-month.
- WETA has similar, if not higher, levels of on-time performance and reliability compared to other public ferry operators analyzed. WETA's year-to-date on-time performance averaged 97% compared to 93% for other selected public ferry operators. WETA reliability averaged 99%, similar to other operators.

COMMON SERVICE DISRUPTION CAUSES & RESPONSES:

- Mechanical & electrical issues
  - B&G Response: dispatch immediately attempts to locate and assign a backup vessel and crew to maintain service on impacted trips
- Crew member calls-in sick at last minute
  - B&G Response: dispatch immediately calls staff crew for coverage
- Crew member injury or illness on job
  - B&G Response: dispatch will arrange a replacement for the crew member. In severe cases, vessel may need to standby for arrival of paramedics

COMMON SERVICE DISRUPTION CAUSES & RESPONSES:

- **Weather**
  - B&G Response: depends on conditions, safety is the priority
- **Domino effect:** initial service disruption can create additional service disruptions down the line
- **Communication window:** creating solutions inherently takes time as different individuals work together to solve problem

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Item 7: Fleet Electrification & Systems Integrator Services

WETA ZET Transition

Electrical System Integrator Selection

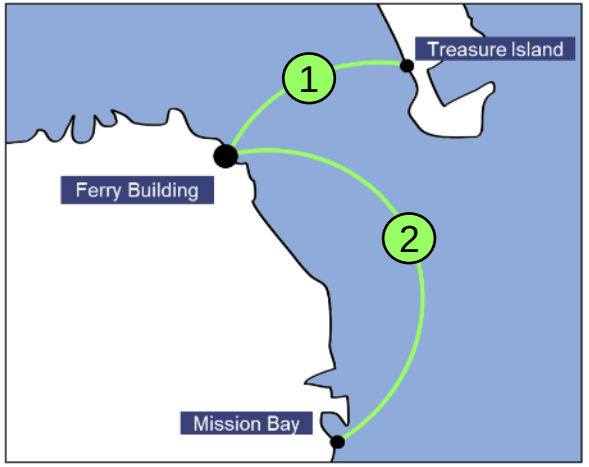
WETA

Agenda

- Project Recap
- Electrical Integrator Summary
- Selecting an Integrator
- Next Steps

WETA Long Term Electrification Overview

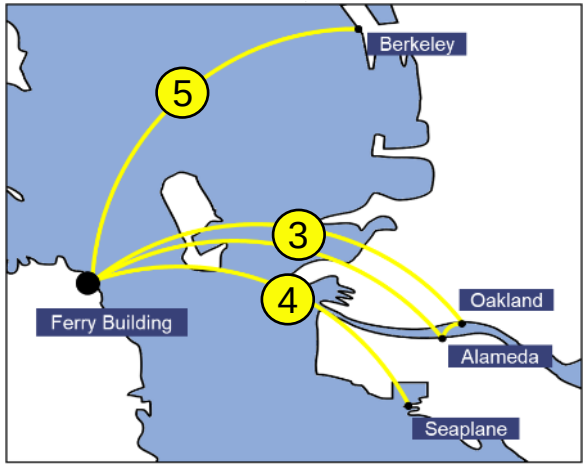
Phase 1 - Inner Central Bay



1 Treasure Island

2 Mission Bay

Phase 2 – Central Bay

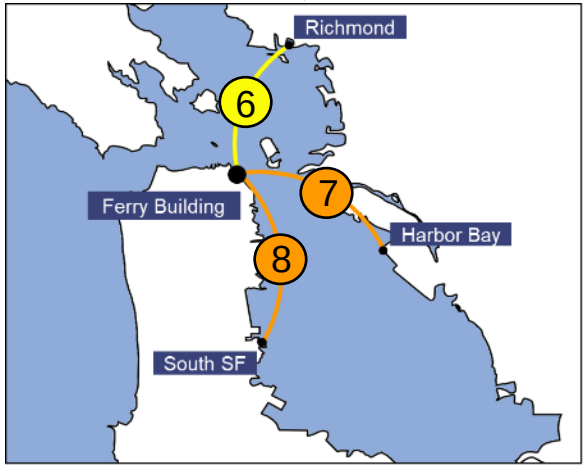


3 Oakland/Alameda

4 Seaplane

5 Berkeley

Phase 3 – Long Run Central Bay

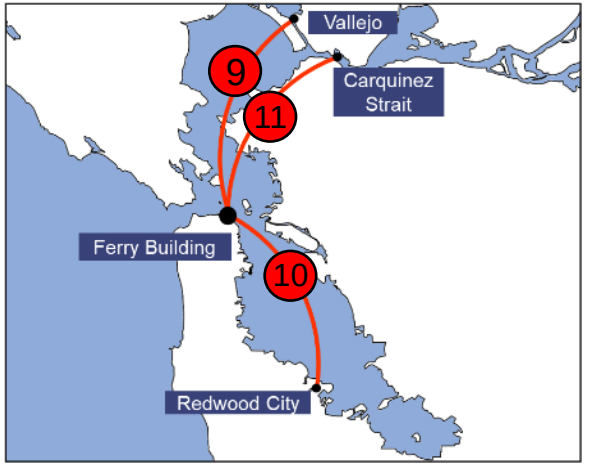


6 Richmond

7 Harbor Bay

8 South SF

Phase 4 – Long Runs



9 Vallejo

10 Redwood City

11 Carquinez

Feasible with Current Vessel Technology

Feasible with Current Vessel Technology - Operational Changes Required

Feasible with Current Vessel Technology - Significant Operational Changes Required

Not Currently Feasible – TBD Future Technology Required

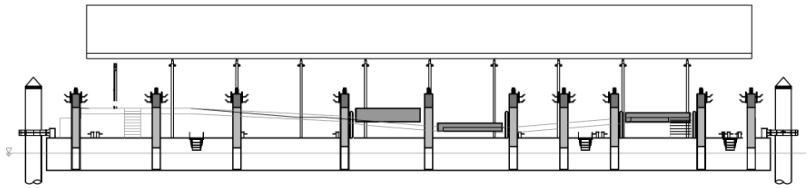
WETA Long Term Electrification Overview

"Transition ferry operations on San Francisco Bay to zero-emission vessels"

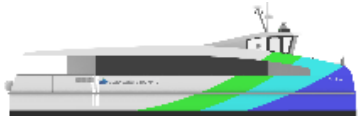
Phases 1-3 will require:

6 x NEW & Converted Large Vessels

10 x NEW & Converted Medium Vessels



12 x NEW & Converted Charging Floats



5 x NEW Small Vessels

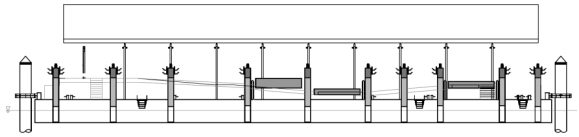
Initial Phase 1&2 Projects

2 x NEW Large Vessels

Target Services: Alameda Seaplane and Oakland

3 x NEW Small Vessels

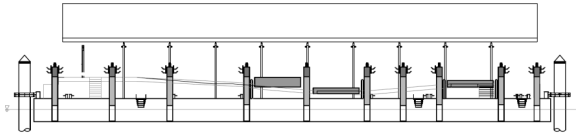
Target Services: Treasure Island & Mission Bay



1 x NEW Universal Charging Float

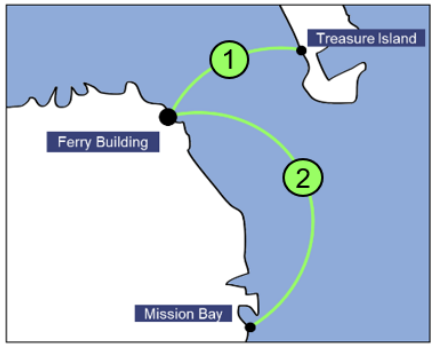
First downtown charging float

Designed to be future standard float configuration



1 x CONVERTED Treasure Island Charging Float

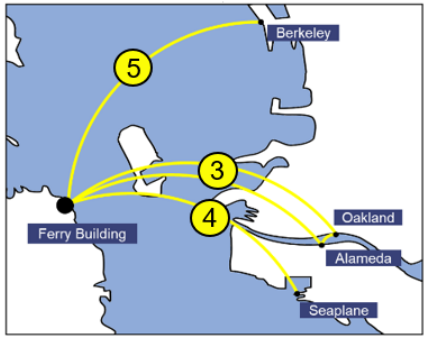
Phase 1 - Inner Central Bay



1 Treasure Island

2 Mission Bay

Phase 2 – Central Bay



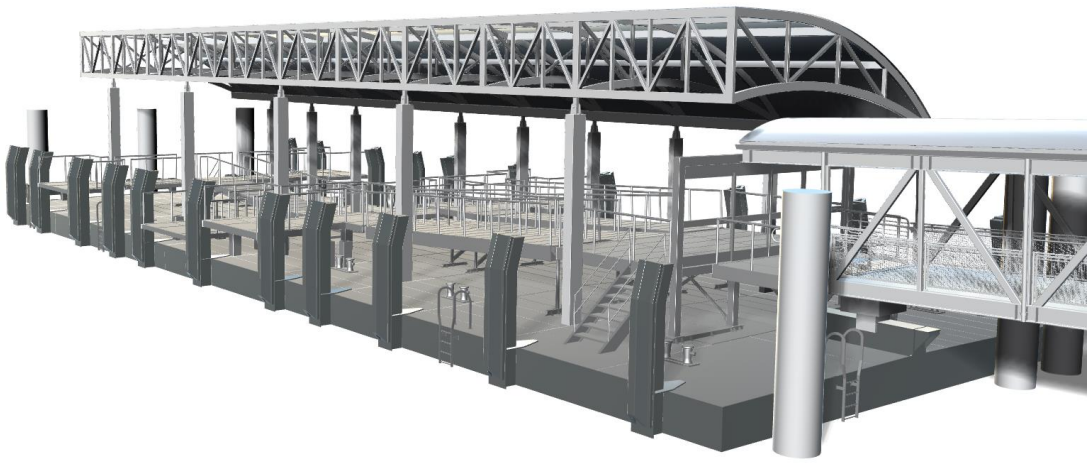
3 Oakland/Alameda

4 Seaplane

5 Berkeley

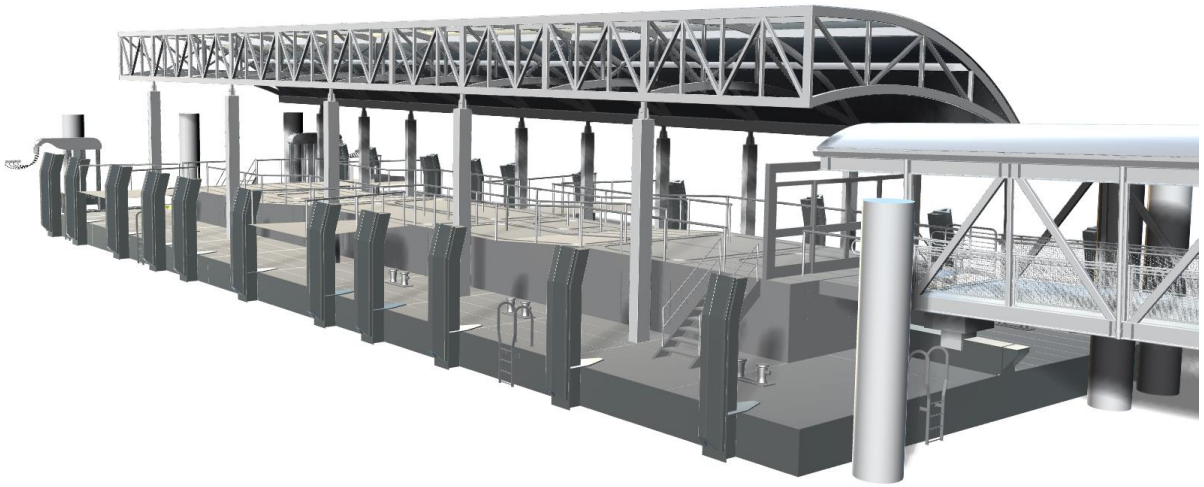
Universal Charging Float

Historically a Mooring and Embarkation Structure



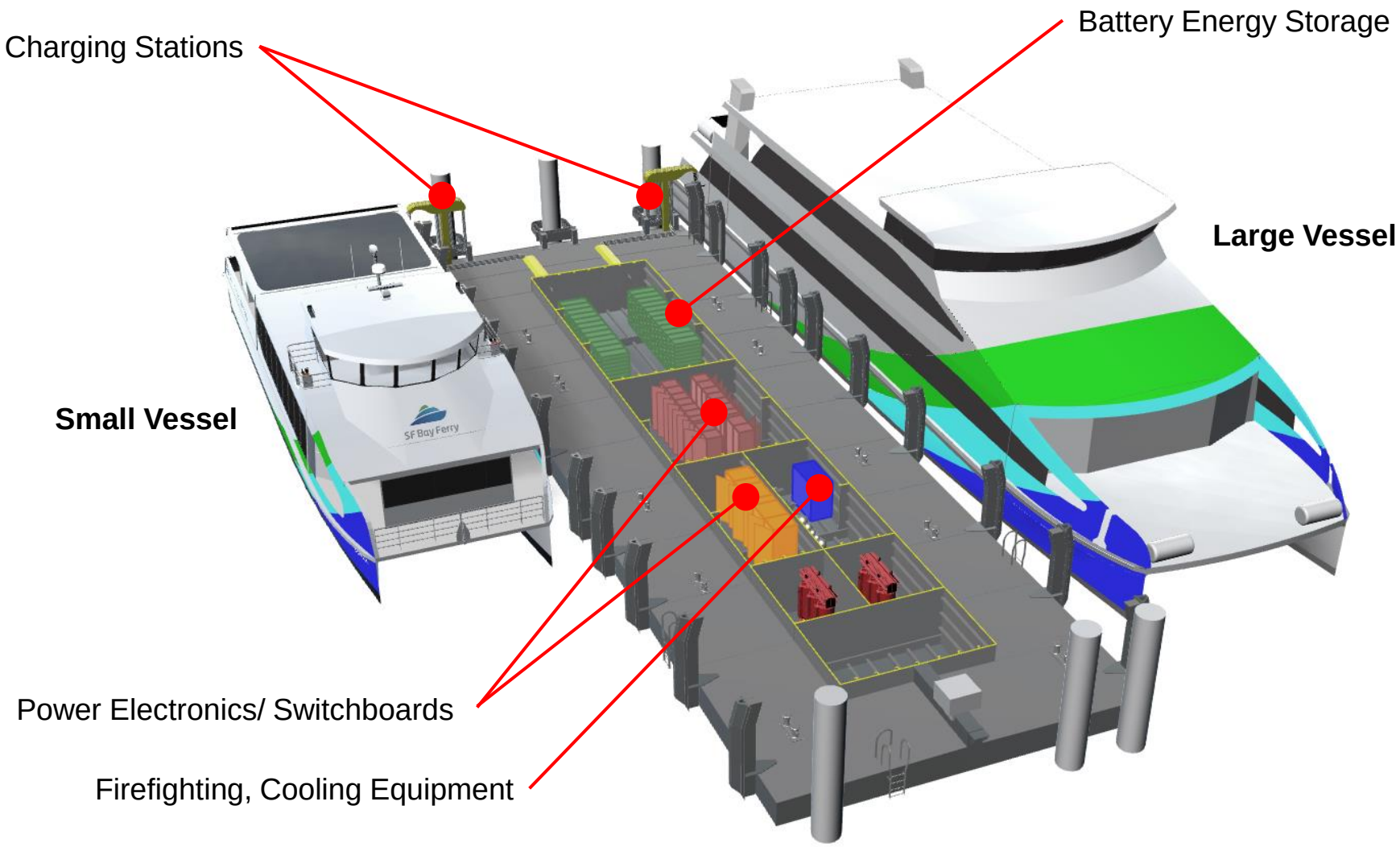
Existing Float

Now the Hub of the Electric Ferry System



New Float

Universal Charging Float



Why do we need an Electrical Integrator?

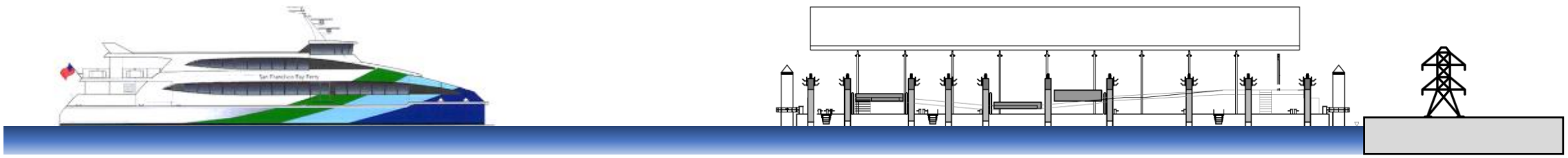
Why we need an Electrical System Integrator

- **New technology** – these systems are not yet standardized
- Electrical Integration at this level is **beyond the scope of expertise** of Naval Architects and Marine Engineering firms
- Subject Matter Expert level **Risk Mitigation**
- Systemwide **standardization** and **modularity** are critical to the success of the project
- Plan to embrace **future technologies**

What does the Electrical Integrator do?

Electrical System Integrator Tasks

- Responsible for specifying the vessel charging and electrical propulsion system
- Selects appropriate components (batteries, motors, power electronics)
- Ensures complete compatibility of the components
- Ensures the vessels and floats are constructed accordingly



Electrical System Integrator Tasks

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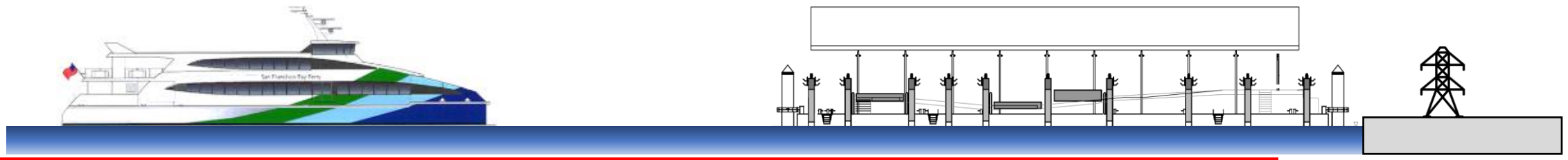


Selecting an Integrator

Key Criteria

Experience – Similar Projects

Agnostic Approach – Leverage the best available tech for each component (current and future)

Sufficient Resources – Financial and Staffing

Regulatory Experience – USCG / DNV and safety

Small Vessel Specific - understanding the space / weigh constraints of smaller vessels

Selection - Wartsila

Standout Proposal & Relevant Experience

Emphasis on **modularity** in approach

Emphasis on **understanding WETA's system-wide long-term goals** for charging hubs, vessels

Proven track record with 100% Electric Fast Ferry propulsion

Proven track record with high powered DC, manual fast charging

Proven track record with battery-assisted charging systems

Wartsila Parent Vessel

Operator: **Kolumbus (Norway)**

Electrical System Integrator: **Wartsila**

Passengers: **150**

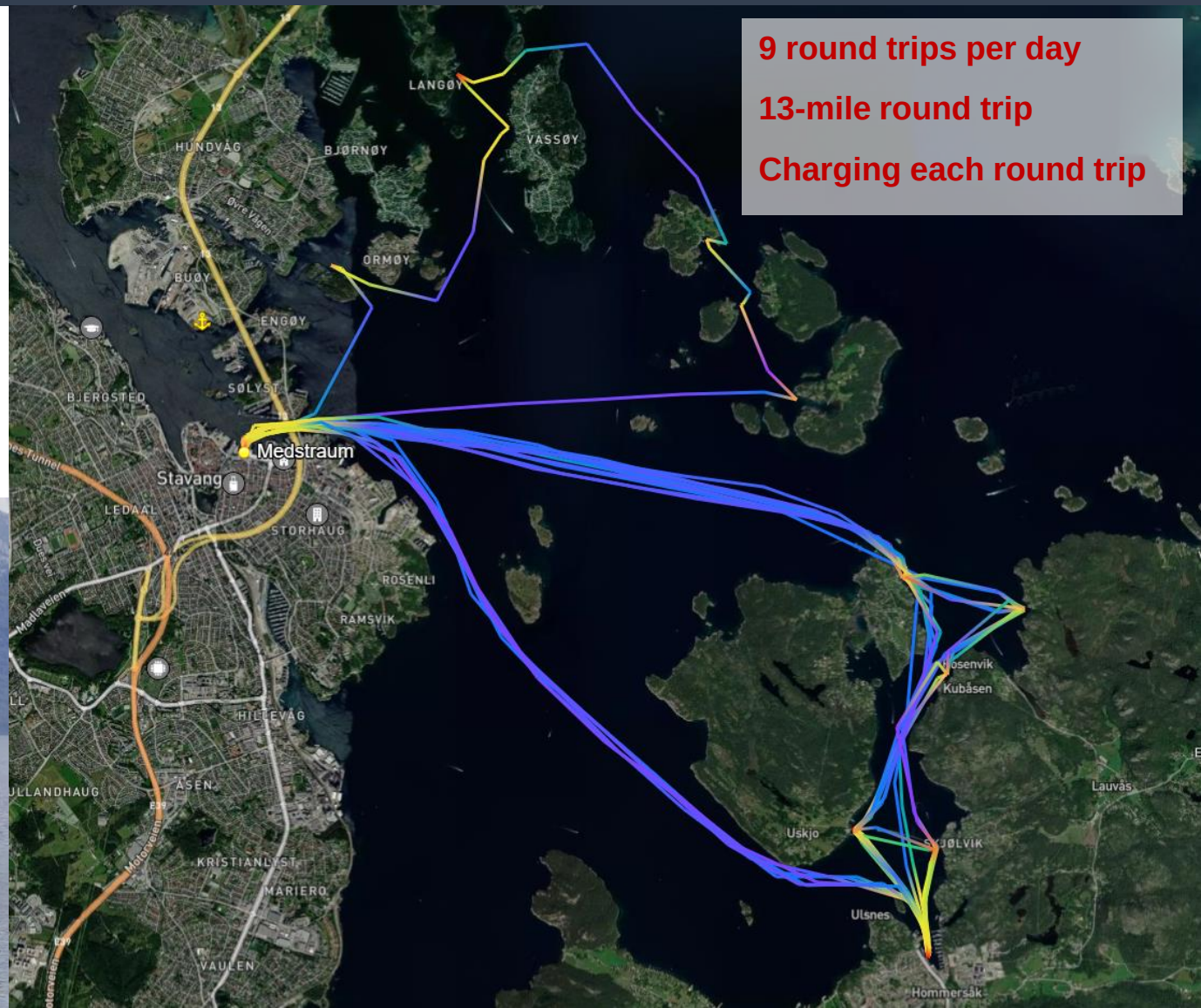
Service Speed: **27 kts**

Charge Power: **2.3MW**

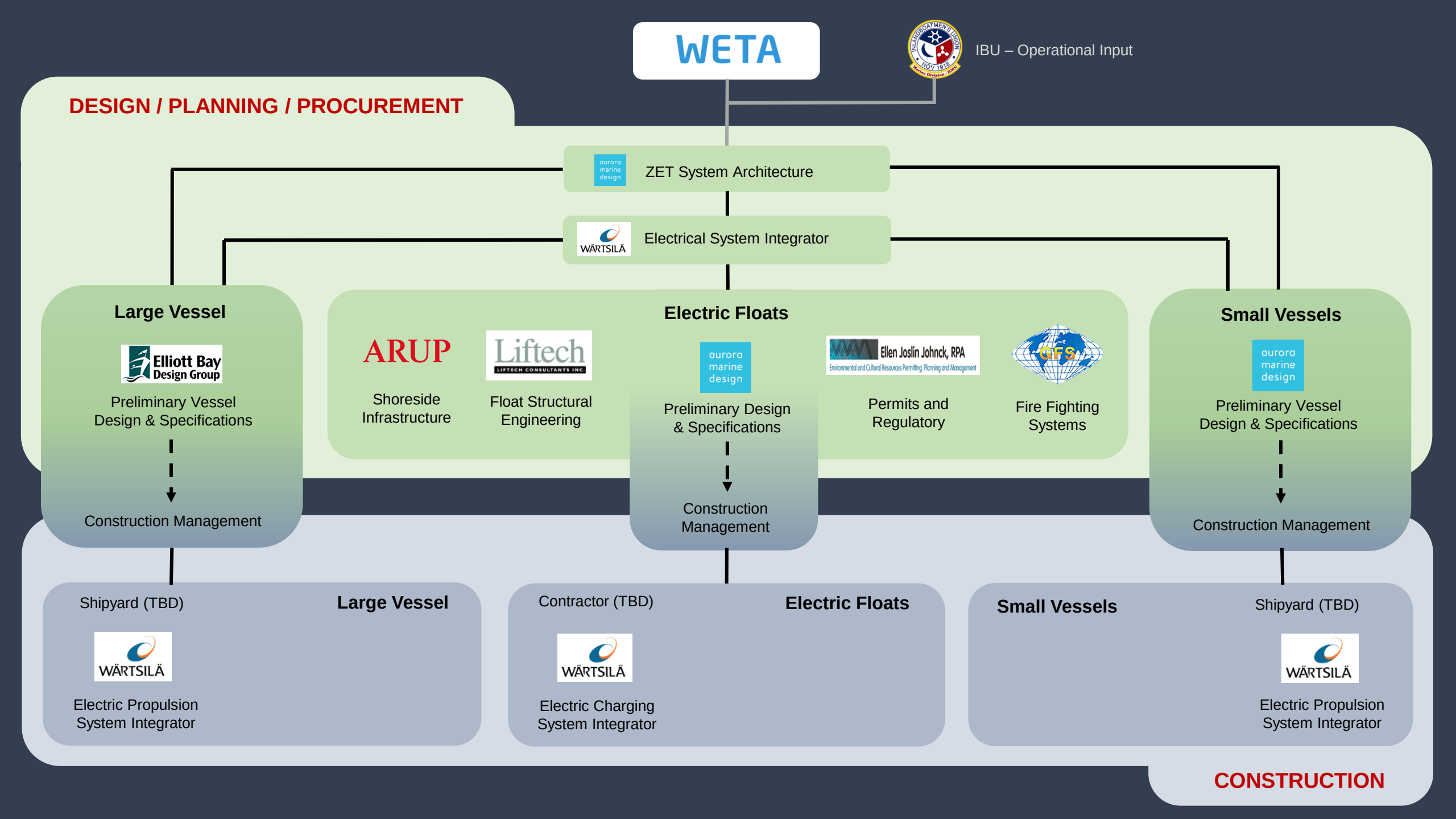
Charge Technology: **Manual DC Fast Charging**

Modular Approach to Electrical System

Entered Service in 2022



Next Steps


WETA
IBU – Operational Input
DESIGN / PLANNING / PROCUREMENT
ZET System Architecture
Electrical System Integrator
Large Vessel
Elliott Bay Design Group
Preliminary Vessel Design & Specifications
Construction Management
ARUP
Shoreside Infrastructure
Liftech
Float Structural Engineering
Electric Floats
aurora marine design
Preliminary Design & Specifications
Construction Management
Ellen Joslin Johnck, RPA
Permits and Regulatory
GFS
Fire Fighting Systems
Small Vessels
aurora marine design
Preliminary Vessel Design & Specifications
Construction Management
Shipyard (TBD)
Large Vessel
WÄRTSILÄ
Electric Propulsion System Integrator
Contractor (TBD)
Electric Floats
WÄRTSILÄ
Electric Charging System Integrator
Small Vessels
Shipyard (TBD)
WÄRTSILÄ
Electric Propulsion System Integrator
CONSTRUCTION

Next Steps

- Stakeholder Working Group(s)
- Front End Engineering Design
- RFP-Level drawing packages
- RFPs for Construction

Current Construction Phase Timelines

Small Vessel Construction Project (3 Vessels)	
Q1 2024	Issue Construction RFP
Q2 2024	Begin Construction
Q3 2025	Vessel 1 Target Completion

Large Vessel Construction Project (2 Vessels)	
Q1 2024	Issue Construction RFP
Q2 2024	Begin Construction
Q3 2026	Vessel 1 Target Completion

Universal Charging Float Construction Project	
Q1 2024	Issue Construction RFP
Q2 2024	Begin Construction
Q1 2025	Universal Charging Float Target Completion

Treasure Island Charging Construction Project	
Q2 2024	Issue Construction RFP
Q3 2024	Begin Construction
Q3 2025	Treasure Island Charging Float Target Completion

Thank you

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The Board of Directors is currently in closed session.