

GO-ing Green: Hydrogen Fuel Cell Transition Project

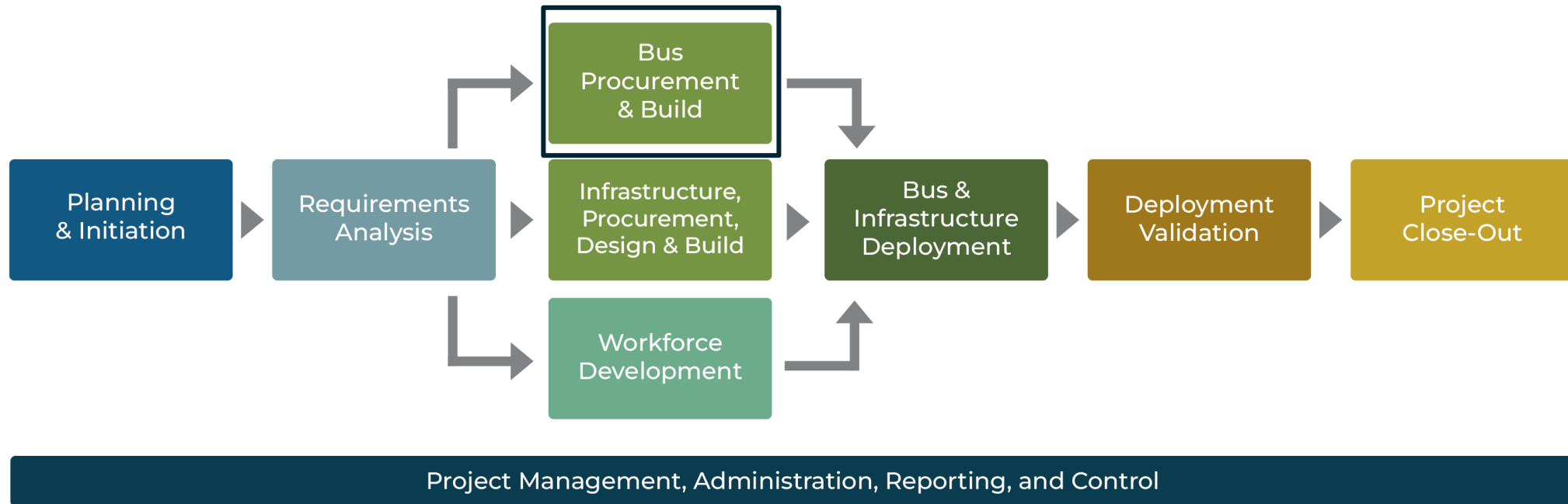
Bus Procurement & Build Workshop

May 17, 2023



Agenda

- Introductions
- Bus Procurement
- Bus Build
- Bus Delivery
- Deployment Validation & KPIs



Phase 2: Bus Procurement & Build

Task Description

- Develop and finalize bus specifications
- Execute New Flyer contract
- Monitor bus build
- Deliver buses

CTE Deliverable

- Technical specification review
- Bus configuration review
- Inspection reports

Bus Procurement

Five 40' New Flyer Xcelsior CHARGE FCEBs

- GCTD selected to procure the five buses via state contract
- Currently, three state contracts include New Flyer's 40' fuel cell bus:
 - California
 - Virginia
 - Washington
- Pricing is as follows:
 - CA: \$1,214,809*
 - VA: \$1,235,990*
 - WA: \$1,246,201*
- GCTD Procurement Practices Discussion
- State of Orders and Production at New Flyer

*Pricing is adjusted for PPI



Bus Budget Items

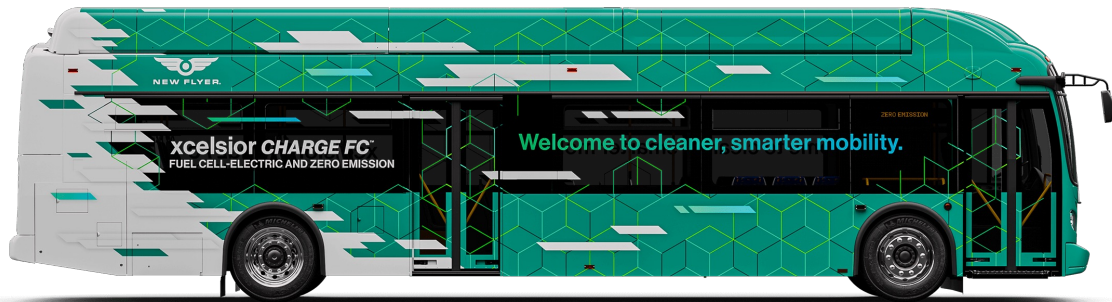
PROJECT BUDGET				
Item Description	Partner	Qty	Unit Cost plus Tax	Project Total
Buses				
Buses	New Flyer	5	\$ 1,287,445	\$ 6,437,225
Configurables/Options	New Flyer	5	\$ 72,360	\$ 361,800
Diagnostic Tools & Laptop	New Flyer	1	\$ 180,332	\$ 180,332
<i>Bus Subtotal</i>				<i>\$ 6,979,357</i>

Awarded Amount: \$3,628,953

Bus Build

Five 40' New Flyer Xcelsior CHARGE FCEBs

- Bus specifications
- Bus contract and sales production order
- Bus design
- Master resolution log & change orders
- Bus production
- First article inspection & inspection reports



Phase 4: Bus & Infrastructure Deployment

Task Description

- Bus and infrastructure commissioning
- Validate the performance and operation of the buses and infrastructure
- Buses enter revenue service

CTE Deliverable

- Validation test plan
- Validation test report

Bus Delivery

- Delivery timeline
- Bus commissioning timed with station commissioning
- Bus acceptance
- Revenue service deployment

Validation Testing Process Overview Example

1. Perform on-site tests with one of the GCTD's FCEBs
 - a. Route performance: Compare conditions (all on one route)
 - b. Route performance: Baseline all key routes targeted for FCEB deployment
 - c. HVAC loads and auxiliary load measurement
 - d. Fueling
2. Collect operational and bus data from tests using bus performance telematics system and manual methods for redundancy
3. Collect GPS data at Hz rate using GPS data logger as backup



Phase 5: Deployment Validation

Task Description

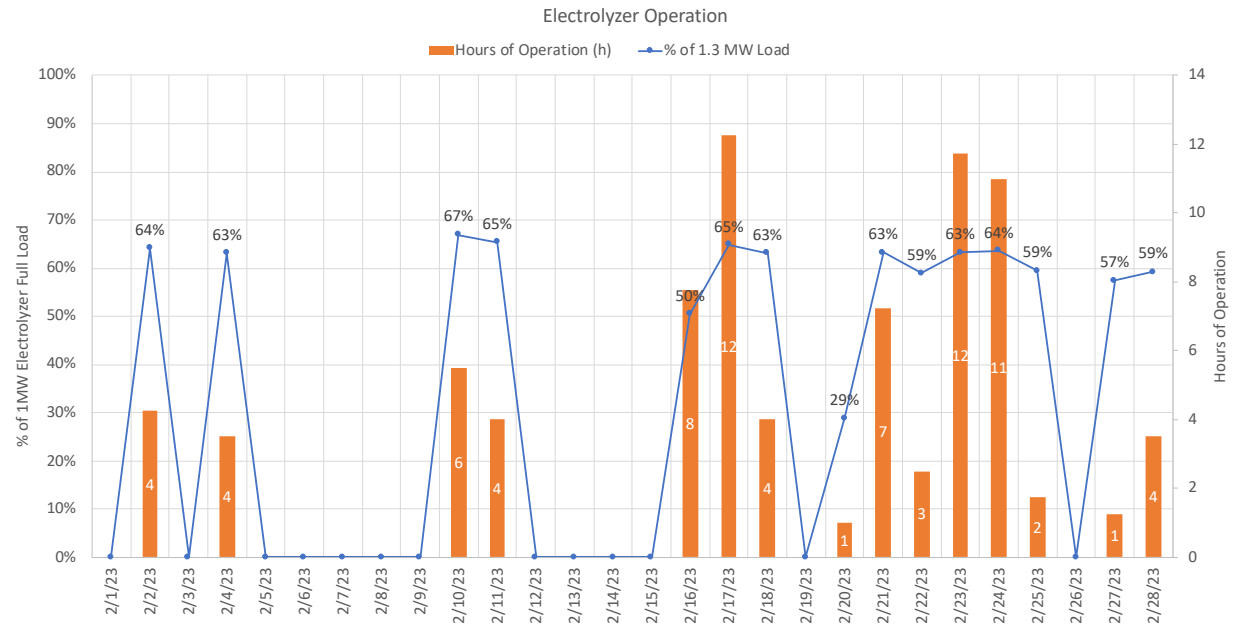
- Collect, analyze, and report Key Performance Indicators (KPIs)

CTE Deliverable

- Deployment validation KPIs workshop
- Data collection and reporting plan
- Monthly KPI reports

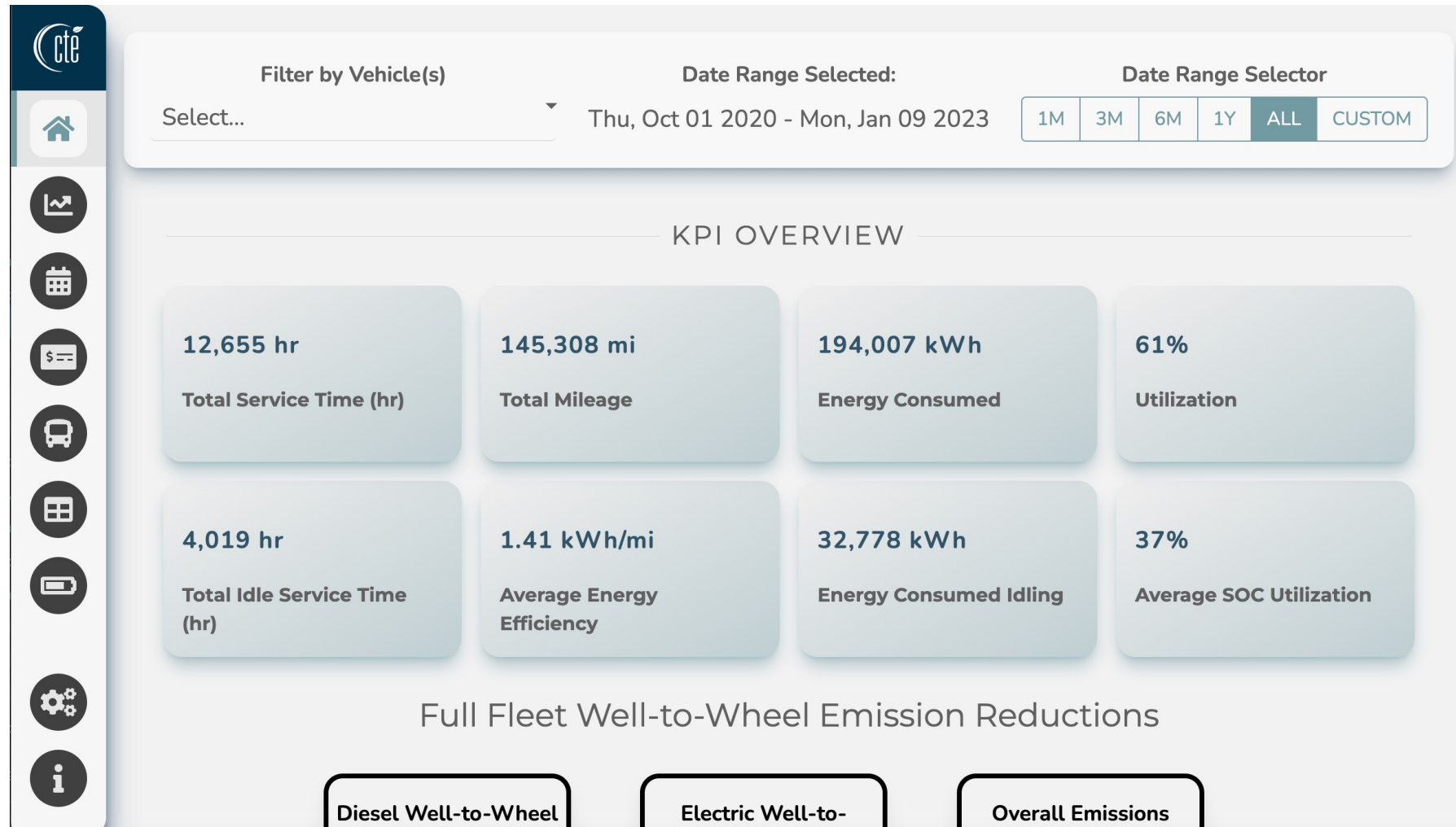
Key Performance Indicators (KPIs)

- **KPI Reporting Objectives**
 - **Vehicle performance**
 - **Refueling station performance**
 - **Fuel consumption**
 - **Fleet availability**
 - **Financial comparison to baseline**
 - **Emissions reduction impacts**
 - **Custom**
- **Deliverables**
 - **Post-deployment KPI workshop**
 - **Monthly KPI reports**



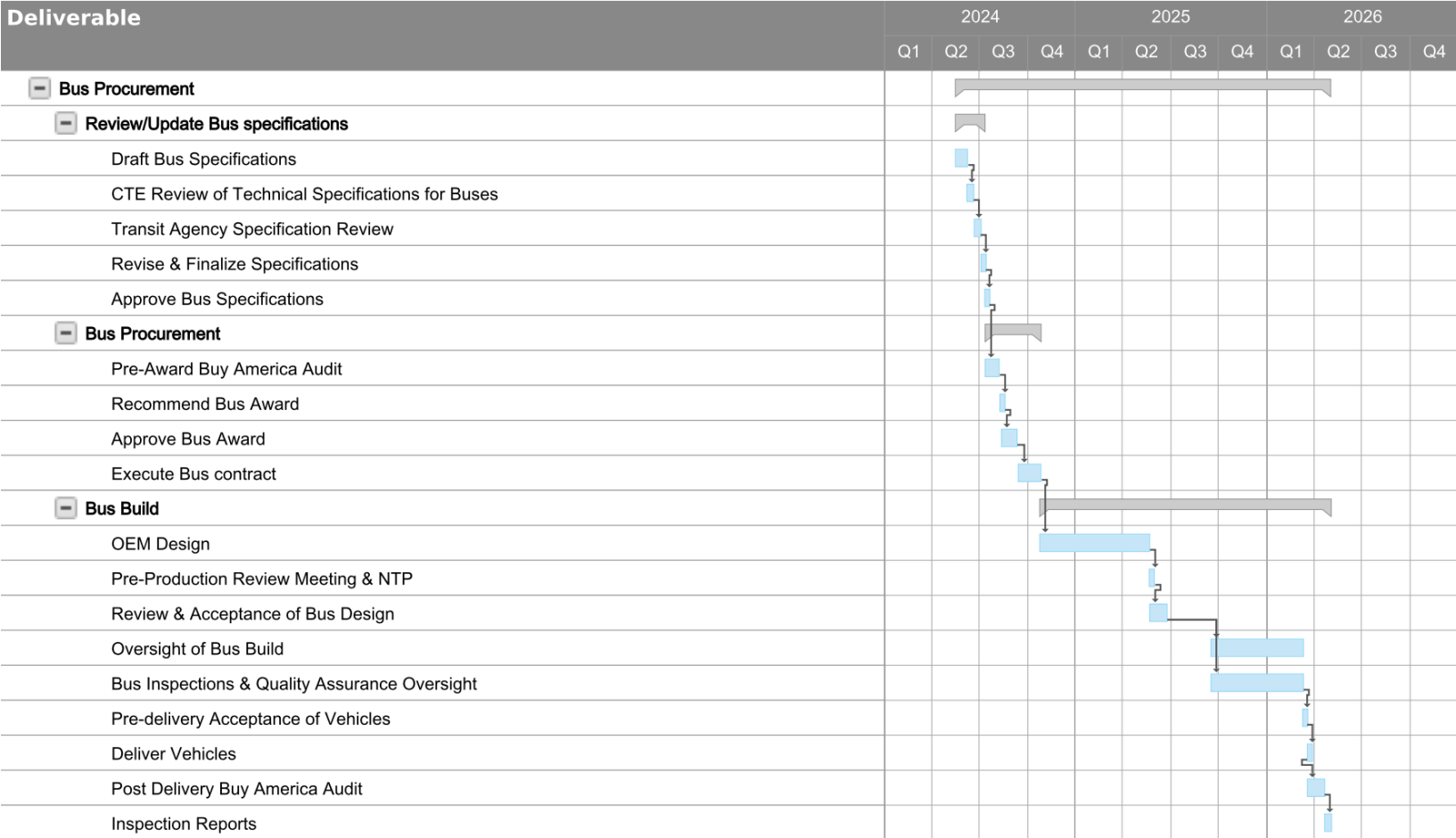
KPI Dashboard Demo

The Goal is to validate and monitor FCEB fleet performance



<https://dash-cte.plotly.host/generic-transit/>

Timeline



Questions & Discussion