

# SCE | Upgrade Utilities for Division 9 & El Monte Transit Center BYD | Deliver Depot Chargers for Division 9



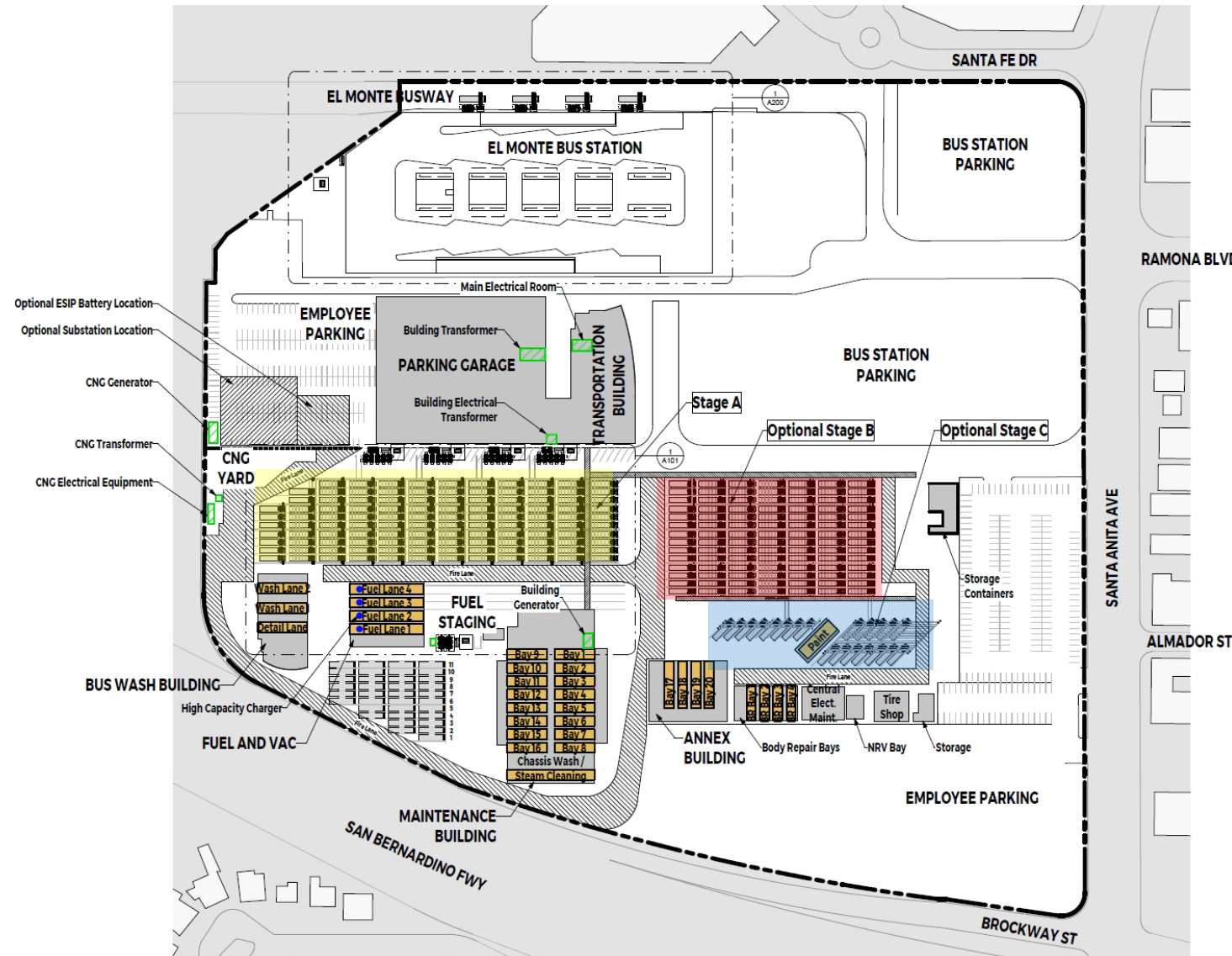
# Introduction

- ❑ Approval of recommendations required to initiate conversion of D9 and El Monte Transit Center for Zero Emission Operations
  - ❑ SCE | Upgrade Utilities
  - ❑ BYD Change Order | Deliver Depot Chargers
- ❑ Modeling performed to optimize power requirements & charging strategies
- ❑ Method of Service Study performed by SCE to identify best options for delivering required power



# Modeling | Division 9 Charging Layout

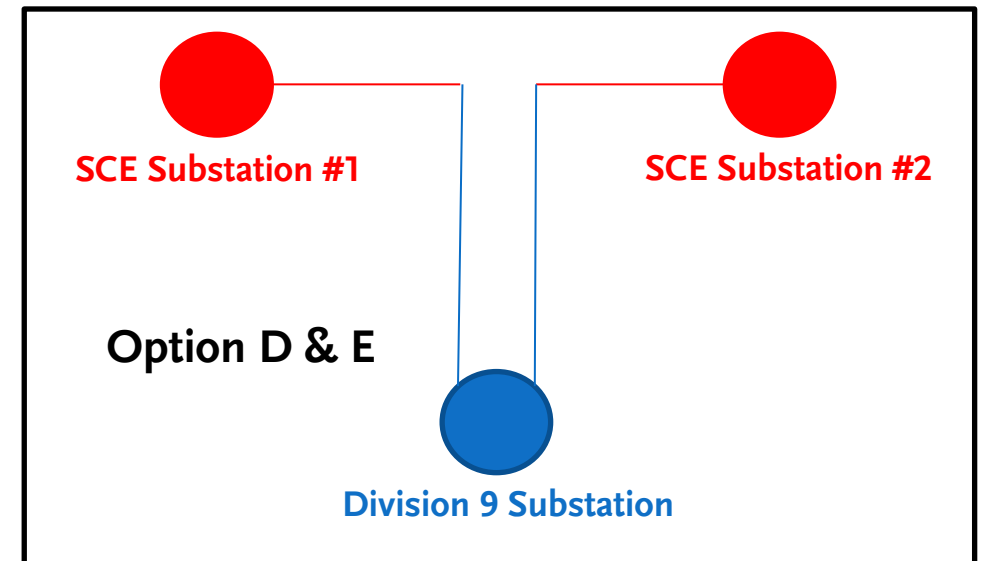
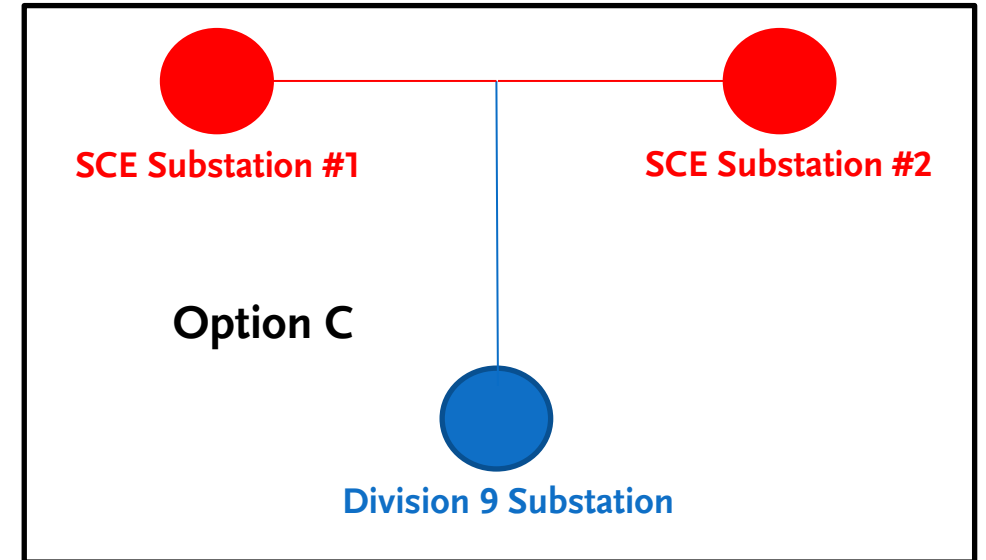
- ❑ Heliox Charging System Service Proven in N. America & Europe
- ❑ Charging compatible with Proterra, New Flyer, Nova and BYD
- ❑ Optimizes Use of Limited Space
- ❑ Allows for optimization of bus battery capacity, minimizes need for long-range buses
- ❑ Variable Charger Output allows reduction in power demand – cost savings
- ❑ Supports multi-stage transition – Work can be performed as funds are available.





# SCE Utility Upgrade for Division 9 & El Monte Transit Center

- ❑ Five Options offered (A – F).
  - ❑ Option A is interim for up to 10 MW only during off-peak hours.
  - ❑ Option B withdrawn as not viable
  - ❑ Option C: 1 power line & 1 transformer
  - ❑ Option D: 2 power lines & 1 transformer
  - ❑ Option E: 2 power lines & 2 transformers
- ❑ Recommendation is to select Options A & E:
  - ❑ Option A (\$149,644) allows most immediate transition to Zero Emission operations
  - ❑ Option E (\$19,416,209) provides highest level of resiliency. Also, increases available demand from 5 MW to 15 MW



# Overview | BYD Project

## Contract:

- Base order of sixty 40' BEB's
- Option order for forty additional 40' BEB's, 100 total
- Proprietary Plug-in Chargers

## Current Status:

- Change order successfully executed to update charging strategy from proprietary plug-in and inductive charging to industry standards: SAE-J1772 CCS1(Plug-in) & SAE-J3105/1 (overhead cross-rails/pantograph)
- Five pilot buses delivered between January and March 2021; first buses in the world equipped with both charging strategies
- Pilot buses currently undergoing comprehensive field testing.

## Recommendation:

- BYD originally proposed delivery of proprietary plug-in chargers.
- Given rapid advancements in both zero emission bus and battery charger technology, decision was made to adopt SAE standard charging strategies
- Approval of recommendation for delivery of forty-four (44) depot chargers is required to ensure equipment is available to effectively and efficiently charge the battery electric buses being delivered.

