



JPB Board of Directors
Meeting of August 3, 2023

Correspondence as of August 3, 2023

<u>#</u>	<u>Subject</u>
1	FW_ Business case for Battery-Electric Locomotives (BEL)

From: [Board \(@caltrain.com\)](mailto:Board (@caltrain.com))
Cc: Michelle Bouchard; Graham Rogers; [Harrison, James \[JHarrison@olsonremcho.com\]](mailto:Harrison, James [JHarrison@olsonremcho.com]); [Myles-Primakoff, Anna \[amyles-primakoff@olsonremcho.com\]](mailto:Myles-Primakoff, Anna [amyles-primakoff@olsonremcho.com]); Margaret Tseng; Casey Fromson; Pranaya Shrestha; John Hogan; Ailyn De Guzman
Subject: FW: Business case for Battery-Electric Locomotives (BEL)
Date: Thursday, August 3, 2023 7:41:52 AM
Attachments: [Item 8.k Stadler BEMU procurement.pdf](#)

Dear Board Members and staff – FYI below and attached. Copies will be provided at the dais, public table, and electronic copy will be posted as soon as possible.

Best,

Dora

From: Roland Lebrun <ccss@msn.com>
Sent: Thursday, August 3, 2023 12:54 AM
To: Board (@caltrain.com) <board@caltrain.com>
Cc: SFCTA Board Secretary <clerk@sfcta.org>; Transbay Info <info@tjpa.org>; freight@arb.ca.gov; cacsecretary [@caltrain.com] <cacsecretary@caltrain.com>; TJPA CAC <CAC@TJPA.org>; SFCTA CAC <cac@sfcta.org>; Caltrain, Bac (@caltrain.com) <bac@caltrain.com>
Subject: Re: Business case for Battery-Electric Locomotives (BEL)

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders.

Dear Chair Gee and Board members,

Further to my email of July 18 (below) and the updated staff memo (consent calendar agenda item 8.k attached for your convenience), here are my comments:

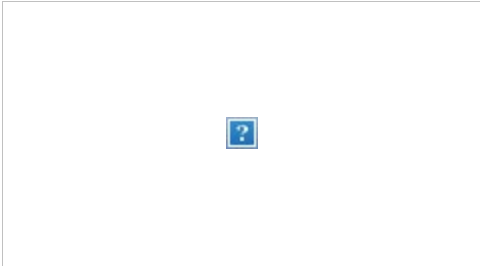
Staff have now clarified that the BEMU prototype trainset consists of 4 cars only (NOT 7) but the \$80M cost remains the same so the average cost per car is \$20M or **approximately 4 X the original order of \$5M/railcar.**

Based on this new information, it seems reasonable to assume that the proposed “prototype” entails replacing approximately 50 seats in the front and rear cab cars with batteries (**100 seats lost per 4-car BEMU**), effectively converting the front and rear cab cars into half Battery-Electric Locomotives (BELs) and compromising Caltrain’s FFGA commitment of 4,112 seats/hour during peak.

It is also reasonable to assume that the prototype trainset will not require any modifications to the bike and the bathroom cars (the two middle cars) estimated to cost approximately \$5M

each **so the actual cost of the two “half BEL” cab cars will be \$35M each or approximately the same as 14 Battery-Electric Locomotives slated to be delivered to Union Pacific by the end of this year at a cost of \$5M each**:

<https://www.freightwaves.com/news/union-pacific-spending-over-100m-on-20-battery-electric-locomotives>

	<p>Union Pacific spending over \$100M on 20 battery-electric locomotives</p>
	<p>UP will examine the locomotives' performance at its yards and in California and Nebraska and see how the locomotives can be deployed for long-haul service.</p>
	<p>www.freightwaves.com</p>

In closing, please consider directing staff to approach Wabtec and/or Progress Rail for a proposal that will **eliminate all diesels shortly after electrification between San Francisco and San Jose** instead of continuing diesel operations until 2030.

Respectfully presented for your consideration

Roland Lebrun

From: Roland Lebrun <ccss@msn.com>

Sent: Tuesday, July 18, 2023 6:11 AM

To: Caltrain Board <board@caltrain.com>

Cc: SFCTA Board Secretary <clerk@sfcta.org>; Transbay Info <info@tjpa.org>; freight@arb.ca.gov <freight@arb.ca.gov>; Caltrain CAC Secretary <cacsecretary@caltrain.com>; TJPA CAC <CAC@TJPA.org>; SFCTA CAC <cac@sfcta.org>; Caltrain BAC <bac@caltrain.com>

Subject: Business case for Battery-Electric Locomotives (BEL)

Dear Chair Zmuda,

Further to my email of June 10th (below), please consider the attached proposal to **replace the entire Caltrain diesel fleet by 2025**.

Key points:

- BEMU prototype reconfiguration to 4 cars (**potential \$35-\$40M saving**)
- Competitive procurement
- Elimination of battery operations between Tamien and San Francisco
- **Elimination of potential violations of the FFGA caused by a reduction in seating capacity to accommodate 150-200 tons of batteries/trainset.**
- Rigorous testing at the FRA testing facility in Pueblo, NOT SamTrans consultants engaged in Stadler BEMU prototyping
- Evaluation of BELs for the rescue of stranded EMU trainsets
- **potential \$1/2B saving** (6 x BEMU @ \$85M each = \$510M)

Respectfully presented for your consideration

Roland Lebrun

CC

California Air Resources Board
Caltrain Board
SFCTA Commissioners
TJPA Board of Directors
TAMC Rail Policy Committee
Caltrain CAC
TJPA CAC
SFCTA CAC
Caltrain BAC

From: Roland Lebrun

Sent: Monday, July 10, 2023 4:06 PM

To: Caltrain Board <board@caltrain.com>

Cc: SFCTA Board Secretary <clerk@sfcta.org>; Transbay Info <info@tjpa.org>; CHSRA Board <boardmembers@hsr.ca.gov>; Caltrain CAC Secretary <cacsecretary@caltrain.com>; TJPA CAC <CAC@TJPA.org>; SFCTA CAC <cac@sfcta.org>; Caltrain BAC <bac@caltrain.com>

Subject: Business case for 4-car Caltrain EMU trainsets

Dear Chair Zmuda,

The intent of the attached letter is to substantiate and elaborate on multiple recommendations by members of the public to reconfigure the entire EMU fleet from 7-car to 4-car trainsets to achieve the following:

Compliance with FFGA requirement for 4,112 seats/hour/direction during peak

30% reduction in O&M (**\$25M in FY25**)

30% reduction in power consumption (**\$6M in FY25**)

30% Battery-electric locomotive range extension sufficient to reach Salinas (**\$1/2B** saving)

The letter concludes with a specific trainset reconfiguration proposal for referral to the Caltrain CAC and Finance Committee July meetings followed by a recommendation to the August full Board meeting.

Respectfully presented for your consideration

Roland Lebrun

CC:

SFCTA Commissioners

TJPA Board of Directors

CHSRA Board of Directors

Caltrain CAC

TJPA CAC

SFCTA CAC

Caltrain BAC

**Peninsula Corridor Joint Powers Board
Staff Report**

To: Finance Committee
Through: Michelle Bouchard, Executive Director
From: Kate Jordan Steiner, Chief Financial Officer
Subject: **Approve Execution of Stadler Electric Multiple Unit Option and Funding Plan**

Staff Coordinating Council Reviewed Finance Committee Recommendation Technology, Operations, Planning, and Safety Committee Recommendation Advocacy and Major Projects Committee Recommendation

Purpose and Recommended Action

In 2016, Caltrain executed a contract with Stadler USA, Inc., to procure Electric Multiple Unit trains to serve Caltrain passengers upon completion of the Peninsula Corridor Electrification Project (PCEP), which will electrify the corridor from San Francisco to San Jose. The Stadler contract included two option periods, the last of which will expire on August 15, 2023. The option offers Caltrain the opportunity to purchase additional EMU trainsets at a substantially lower cost than would be available if Caltrain were to undertake a new procurement. In addition to costs savings, the option allows Caltrain to move closer to the goal of a zero-emission corridor while improving service and reliability for Caltrain passengers. The availability of federal funding for replacement vehicles, which will cover 80 percent of the costs of the additional EMU trainsets, means that Caltrain will be responsible for only 20 percent of the costs of the new trainsets.

In addition to the new EMU trainsets, Caltrain also has the opportunity to include a four-car Battery-Electric Multiple Unit (BEMU) demonstration train in the option, The BEMU will enable zero-emission service beyond Caltrain’s electrified corridor, from Tamien to Gilroy, and will demonstrate the viability of BEMU operations in a non-electrified right-of-way. With the support of the Governor and the Legislature, the California State Transportation Agency (CalSTA) recently awarded Caltrain \$80 million for the BEMU demonstration train, which will cover 100 percent of the costs of the BEMU.

Staff therefore recommends the Board of Directors (Board) of the Peninsula Corridor Joint Powers Board (JPB or Caltrain) adopt a resolution authorizing the Executive Director or her designee to:

1. Exercise the contract option with Stadler USA, Inc. (“Stadler”) to procure the following:
 - a. Four seven-car Electric Multiple Unit (EMU) trains to replace three existing diesel locomotive trains and one set of railcars; and
 - b. One four-car Battery-Electric Multiple Unit (BEMU) demonstration train to enable zero-emission service beyond Caltrain’s electrified corridor (BEMU Demonstration Project).
2. Execute the Supplemental Agreement with the California Department of Transportation (Caltrans) to authorize JPB to receive \$80 million in Transit and Intercity Rail Capital Program

(TIRCP) funding from the California State Transportation Agency (CalSTA) for the BEMU Demonstration Project; and

3. Take such actions as may be necessary to give effect to the resolution, including but not limited to executing and filing reports and applications, agreements, certifications and assurances, authorized agent forms, related amendments, and any other documentation required to implement this resolution, and for the JPB to apply for and receive all funds.

Discussion

Staff requests that the Board approve a resolution that would permit the JPB to purchase four seven-car EMU trainsets and one four-car BEMU trainset from Stadler.

Staff previously presented to the Board plans to procure the EMUs and BEMU as informational items at the (a) JPB Finance Committee on April 24, 2023, and June 26, 2023; and (b) full Board as part of the Fiscal Year 2024 and Fiscal Year 2025 Preliminary Operating and Capital Budgets on May 4, 2023, and June 1, 2023.

As discussed in those meetings, Caltrain's vision includes a zero-emission corridor benefitting our riders, communities, and the State. Caltrain's goal is to replace all diesel locomotives with zero-emission vehicles in compliance with the California Air Resources Board In-Use Locomotive Regulation. The four EMUs and one BEMU that Caltrain seeks to procure from Stadler will help the agency achieve this vision.

Caltrain Current and Future Fleet Plan

Caltrain's current fleet is made up of 29 diesel locomotives purchased between 1985 and 2003. The locomotives run between San Francisco and Gilroy. Caltrain is nearing completion of the Peninsula Corridor Electrification Project (PCEP), which will transform the corridor from San Francisco to San Jose by electrifying the corridor and replacing most of the diesel locomotive fleet with zero-emission EMU trains, in turn helping the State achieve transportation, safety, and climate goals.

By the end of 2024, with the completion of PCEP, Caltrain will operate 28 trainsets consisting of:

- 19 EMU trainsets
- 9 diesel locomotive trains

This fleet will provide a mix of electric and diesel service from San Francisco to Tamien, continue diesel service in the non-electrified Union Pacific Railroad-owned portion of the corridor between Tamien and Gilroy, and provide sufficient spares.

If the Board approves the procurement of additional vehicles as set forth in the accompanying resolution, Caltrain's fleet would expand to 30 trainsets by 2030, consisting of:

- 23 EMU trainsets
- 6 diesel locomotive trains
- 1 BEMU¹ (for pilot)

¹ A BEMU is a battery-equipped electrical multiple unit that can operate on non-electrified territory with zero-emission service. The Federal Railroad Administration has not yet vetted BEMUs for passenger use in the United States and this is an opportunity

This fleet would allow for over 90% zero emission service on the corridor, significantly improve efficiency and sustainability of Caltrain service, complete a BEMU pilot project that could prove the viability BEMU operations in non-electrified right-of-way south of Tamien, and maintain sufficient spares.

Caltrain has an option on its existing contract with Stadler that would allow the purchase of additional electric trainsets (59 cars) at a lower price than what would be available in a new procurement. Staff estimates that procuring four replacement EMUs under the contract option would save approximately \$100 million to \$120 million in total costs (45% to 60% savings).

There are a number of reasons for increased costs in procuring rail vehicles outside of the Stadler option which include, but are not limited to:

- Small size of trainset order
- Lack of available production capacity
- Inflation in labor and materials
- Supply chain issues
- Manufacturers reluctant to enter into long-term fixed price agreements due to recent economic instability
- Cost escalation uncertainty going forward

The contract option expires August 15, 2023.

Contract Options

In 2016, Caltrain entered the Caltrain CALMOD Electrification EMU Procurement contract with Stadler (Contract #14-PCJPB-P-056) as part of PCEP. The contract provided Caltrain two separate option periods during which it could order up to an additional ninety-six vehicles of any configuration:

1. Option 1 Period. In 2018, during the first option period which has now expired, Caltrain ordered thirty-seven additional train cars as follows:
 - a. Three seven-car EMU trainsets (totaling twenty-one cars)
 - b. Expanding the original sixteen six-car trainsets into seven car trainsets (totaling sixteen cars)
2. Option 2 Period. This period runs from the end of the Option 1 period up to seven years after the effective date of the original contract. The effective date of the contract was August 15, 2016, meaning the **Option 2 Period expires on August 15, 2023**. Because Caltrain ordered thirty-seven additional cars during the first option period, Caltrain may order up to fifty-nine cars during the second option period.

Budget Impact

Budget authority for the purchase of the four seven-car EMUs (\$220M) and one four-car BEMU (\$80M) was included in the FY24 adopted capital budget approved by the Board on June 1, 2023.

Four Seven-Car EMU Trainsets

to test, review, and approve these vehicles for service. If proven successful, BEMUs could benefit Caltrain for service south of Tamien as well as other non-electrified properties in California. The testing area would be Tamien to Gilroy and Gilroy to Salinas.

The project cost for the four seven-car EMU trainsets is not-to-exceed \$220M including trainsets, testing, and training. The project will be funded 80% (\$176M) by Federal Transit Administration (FTA) formula funds distributed by the Metropolitan Transportation Commission (MTC), with \$30.4M for FY23 and FY24 already allocated and the remaining \$145.6M anticipated to be allocated over FY25, FY26, and FY27.

The remaining 20% (\$44M) is a local match requirement and will be funded with monies made available due to CalSTA's January 1, 2023 Transit and Intercity Rail Capital Program (TIRCP) award of \$367M to Caltrain for PCEP, which reimbursed Caltrain for the expenditure of local funds (excluding bond proceeds) temporarily used to close the PCEP shortfall. The \$44M in reimbursed local funds should become available on or about January 1, 2024.

One Four-Car BEMU trainset

The project cost for one four-car BEMU is approximately \$80M, including the trainset, battery components, station and maintenance shop modifications, testing, and training. The project is funded 100% by CalSTA. On July 3, 2023, CalSTA released a [notice of award](#) for the BEMU Demonstration Project for not-to-exceed \$80M. The awarded amount will be from the State General Fund funding provided from the Budget Act of 2021 to the TIRCP. Caltrain anticipates that the California Transportation Commission (CTC) will approve the BEMU allocation at its meeting on August 16-17, 2023. Because the August CTC meeting will occur after the August 15 deadline to exercise the Stadler contract option, the change order with Stadler permits Caltrain to issue the Notice to Proceed (NTP) after the CTC meeting, without incurring any costs. No local match is required is required for the BEMU.

Next Steps

In addition to regular financial reports, staff expects to provide the Board several updates on the procurement of these vehicles and their funding in the coming months as follows:

- August 15, 2023: Stadler Option expires
- August 16 – 17, 2023: CTC Meeting approving allocation of the BEMU funding award made by CalSTA
- Ongoing: Updates regarding Stadler contract option vehicles and progress.

Prepared by: Kate Jordan Steiner Chief Financial Officer 650-508-6466