



**COMMISSION
AGENDA MEMORANDUM**

Item No. 6e

ACTION ITEM

Date of Meeting October 27, 2020

DATE: October 19, 2020

TO: Stephen P. Metruck, Executive Director

FROM: Eileen Francisco, Acting Director Aviation Facilities and Capital Programs
Wayne Grotheer, Director, Aviation Project Management

SUBJECT: Emergency Generator Controls Upgrade Project (CIP #C800784) Request for Construction Authorization

Amount of this request: \$1,500,000

Total estimated project cost: \$2,500,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to (1) advertise and execute a major works construction contract for the Emergency Generator Controls Upgrade project at Seattle-Tacoma International Airport (SEA); (2) use Port of Seattle crews and small works contracts for preconstruction activities. The amount of this request is \$1,500,000 for a total estimated project cost of \$2,500,000.

EXECUTIVE SUMMARY

This project will replace and upgrade the existing control system and thereby extend the useful life of the generators that provide emergency electrical power to Concourses B, C, D, the Central Terminal, and the South Satellite. Emergency power is required by code for egress lighting within the terminal buildings and at other locations where interruption of power could produce life safety hazards. While the generators are in good working condition, the manufacturer has discontinued support for the microprocessor-based control system and no longer provides technical support or replacement parts.

JUSTIFICATION

This project extends the useful life of the existing emergency power system and minimizes operational costs and impacts of code-required compliance testing. This project will address National Fire Protection Association (NFPA) requirements for emergency generators to provide safety for passengers and public. It will enhance the function of the emergency power system with the installation of new, reliable controllers that are currently supported by manufacturer.

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Diversity in Contracting

The project staff discussed the project with the Diversity in Contracting (DC) department, and both project staff and the DC department decided that it is not feasible to subcontract on this project. Thus, the project will not have a woman and minority business enterprise (WMBE) aspirational goal. The project staff will continue to work with the DC department on outreach to determine if the work can be performed by a WMBE prime contractor.

DETAILS

The Port of Seattle currently utilizes two 1500 kW emergency generators to supply NFPA/ National Electrical Code (NEC) required emergency power to Concourses B, C, D, the Central Terminal, and the South Satellite. These emergency generators are located at the Loading Dock level of the SEA Airport Main Terminal building and are approximately 20 years old.

The control and operation of these generators is through a set of microprocessor-based programmable logic controllers that have been discontinued and are no longer supported by the manufacturer. This project will replace and upgrade the existing control system and thereby extend the useful life of the generator sets, valued at \$10 million, by an estimated 20 years.

This system provides code-required emergency power. The Washington Administrative Code (WAC) 296-46B-700 states all exit and emergency lights must be installed in accordance with Article 700 of the NEC. Emergency systems may also provide power for such functions where interruption would produce life safety hazards. During construction staff will be on standby to manually engage emergency power if necessary.

Scope of Work

This project will replace and program new programmable logic controllers (PLCs) for the emergency generator control system, for the two 1500kW generators in the generator control room. Controller installation and related work shall be accomplished in the generator control room, near the central terminal loading dock. The existing Generator Ancillary Systems Control Panel shall have the existing PLC upgraded with a new PLC due to space constraints. Electrical installation work will occur in the generator room, generator control room, PLC cabinets, and other locations necessary to route power testing. The existing Direct Digital Controls panel located at the entry way into the generator room will be upgraded with a direct replacement.

Schedule

Activity

Construction start	Q1, 2021
In-use date	Q1, 2022

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Cost Breakdown

	This Request	Total Project
Design	\$0	\$1,000,000
Construction	\$1,500,000	\$1,500,000
Total	\$1,500,000	\$2,500,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Status Quo

Cost Implications: None

Pros:

- (1) Limited capital investment

Cons:

- (1) Risk of extended emergency power system failure
- (2) No manufacturer support for troubleshooting
- (3) Must utilize used parts with uncertain condition

This is not the recommended alternative.

Alternative 2 – Replacement of the PLCs, a like for like replacement that will extend the life of the generators.

Cost Implications: Commission to approve additional \$1,500,000, for full project funding of \$2,500,000.

Pros:

- (1) New control system allows for continued reliable operation of emergency power system

Cons:

- (1) Capital Investment

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Cost Estimate/Authorization Summary

	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$2,500,000	\$0	\$2,500,000
AUTHORIZATION			
Previous authorizations	\$1,000,000	0	\$1,000,000
Current request for authorization	\$1,500,000	0	\$1,500,000
Total authorizations, including this request	\$2,500,000	0	\$2,500,000
Remaining amount to be authorized	\$0	\$0	\$0

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Annual Budget Status and Source of Funds

The Emergency Generator Controls Upgrade project (CIP #C800784) was included in the 2020-2024 capital budget and plan of finance as a business plan perspective project with a total capital budget of \$2,500,000. This project will be funded by the Airport Development Fund and revenue bond.

Financial Analysis and Summary

Project cost for analysis	\$2,500,000
Business Unit (BU)	Terminal Building
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase
IRR/NPV (if relevant)	N/A
CPE Impact	\$0.01 in 2021

Future Revenues and Expenses (Total cost of ownership)

The preferred alternative will not substantially increase operational costs. Total cost of ownership is \$2,600,000, reflecting the up-front capital costs and the net present value of relatively minimal ongoing operating costs.

ATTACHMENTS TO THIS REQUEST

None

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

December 3, 2019 – The Commission authorized the Executive Director to increase project authorization by \$200,000 to support design and construction for the Emergency Generator Controls Upgrade project at Seattle-Tacoma International Airport. Total project authorization is \$1,000,000, for a total estimated project cost of \$2,500,000.

December 5, 2016 – The Commission authorized the Chief Executive Officer to prepare design and construction bid documents for the Emergency Generator Controls Upgrade project at Seattle-Tacoma International Airport not to exceed \$713,000 for a total estimated project cost of \$2,500,000

September 30, 2016 \$20,000 Design authorization

April 19, 2016 \$35,000 Design authorization

January 13, 2016 - \$32,000 Design authorization