PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 6b

Date of Meeting August 4, 2015

DATE: July 27, 2015

TO: Ted Fick, Chief Executive Officer

FROM: Dave Soike, Director, Aviation Facilities and Capital Programs
Wayne Grotheer, Director, Aviation Project Management Group

SUBJECT: Utility Emergency Backup/Standby Power Project (CIP #C800538)

Amount of This Request:	$36,998,308	**Source of Funds:**	Airport Development Fund and 2015 revenue bonds
Est. Total Project Cost:	$37,200,000		
Est. State and Local Taxes:	$2,810,000		

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to: (1) develop, advertise, and execute a Public Works Building Engineering Systems Contract for the Utility Emergency Backup/Standby Power Facility Project with a total project cost estimated at $37,200,000; and (2) authorize the use of Port crews for preliminary work in support of the project.

SYNOPSIS

The project will provide an enclosed, dual fuel standby power facility that is functionally complete, fully integrated, and capable of supplying 25 megawatts (MW) of power. This wattage is 100 percent of the Airport's peak electrical demand over the existing power distribution system. Upon the unexpected loss of normal utility power, the standby power facility will provide stable backup power to the Airport within five minutes. The standby power facility will have sufficient fuel storage capacity to operate the Airport continuously for up to 24 hours with ability to use aviation fuel as a backup source should diesel fuel become unavailable. The total value of this request is $36,998,308 of an estimated total project cost of $37,200,000. This improvement will not be impacted by future development recommended as part of the Sustainable Airport Master Plan (SAMP).

BACKGROUND

Almost all functions at the Airport rely on electricity. The Airport currently has back-up power only for life/safety functions, which is three (3) megawatts or ten percent of the Airport's electrical demand. These functions are primarily based on passenger egress requirements or getting passengers and staff out of the Airport safely. During an extended electrical power outage, the Airport will not be able to operate.

The Airport has had experiences with power outages and has taken past actions to mitigate such threats to operations. In 2009 and 2010, the Airport was faced with the prospect of a long-term area power outage that might result from the failure of the Howard Hansen Dam. With support from tenants and airlines, the Airport spent $3.5 million to rent and install 18 MW of temporary backup generators at that time. The generators were returned when the risk from the dam failure was mitigated. In 2008, a car accident caused the Airport's south main substation to lose power for several hours. In 2006, a windstorm knocked out power to the region and portions of the Airport.

This project was submitted to the airlines for a majority-in-interest vote. The project was approved.

PROJECT JUSTIFICATION AND DETAILS

During a utility power outage, the Airport is unable to operate normally. An extended loss of utility power at the Airport impedes the Port's, airlines' and tenants' ability to utilize the Airport. Loss of electrical power shuts down airline and concession electronic communications, jet bridge operations, flight information displays, ticket printers, security checkpoints, electric ground support equipment (eGSE) chargers, baggage conveyors, lighting for legal occupancy within the terminal, heating/cooling systems, and other functions. The continued reliable operation of Sea-Tac Airport is vital to meeting the needs of the region and the airlines. This project will provide the Airport with a permanent standby power source and enable the continued operation of Sea-Tac Airport during a short or long-term power outage event.

Project Objectives

- Provide 25 megawatts of stable power to Sea-Tac Airport within five minutes
- System able to expand as Airport demands grow
- System to run continuously for up to 24 hours without refueling
- System to be able to run on multiple fuel types
- When conditions dictate (e.g. major storm approaching, dam bursting), the ability to isolate the Airport utility from the Puget Sound Energy electrical grid so that the Airport is not affected by regional electrical outages

Scope of Work

This project will provide a complete, useable, and fully integrated standby power facility capable of supplying 25 megawatts of power to the Airport.

The standby power facility will be sited on Port property next to the Port's South Main Substation and Puget Sound Energy's Sea-Tac substation (see Attachment A – site vicinity map). This is an ideal location due to the proximity of existing electrical infrastructure that minimizes the cost and complexity of power distribution to aviation facilities. The project has been coordinated with the Construction Logistics Expansion Project.

All generators or generation equipment will be installed in a weather-tight building or structures of suitable size and design capable of expanding to house an additional generator. Any contaminated soil disturbed or removed shall be abated, appropriately handled, and properly disposed of. Fuel storage and associated piping will be above ground with appropriate containment and monitoring systems for compliance with State and Federal regulatory requirements.

Preliminary work includes actives such as site investigation, electrical room "escorting", remediation efforts, limited fiber optic cable installation or other ancillary activities to support the project.

Procurement method

The Standby Power Facility will be competitively procured as a Public Works building engineering system contract. Per RCW 39.04.290, the Port may award contracts of any value for the design, fabrication, and installation of building engineering systems by using a competitive process where bidders are required to provide final specifications and a bid price for the design, fabrication, and installation of building engineering systems, with the final specifications being approved by an appropriate design, engineering, and/or public regulatory body. The procurement strategy was chosen because an industry standard turnkey solution is available and a large percentage of the cost is equipment.

Schedule

Commission Authorization for Procurement:	3rd Quarter 2015
Award Contract	2nd Quarter 2016
Issue Notice to Proceed:	3rd Quarter 2016
Construction Complete:	3rd Quarter 2017

FINANCIAL IMPLICATIONS

Budget/Authorization Summary	Capital	Expense	Total Project
Original Budget	$36,400,000	$800,000	$37,200,000
Previous Authorizations	$201,692	$0	$201,692
Current request for authorization	$36,198,308	$800,000	$36,998,308
Total Authorizations, including this request	$36,400,000	$800,000	$37,200,000
Remaining budget to be authorized	$0	$0	$0
Total Estimated Project Cost	$36,400,000	$800,000	$37,200,000

Project Cost Breakdown	This Request	Total Project
Procurement/Construction	$33,388,308	$33,590,000
Soil Abatement	$800,000	$800,000
Sales Tax	$2,810,000	$2,810,000
Total	$36,998,308	$37,200,000

Budget Status and Source of Funds

This project, C800538, was included in the 2015-2019 capital budget and plan of finance. The funding sources will include the Airport Development Fund and 2015 revenue bonds. This project will be incorporated into the Airport's electrical utility, so both capital and operating costs will be recovered through an internal utility charge allocated to the terminal. The costs therefore show up as operating costs.

Financial Analysis and Summary

CIP Category	Renewal/Replacement
Project Type	Infrastructure Upgrade
Risk adjusted discount rate	N/A
Key risk factors	
Project cost for analysis	$37,200,000
Business Unit (BU)	Electric Utility (allocate to Terminal Building)
Effect on business performance	NOI after depreciation will increase
IRR/NPV	N/A
CPE Impact	0.08 in 2017

Lifecycle Cost and Savings

The design life of the project is 30 years or more. Operations and Maintenance (O&M) costs of the recommended alternative will be approximately $125,000/year to include: periodic maintenance, testing, air permitting requirements, fuel, and training. It is anticipated that the system will need to be run once a week or 50 hours a year for maintenance and testing purposes.

STRATEGIES AND OBJECTIVES

The project supports the Port's Century Agenda objective of meeting the region's air transportation needs at Sea-Tac International Airport for the next 25 years by improving electrical reliability for continuous Airport operations.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1) – Maintain the status quo.

Capital Cost $0

This is not the recommended alternative.

Pros:

- No capital investment

Cons:

- The Airport's operations continue to be subject to an electrical outage risk. Each hour of an electrical outage incurs significant costs to the airlines. In the last major outage, The

Alaska Airlines Group lost their main computer network, which grounded flights nationwide. The airlines support going ahead with the project.

- Waiting for an extended outage to occur, and then trying to find and rent and temporarily install diesel backup generators will take time. The option is slow to implement as evidenced by earlier experience with flood risk from the Howard Hansen Dam. The regional power transmission systems feeding the Airport would have been flooded. It took over six months to set up the temporary system. In a regional power outage, the Port will be in competition for generator resources.

Alternative 2) – Install a new combined heat and power facility.

Capital Cost $56+M
O&M Cost $2.2M/year

This is not the recommended alternative.

This alternative would install a Gas Turbine Generator and associated infrastructure upgrades to provide both electricity and heat to the Airport.

Pros:

- The Airport electrical utility would be able to operate independently of outside power suppliers.
- Heat can be recovered from the electrical generation process to heat the Airport.

Cons:

- This project would double electrical costs for the Airport's Electric Utility customers.
- The option would not utilize the Port's contract for low-cost hydroelectric power from the Bonneville Power Administration.
- A continuously operating gas turbine would subject the Port to more stringent environmental regulations and oversight.

Alternative 3) – Install centralized dual fuel generators

Capital Cost $37.2M
O&M cost $125,000/year

This alternative provides a centralized Standby Power Facility capable of supplying 25 megawatts of power over the existing Airport distribution system. **This is the recommended alternative.**

Pros:

- The Standby Power Facility project will protect the Airport from an electrical outage and enable continuity of airport and airline operations.

- Industry standard fully equipped backup power facilities are available on the marketplace.
- The dual fuel generators will normally run on diesel fuel but in an emergency may be fueled by Jet-A fuel.

Cons:

- The system will need to be monitored to ensure compliance with Airport's environmental operating permits.

ATTACHMENTS TO THIS REQUEST

- Attachment A – Site Vicinity Map

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- December 9, 2014 – Presentation to Commission.