

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 6a

Date of Meeting October 26, 2010

DATE: October 7, 2010

TO: Tay Yoshitani, Chief Executive Officer

FROM: David Soike, Director, Aviation Facilities and Capital Program
Wayne Grotheer, Director, Aviation Project Management Group

SUBJECT: Electrical Ground Support Equipment (EGSE)
Charging Stations (New Infrastructure) – CIP #C800335
EGSE Rolling Stock (New Vehicles) – CIP #C800457

This Request: \$1,510,000

Source of Funds: Airport Development Fund

Total Estimated Budget: \$44,410,000

Jobs Created: NA

Sales Tax Paid: \$60,000 (this authorization)

ACTION REQUESTED:

Request Commission authorization for the Chief Executive Officer to: (1) prepare designs; (2) authorize the use of Port work crews; and (3) execute and amend contracts for materials, abatement, equipment, work, and services to move the EGSE project forward. Request initial Commission authorization of \$1,510,000 for the EGSE project that is ultimately expected to cost approximately \$44,410,000.

SYNOPSIS:

This authorization covers necessary design work to enable the staff to move forward in preparing initial scoping documents, cost estimates, schedule phasing plans; all of which is necessary for the detailed engagement and coordination with over two dozen passenger airlines at the Airport. The ultimate project is envisioned to enable the replacement of approximately 330 baggage tugs, 190 belt loaders, 70 pushback tractors and other various pieces of fossil-fuel based GSE with EGSE. The environmental goal will utilize energy efficient electric equipment, reduce use of fossil fuel, reduce air emissions by 10,900 metric tons of Carbon Dioxide (CO₂) annually, and improve air quality for the Puget Sound Region. 10,900 tons of CO₂ equates to approximately 1,500 vehicles off our public roadways.

Good coordination has already occurred with the airlines headquartered here near the Airport. Both Alaska and Horizon Airlines have indicated a strong interest in converting from fossil fuel GSE to EGSE. Airport staff has received proposed locations from Alaska Airlines for charging

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equipment at their gate areas. This authorization will enable staff to identify the best locations for the charging stations and the ability of our Airport's existing electrical systems to support the equipment that would serve the electric baggage tugs, belt loaders, and pushback tractors.

This project is made up of three parts: 1) the airport electrical infrastructure within the terminal building; 2) the charging stations just outside the terminal building within the aircraft parking locations; and 3) the tug, loader, and tractor vehicles that are driven below the terminal building and throughout the aircraft parking positions. In general, this authorization would enable staff to evaluate the extent of hazardous materials near electrical infrastructure that needs to be upgraded; purchase and install electrical meters to determine the extent of upgrades necessary; determine the necessary size of charging station equipment; optimize layouts of equipment near aircraft; prepare solicitations for firm pricing of chargers and electrical vehicles; perform all necessary preliminary design necessary to cost, schedule, and analyze the project; affirm the business case; coordinate with the many airlines involved; and move the project forward from an infrastructure standpoint. Staff will return to the Commission to request authorization prior to awarding major charger and vehicle procurements.

Airport staff is working with agencies to secure and utilize grants that would help support the project. Staff will seek to maximize use of a US Department of Energy (USDOE) Clean Cities Coalition (CCC) \$5 million grant toward purchase of electrical vehicles. In addition, staff is coordinating with the Federal Aviation Administration (FAA) Voluntary Airport Low Emission (VALE) Program for an approximately \$7 million grant toward infrastructure improvements to support the electrical chargers.

BACKGROUND:

Most current GSE operated by airlines at the Airport are fueled by fossil fuels (Horizon Airlines has some EGSE). They produce a significant percentage of the air emissions associated with Airport operations. This equipment is vital to airline operations, performing a myriad of complex and time-sensitive functions essential to the unimpeded flow of airfield operations. These functions include moving aircraft to and from the gate, as well as loading, unloading, and sorting of aircraft baggage, food, supplies and cargo.

Alaska and Horizon Airlines support the electrification of existing GSE and are working with the Port to replace a majority of their fossil-fueled GSE equipment operated at the Airport. Alaska and Horizon fleets comprise approximately 35% of the total fleet at the Airport (currently there are approximately 600 - 800 pieces of fossil-fuel based equipment owned by all airlines and support providers at the Airport). We anticipate that a majority of Sea-Tac airline carriers will ultimately participate in this project through an airline consortium where the carriers lease the EGSE vehicles from the Port and manage maintenance. A consortium lease would not be entered into without prior Commission Authorization that is anticipated to occur next year. An airline consortium has been leasing the fuel system and managing fuel distribution for years.

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Electricity is a viable alternative for powering most types of GSE. Electricity is unique among alternative fuels in that there are no vehicle tailpipe emissions. Although there is some increase in offsite power generating station emissions (if generation is fossil-fueled) resulting from increased demand required to recharge EGSE vehicles, conversion to EGSE is considered a very effective emission reduction strategy. This is especially true with the high percentage of hydroelectric power generation used in the Northwest.

As a technology, EGSE is rapidly gaining acceptance at airports around the nation. Some of the issues surrounding electric on-road vehicles (i.e. performance and range) are not issues in the confined airport setting. When not in use, electric motors shut down, which eliminates unnecessary idling that occurs with gasoline or diesel engines. Therefore, the use of electricity as a transportation fuel to power battery-powered electric vehicles is the most beneficial and effective emission reduction strategy for this operation.

Port staff is currently determining the best way to partner with airline carriers to support the move to cleaner GSE on the ramp. Since this equipment would require new infrastructure to charge the EGSE, Port staff must explore options for equipping gates to accommodate new equipment. This authorization will enable necessary preliminary design to accommodate the infrastructure needs, charging stations, and vehicles.

PROJECT DESCRIPTION/SCOPE OF WORK:

Project Statement:

This project will provide permanent electric power, chargers, and approximately 650 EGSE vehicles throughout the Airport to serve the passenger airlines.

Project Objectives:

- Reduce annual emission of CO2 by approximately 10,900 tons per year by converting to EGSE vehicles
- Maximize use of existing infrastructure to reduce environmental impact
- Minimize aircraft parking ramp-area operational impacts to airlines
- Provide continuous electrical power to various charging station locations that will be in proximity to many of the 80 existing aircraft parking gates and other areas where EGSE vehicles will park and be charged.
- Standardize design throughout the Airport to minimize installation, operation and maintenance costs.
- Reduce the net operating and maintenance cost for the airlines and Airport combined

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Scope of Work for this Authorization:

This initial authorization will provide for design, necessary contracts, and work by Port forces to begin to implement the ultimate project; pre-purchase specialized equipment and materials through competitive bid processes; and to authorize PCS to perform Regulated Materials Management (RMM) investigations and self perform necessary associated work. Other tasks include:

- Implement and complete site investigations to map facilities and utilities
- Perform hazardous material investigations and abatement
- Purchase specialized equipment: for example purchase meters, install, and complete 30 day electrical load measurements of feeders to the aircraft gate parking position areas
- Utilize Port and contracted crews to perform work
- Prepare specifications and issue solicitation bid documents, open, and analyze them to establish firm pricing for charging stations and various electrical vehicles to meet airline needs (Contracts would not be executed without additional commission authorization)
- Perform design (10% to 100% depending upon element of work)
- Prepare and execute various contracts as necessary
- Prepare, execute, amend, and/or issue service agreements as necessary to move the project forward.
- Coordinate project with other Airport or airline projects either in development or construction
- Coordinate with Aviation Properties, Operations, Environmental, Fire, and Airport tenants when indentifying EGSE charging equipment locations
- Prepare project scope of work, budget cost estimates, phasing schedules, constructability analysis, business analyses, and other actions in order to meet airline, business and environmental goals
- Research airline equipment needs and other coordination with airlines
- Return to Commission with briefings and for approvals as project progresses

STRATEGIC OBJECTIVES:

Ensure Airport and Seaport Vitality

The project provides reduced emissions at the Airport, which will improve the air quality at the Airport, nearby communities, and the greater Puget Sound area to benefit residents, businesses, traveling public, airlines, and tenants.

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FINANCIAL IMPLICATIONS:

Budget/Authorization Summary

CIP #C800335 (Infrastructure and Charging Stations)	\$14,410,000
CIP #C800457 (Vehicles)	\$30,000,000
Total Original Budget	\$44,410,000
Budget Increase	\$0
Revised Budget	\$44,410,000
Previous Authorizations	\$0
Current request for authorization	\$1,510,000
Total Authorizations, including this request	\$1,510,000
Remaining budget to be authorized	\$42,900,000

Project Cost Breakdown (This Authorization)

This Request

Construction - RMM, PCS, small works contractors	\$300,000
Materials, Metering Equipment	\$300,000
Design, Outside Professional Services	\$400,000
In-house Coordination, Design, Project Management	\$450,000
Sales tax	\$60,000
Total	\$1,510,000

Source of Funds

The Electrical Ground Services Equipment project (CIP Nos. C800335 and C800457) are included in the 2011-15 capital budget and plan of finance as business plan prospective projects. The funding sources include revenue bonds, FAA-VALE and USDOE-CCC grants currently estimated at \$12.725 million, and the Airport Development Fund.

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Financial Analysis Summary

CIP Category	Renewal/Enhancement
Project Type	Renewal & Replacement
Risk adjusted Discount rate	Not Applicable
Key risk factors	Not Applicable
Project cost for analysis	\$44,410,000
Business Unit (BU)	Airfield
Effect on business performance	Costs will be recovered through various rates and charges mechanisms: electrical energy through utility charges; infrastructure improvements through terminal rents and landing fees; and vehicles through leases.
IRR/NPV	N/A
CPE Impact	This project will increase CPE by approximately \$0.17 by 2013. However, there will be no increase to the 2011 – 2015 business plan forecast as these projects are included.

OPERATION & MAINTENANCE IMPLICATIONS:

It is anticipated that the majority of O&M costs, such as maintenance of vehicles (tires, batteries, brakes) will be accomplished by an airline consortium or airline subcontractors while electrical infrastructure within the terminal building, or just outside, will be maintained by Airport staff. More detailed O&M costs will be available when project is design is completed.

ECONOMIC IMPACTS:

While the project supports local construction employment, the project does not create any incremental economic impacts apart from supporting the existing operational economic benefits of the Airport.

ENVIRONMENTAL/COMMUNITY BENEFITS:

The project will utilize energy efficient electric equipment, reduce use of fossil fuel, reduce air emissions by 10,900 metric tons of CO₂, and improve quality of air for the local communities and Puget Sound Region. This project supports Airport environmental goals to improve air quality, reduce greenhouse gas emissions and deploy technology when it can reduce energy demand.

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TRIPLE BOTTOM LINE SUMMARY:

This project provides a means to improve the environment, provides potential job creation in the community, and partners with airlines and contractors to upgrade operating equipment.

PROJECT SCHEDULE:

- Coordinate with airlines – Q4, 2010
- Complete Preliminary Design and Issue Solicitations for Chargers and Vehicles – Q1, 2011
- Return to Commission for Authority to Award Charger and Vehicle Contracts and associated lease to airlines or consortium of airlines – Q2 through Q3 2011
- Project Phased Completion – 2012 through 2013

ALTERNATIVES CONSIDERED/RECOMMENDED ACTION:

Alternative 1: Install electrical infrastructure throughout all Concourses and Satellites to provide power to electrify fossil fuel GSE and reduce air emissions at the airport. Maximize the use of grants to benefit both the Port and Airlines. **This is the recommended alternative.**

Alternative 2: Do Nothing. Should this project not go forward, the allocated Federal Grants to the Port, will be relinquished. The Port will not realize a reduction in fossil-fuel emissions. This is not the recommended alternative.

PREVIOUS COMMISSION ACTION:

On September 28, 2010, the Commission was briefed on the 2011 capital budget that included the above-mentioned EGSE projects.

On September 8, 2005, the Commission was briefed on the benefit of changing from fossil-fuel based GSE vehicles to EGSE based vehicles at Seattle-Tacoma International Airport.