

**RESOLUTION NO. R2012-06**
**Amend the 2012 Annual Budget to Establish the Light Rail Vehicle Onboard Energy Storage Project**

<b>MEETING:</b>	<b>DATE:</b>	<b>TYPE OF ACTION:</b>	<b>STAFF CONTACT:</b>	<b>PHONE:</b>
Capital Committee	02/09/12	Recommendation to Board	Ahmad Fazel, DECM Executive Director	206-398-5389
Board	02/23/12	Final Action	<b>Justin Garrod, Senior Systems Engineer</b>	206-398-5384

**PROPOSED ACTION**

(1) Amends the Adopted 2012 Budget to create the Light Rail Vehicle Onboard Energy Storage Project and approves (a) the 2012 Annual Project Budget of \$1,525,000, and (b) the Project Lifetime Budget in the amount of \$1,643,085, (2) approves Gate 1 within Sound Transit's Phase Gate process, (3) approves an alternate gate path for the project.

**KEY FEATURES**

- This project will design, procure and install energy storage units for capturing and storing energy generated by vehicle braking. The energy captured will power light rail vehicles (LRV), add a feature to allow trains to move up to 1,500 feet without overhead power and may result in reduced utility costs for LRV operations.
- In 2011, Sound Transit received a Transportation Investment Generating Economic Recovery (TIGGER) grant funds to reclaim unused energy generated by vehicle braking.
- As a capital project, Sound Transit's Phase Gate process applies. Gate 1 creates the project and funds the Project Development Stage. In Gate 1, staff identifies the phases and gates that are relevant according to a project's unique attributes. It has been determined that Gate 2: Identify Alternatives and Gate 3: Identify Preferred Alternative are not applicable for procure/install projects such as this. Additionally in Gate 1 the CEO is recommending that the Board fund the entire lifetime project budget at Gate 1.
- Upon Board adoption of the budget amendment, a request for proposals to provide energy storage units will be issue through a competitive procurement process.
- Sound Transit staff will perform project management. The project schedule forecasts completion by March 2013.

**PROJECT DESCRIPTION**

This TIGGER grant provides funding for design and installation of energy storage units. Energy storage units capture energy generated from LRV braking that would otherwise dissipate as heat if not used immediately. Storing and reusing energy improves efficiency and is intended to lower energy consumption and result in reduced operating costs.

## FISCAL INFORMATION

### Project Table

### BUDGET AMENDMENT

LRV Onboard Energy Storage	2012 Annual Budget			Lifetime Budget		
	Adopted 2012 Project Budget	Budget Transfer	Revised Project Budget	Adopted 2012 Project Budget	Budget Transfer	Revised Project Budget
Agency Administration	\$ -	\$ 45	\$ 45	\$ -	\$ 60	\$ 60
Preliminary Engineering	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Final Design	\$ -	\$ 70	\$ 70	\$ -	\$ 80	\$ 80
Right of Way	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construction Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Third Party Agreements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Vehicles	\$ -	\$ 1,410	\$ 1,410	\$ -	\$ 1,503	\$ 1,503
Contingency	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	<b>\$ -</b>	<b>\$ 1,525</b>	<b>\$ 1,524</b>	<b>\$ -</b>	<b>\$ 1,643</b>	<b>\$ 1,643</b>

Notes:

Amounts are expressed in Year of Expenditure \$000s.

A fiscal analysis of the long-term cost impacts of this equipment indicates that within two years, the initial investment and the maintenance and operations costs should be recouped through lower energy costs.

The project will modify up to five (5) light rail vehicles. Grant revenues will fund the Final Design and Vehicles Phase activities. The agency as a practice does not draw down grant funds for Administration Phase costs. As a result, those costs for this project will be locally funded.

As part of the Proposed 2013 Budget process, staff will identify offsetting budget reductions through savings projected in other DECM projects scheduled to be completed in 2012 to offset the locally funded portion of the project.

### SMALL BUSINESS PARTICIPATION

Not applicable to this action.

### EQUAL EMPLOYMENT WORKFORCE PROFILE

Not applicable to this action.

### BACKGROUND

The traction power for LRVs is a major source of overall Sound Transit energy use. Traction power accounts for 63% of the agency's electricity use and 7.4% of the agency's overall energy use. For each car equipped with energy storage devices there is a potential of up to 194,000 kWh; five LRVs could save up to 970,000 kWh annually.

#### Phase Gate Process

TIGGER grant funds of \$1,583,085 were not awarded in time for adoption of the 2012 Budget. A new project is created and budgeted in Gate 1 of the agency's Phase Gate Process. This action creates the Light Rail Vehicle Onboard Energy Storage Project, establishes a Project Lifetime Budget of \$1,643,085, and a 2012 Annual Project Budget of \$1,525,000. If unique attributes impact a project's transition through the phases and gates as laid out in the Phase Gate Policy, the chief executive officer may recommend Board approval of an alternative gate path. For this project, it

has been determined that Gate 2 to identify alternatives and Gate 3 to identify a preferred alternative are not applicable. The chief executive officer is recommending the Board approve an alternative gate path.

In addition, staff is recommending that the full grant amount and the locally funded portion be brought on budget. Standard procedure for a Gate 1 action would be to approve sufficient budget to complete preliminary engineering. However, due to the type of project, there will be no preliminary engineering.

The next step will be to finalize the procurement documents and advertise for construction. Gates 4, 5 and 6 will be brought back for Board consideration upon selection of a qualified contractor. At that time, the project schedule and budget will be baselined. This contract is being issued as a procurement contract which includes the design, delivery and integrated testing of the equipment. This contract will include performance requirements similar to the approach utilized when purchasing light rail vehicles.

## **ENVIRONMENTAL COMPLIANCE**

JI 1/4/2012

## **TIME CONSTRAINTS**

A one month delay will not adversely affect this project.

## **PUBLIC INVOLVEMENT**

Not applicable to this action.

## **LEGAL REVIEW**

JW 2/7/12

**RESOLUTION NO. R2012-06**

A RESOLUTION of the Board of the Central Puget Sound Regional Transit Authority (1) amending the Adopted 2012 Budget to create the Light Rail Vehicle Onboard Energy Storage Project and approving (a) the 2012 Annual Project Budget of \$1,525,000, and (b) the Project Lifetime Budget in the amount of \$1,643,085, (2) approving Gate 1 within Sound Transit's Phase Gate process, (3) approving an alternate gate path for the project.

WHEREAS, the Central Puget Sound Regional Transit Authority, commonly known as Sound Transit, was formed for the Pierce, King, and Snohomish Counties region by action of their respective county councils pursuant to RCW 81.112.030; and

WHEREAS, Sound Transit is authorized to plan, construct, and permanently operate a high-capacity system of transportation infrastructure and services to meet regional public transportation needs in the Central Puget Sound region; and

WHEREAS, in general elections held within the Central Puget Sound Regional Transit Authority district on November 5, 1996 and November 4, 2008, voters approved local funding to implement a regional high-capacity transportation system for the Central Puget Sound region; and

WHEREAS, the design, procurement and installation of energy storage units on Link light rail vehicles will capture energy generated from vehicle braking that would otherwise dissipate as heat if not used immediately; and

WHEREAS, energy storage units will reduce the agency's electricity and overall energy use; and

WHEREAS, Sound Transit received federal Transportation Investment Generating Economic Recovery (TIGGER) grant funds to reclaim unused energy generated by vehicle braking and TIGGER grant funds were not awarded in time for adoption of the 2012 Budget; and

WHEREAS, a fiscal analysis of the long-term cost impacts of this equipment indicates that within two years, the initial investment and the maintenance and operations costs should be recouped through lower energy costs; and

WHEREAS, Gate 1 of Sound Transit's Phase Gate process creates the project and funds the Project Development Stage; and

WHEREAS, in Gate 1, staff identifies the phases and gates that are relevant according to a project's unique attributes; and;

WHEREAS, it has been determined that Gate 2: Identify Alternatives and Gate 3: Identify Preferred Alternative are not applicable for procure/install projects such as this; and

WHEREAS, the chief executive officer recommends that the Board fund the entire lifetime project budget at Gate 1.

NOW, THEREFORE, BE IT RESOLVED by the Board of the Central Puget Sound Regional Transit Authority that the following actions be approved:

Section 1: Amending the Adopted 2012 Budget to create the Light Rail Vehicle Onboard Energy Storage Project and approving (a) the 2012 Annual Project Budget of \$1,525,000, and (b) the Project Lifetime Budget in the amount of \$1,643,085.

Section 2: Approving Gate 1 within Sound Transit's Phase Gate process.

Section 3: Approving the alternate gate path for the project that omits Gates 2 and 3 within the Phase Gate process.

ADOPTED by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on February 23, 2012.



Pat McCarthy  
Board Chair

ATTEST:



Marcia Walker  
Board Administrator

**PHASE GATE ACTION**
**Light Rail Vehicle Onboard Energy Storage Project**

MEETING	DATE	STAFF CONTACT	PHONE
Capital Committee	2/9/12	Ahmad Fazel, Executive Director, DECM	206-398-5389
Board	2/23/12	Justin Garrod, Senior Systems Engineer	206-398-5384


**ACTION REQUESTED**

Create the Light Rail Vehicle Onboard Energy Storage Project and establish the lifetime project budget.

**BUDGET**

Estimated Final Project Cost: \$1,643,085  
 Lifetime Budget: \$ 1,643,085

**SCHEDULE**

Scheduled Project Completion: March 2013

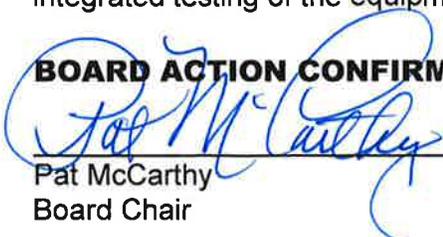
**PROJECT DESCRIPTION**

This project will design, procure and install energy storage units for capturing and storing energy generated by vehicle braking. The energy captured will power light rail vehicles (LRV), adds a feature to allow trains to move up to 1,500 feet without overhead power and may result in reduced utility costs for LRV operations.

In 2011, Sound Transit received a Transportation Investment Generating Economic Recovery (TIGGER) grant funds to reclaim unused energy generated by vehicle braking. TIGGER grant funds of \$1,583,085 were not awarded in time for adoption of the 2012 Budget.

If unique attributes impact a project's transition through the phases and gates as laid out in the Phase Gate Policy, the chief executive officer may recommend Board approval of an alternative gate path. For this project, it has been determined that Gates 2 and 3 are not applicable to this project, therefore the chief executive officer is recommending the Board approve an alternative gate path. Standard procedure for a Gate 1 action would be to approve sufficient budget to complete preliminary engineering. Due to the type of project, there will be no preliminary engineering and Sound Transit has determined that it is necessary to fund the entire lifetime project budget at Gate 1.

The next step will be to finalize the procurement documents and advertise for construction. Gates 4, 5 and 6 will be brought back for Board consideration upon selection of a qualified contractor. This contract is being issued as a procurement contract which includes the design, delivery and integrated testing of the equipment.

**BOARD ACTION CONFIRMED**



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 Pat McCarthy  
 Board Chair

*February 23, 2012*

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 Date