



# Memorandum

**TO:** HONORABLE MAYOR AND  
CITY COUNCIL

**FROM:** Jose Obregon

**SUBJECT:** SEE BELOW

**DATE:** February 4, 2004

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Approved

Date

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**SUBJECT: SOLE SOURCE PURCHASE OF CARRIER VARIABLE FREQUENCY DRIVES FOR HVAC SYSTEM AT AIRPORT**

## **RECOMMENDATION**

Approve an award to purchase 6 Variable Frequency Drives (VFDs) and 2 motors from Carrier Corporation of San Leandro, CA as a sole source purchase for a total not to exceed \$189,226 including sales tax, delivery and installation, and authorize the Director of General Services to execute the purchase order.

## **BACKGROUND**

The Airport currently has a Carrier brand Heating Ventilation and Air Conditioning (HVAC) System. The system consists of centrifugal chillers using approximately 966,798 KW (Kilowatts) at an annual cost of approximately \$135,351 with PG&E.

To save approximately \$49,533 in annual energy costs for the City, the Airport recommends that its Central Plant chillers and related tower pumps and fans be retrofitted with new VFDs. The VFDs are more energy-efficient compared to the starters that currently start and run the chillers, pumps and fans.

The VFDs control electricity consumption in two ways:

1. They gradually ramp up the chillers, reducing electricity consumption at start-up (this also extends the life of the equipment);
2. The VFDs provide power equal to the load and cooling requirements of the terminal.

By installing VFDs on the chillers, pumps, and fans; Staff will also be able to better control the head pressure and load on each chiller, maximizing cost savings.

The Central Plant now serves Terminal A and the new IFIS building and will soon serve the new North Concourse as well. This HVAC system upgrade will reduce electricity consumption and reduce the Airport's energy costs from \$135,351 to \$85,818 annually (36.6% reduction).

**ANALYSIS**

A total of 6 VFDs are required for this retrofit, two each for the chillers, tower pumps and cooling tower fans and a total of 2 motors are required for the cooling tower fans. While there are other VFD brands/manufacturers, only Carrier brand VFDs and motors are compatible with existing Carrier HVAC equipment. The existing chillers and related equipment are older Carrier models that require the custom interface (i.e., programming to custom operating parameters) provided by Carrier VFDs for equipment interoperability. The control box for this interface is special in nature and is not available commercially except through Carrier Corporation.

This HVAC system upgrade is consistent with the City's on-going commitment to cutting energy consumption as adopted in San Jose's Smart Energy Plan, March 2001. The table below summarizes how much the project will save the City in annual energy costs:

	Annual Kilowatt Usage	Price per KW	Total Annual Cost
Current System	966,798	\$0.14	\$135,351
Post – Upgrade	612,984	\$0.14	\$ 85,818
<b>Projected Annual Savings</b>			<b>\$ 49,533</b>

Living Wage/Prevailing Wage

This contract is subject to the City's Living Wage & Prevailing Wage Policy where Prevailing Wage is higher.

Managed Competition

The City does not have the engineering expertise or capability to manufacture and install HVAC system components.

**PUBLIC OUTREACH**

Not Applicable

**COORDINATION**

The memorandum has been coordinated with the Airport Department, the City Attorney's Office, the City Manager's Budget Office and the Office of Equality Assurance.

**COST IMPLICATIONS**

PG&E will issue a one-time rebate of \$29,363 conditional upon project completion by May 31, 2004. As a result, the net cost to the City for this upgrade will be \$159,863 (\$189,226 – \$29,363). After the three-year period, the City will continue to cut energy costs long term by approximately \$49,533 annually while providing cost-effective customer service at the airport.

This Council item is consistent with General Principle #2, “We must focus on protecting our vital core city services”, and Item #7 “We must continue to streamline, innovate, and simplify our operations...so that we can deliver services at a higher quality level, with better flexibility, at a lower cost.”

**BUDGET REFERENCE**

Fund #	Appn. #	Appn. Name	Total Appn.	Amount of order.	2003-2004 Appropriation Ordinance	Last Budget Action (Date, Ord. No.)
527	4035	Terminal Modifications A and C	\$680,000	\$189,226	Page 77	10/14/03 Ord. No. 26997
		<b>Total</b>	<b>\$680,000</b>	<b>\$189,226</b>		

**CEQA**

Resolutions 67380 and 71451 (PP04-01-024)

JOSE OBREGON  
Director of General Services