All Agency Project Request

2009 - 2011 Biennium

Agency	Institution	Building No.	Building Name
University of Wisconsin	Madison	285-0A-0529	HEATING & COOLING PLANT-CHARTER ST

Project No. 10J1M **Project Title** CSHP CW Dist Pump VFD Repl

Project Intent

This project replaces the Variable Frequency Drive (VFD) system for the 4,160V, 1,000 HP chilled water pump to allow effective, energy efficient pumping of chilled water throughout campus.

Project Description

Project work includes removing the failed 480V VFD and associated 4,160V to 480V and 480V to 4,160V transformers and replacing them with a new 4,160V VFD. The new drive system will include a bypass motor starter. The 4,160V circuit and over-current protection serving the 1,000HP motor will be modified per VFD manufacturer recommendations. Chilled water pressure and flow sensor signals will be routed to the VFD controller input for chilled water flow control. The VFD controller output will be connected to the chilling plant digital control system for indication of all run and fault conditions.

Project Justification

The VFD and associated transformers control the 1,000HP chilled water pump. This drive recently experienced a catastrophic failure requiring complete replacement of the drive with a magnetic drive. The magnetic drive provides no backup means of running this pump, which is critical to the operation of the chilled water system. Replacement of the failed drive is needed as soon as possible to provide critical chilled water system reliability. This chilled water pump must continue to operate to circulate chilled water to the eastern portion of campus to enable facility air conditioning.

The magnetic drive allows chilled water pump speed to vary as the chilled water flow or demand on campus changes. This drive is energy efficient at full load, but the efficiency drops at partial load conditions. A VFD drive is more energy efficient over the total pump operating range. This efficiency difference can be up to 10%, which equates to a substantial energy savings on this large chilled water pump.

A/E Consultant Requirements

☑ A/E Selection Required?

Consultants should have specific expertise and experience in the design and coordination of the installation of electrical equipment in industrial and institutional buildings. Work includes site surveys, acquiring field data, and verifying as-built conditions to assure accurate development of design and bidding documents and production of necessary design and bidding documents. Consultants should indicate specific projects from past experience (including size, cost, and completion date) in their letter of interest and when known, include proposed consulting partners and specialty consultants.

Commissioning

☑ Level 1

☐ Level 2

All Agency Project Request

2009 - 2011 Biennium

Project Budget		
Construction Cost:		$266,000
Haz Mats:		$0
Construction Total:		$266,000
Contingency:	15%	$39,500
A/E Design Fees:	8%	$21,300
DFD Mgmt Fees:	4%	$12,200
Equipment/Other:		$0
		$339,000

Funding Source	Total
GFSB - Utilities Repair & Renovation [Z080]	$278,000
PRSB - []	$0
Agency/Institution Cash [AGF0]	$61,000
Gifts	$0
Grants	$0
Building Trust Funds [BTF]	$0
Other Funding Source	$0
	$339,000

Project Schedule

SBC Approval:	11/2010
A/E Selection:	12/2010
Bid Opening:	05/2011
Construction Start:	06/2011
Substantial Completion:	09/2011
Project Close Out:	12/2011

Project Contact

Contact Name:	Rick Werre
Email:	<rwerre@fpm.wisc.edu>
Telephone No.:	(608) 263-3089 x

Project Scope Consideration Checklist

	Y	N
1. Will the building or area impacted by the project be occupied during construction? If yes, explain how the occupants will be accommodated during construction.	☑	☐
All project work will be coordinated through campus physical plant and heating plant staff to minimize disruptions to daily operations and activities.		
2. Is the project an extension of another authorized project? If so, provide the project #...	☐	☑
3. Are hazardous materials involved? If yes, what materials are involved and how will they be handled?	☐	☑
Hazardous materials abatement is not anticipated on this project. Comprehensive building survey inventory data is not available on Wisconsin's Asbestos & Lead Management System (WALMS) <http://walms.doa.state.wi.us/>.		
4. Will the project impact the utility systems in the building and cause disruptions? If yes, to what extent?	☑	☐
Shutdowns will be scheduled to minimize impact on campus facilities.		
5. Will the project impact on the utility capacities supplying the building? If yes, to what extent?	☑	☐
This project will improve the reliability and energy efficiency of the chilled water system.		
6. Will the project impact the heating plant or the primary electrical system supplying the campus or institution? If yes, to what extent?	☑	☐
All project work will be coordinated through campus physical plant and heating plant staff to minimize disruptions to daily operations and activities.		

7.	Have you identified the WEPA designation of the project...Type I, Type II, or Type III? Type III.	☑ ☐
8.	Is the project affected by historic status?	☐ ☑
9.	Are there any other issues affecting the cost or status of this project?	☐ ☑
10.	Will the construction work be limited to a particular season or window of opportunity? If yes, explain the limitations and provide proposed solution.	☐ ☑