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Justin H. Thompson
Manager
Regulation, Policy & Analysis

Tel. 602-250-2060
Fax 602-250-3003
e-mail Justin.Thompson@aps.com

Mail Station 9708
PO Box 53999
Phoenix, Arizona 85072-3999

July 27, 2005

Ernest Johnson,
Director, Utilities Division
Arizona Corporation Commission
1200 W. Washington
Phoenix, Arizona 85007

RE: SOLAR HVAC PILOT PROGRAM REQUEST UNDER DOCKET NO. RE-00000C-00-0377

Dear Mr. Johnson,

Pursuant to Decision No. 67402, dated November 2, 2004, the Commission approved a limited pilot program for five solar heating, ventilation and air conditioning (HVAC) systems. The pilot program would deem the kWhs saved from these systems as eligible to meet a portion of the "solar electric" requirement in the Environmental Portfolio Standard.

Attached for your review and approval is a project description of one solar heating and cooling system, expected to be installed prior to 2007 that APS requests to have accepted in the subject pilot program. As required, this system does include solar air conditioning.

If you or your staff have any questions, please feel free to call Angie Krainik at 602/250-2611 or me.

Sincerely,

Justin H. Thompson
Manager
Regulation, Policy & Analysis

JHT/AKK

Attachment

Cc: Docket Control (Original plus 13 copies)
Ray T. Williamson

RECEIVED
2005 JUL 27 P 4: 48
AZ CORP COMMISSION
DOCUMENT CONTROL

Maricopa County - Desert Outdoor Center
Solar Heating, Ventilation and Air ConditioningProject Description

The proposed solar unit for the Maricopa County Desert Outdoor Center ("DOC") located at Lake Pleasant, is a solar HVAC system that will provide supplemental energy for both space heating and air conditioning. At this time, the system is scheduled to be installed in the first quarter of 2006.

The proposed system will be incorporated into the existing heating, ventilating and air conditiong (HVAC) system and function as a part of this integrated system, see Figure 1. The existing heating and cooling system, that consists of an electric chiller and two pipe system for chilled water, will be modified to provide either solar-generated chilled or hot water to existing coils in the air handling units. The integrated system will use the solar component whenever possible to take advantage of the free fuel provided from the sun. Controls will be installed so that the HVAC system will always try to use the solar component as the first stage of heating or cooling. Whenever the energy from the sun is insufficient to provide all of the cooling or heating required by the building, the existing heating and cooling components will be brought on as a second stage to insure that the building space receives the desired level of heating or cooling.

The chiller to be utilized is a twenty-ton absorption chiller, using lithium bromide as a closed-loop working fluid, driven with thermal energy from the solar collector field or from thermal storage and/or supplemental heat as required.

The twenty-ton chiller system, including pumps, cold water storage, and control unit will be placed in a container. A hot water storage tank will be mounted next to the container and the cooling tower will be mounted on the roof of the container. Suppliers for these additional components, excluding the control unit, will be local companies.

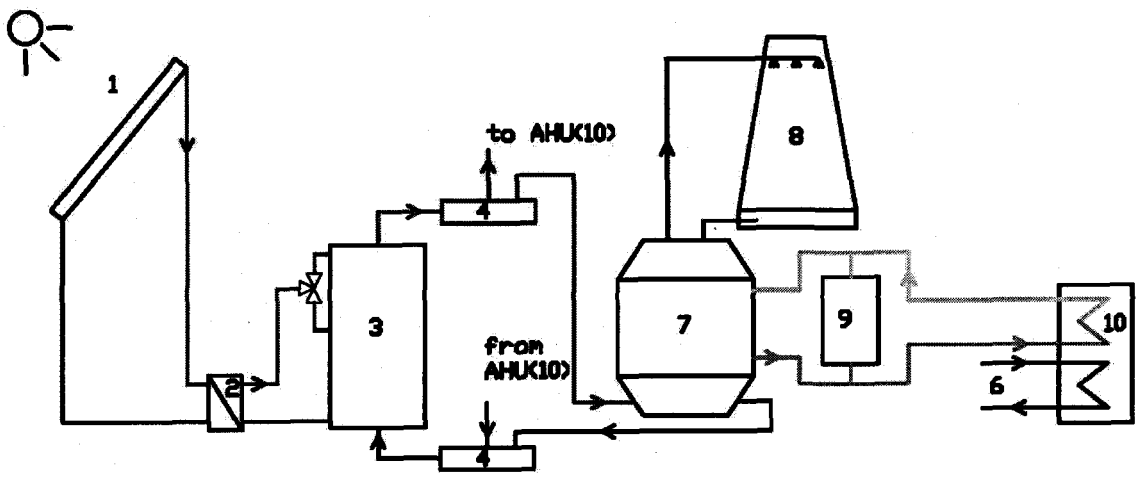
The optimal size of the solar collector field is about 1680 square feet. The field will consist of 15 solar panels of approximately 112 square feet each. The collectors will be mounted on frames on the flat roof of the Administration Building. The solar collector array is designed to generate approximately 150 MWh annually at this location.

The control unit is a special unit under patent by S.O.L.I.D. GmbH for its solar energy systems. The control unit includes a telemonitoring feature to allow for remote monitoring and access.

DOC SOLAR HVAC SYSTEM SCHEMATIC – FIGURE 1

System Schematic

The detailed connection to the existing system will be determined during final engineering. Below is a conceptual schematic.



1 solar plant
2 heat exchanger
3 storage tank
4 heating manifold
5 domestic hot water circuit
6 space heating circuit (air handling units)
7 absorption cooling machine
8 cooling tower
9 cold water storage tank
10 cooling distribution system (air handling units)