100 East Erie Street
Chicago, IL 60611

Metropolitan Water Reclamation District of Greater Chicago

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Title:	Reports on (1) Grant from the Illinois Department of Commerce and Economic Opportunity - for Solar Hot Water Panel Installation at the John E. Egan Water Reclamation Plant, and (2) Grant from the Illinois Clean Energy Community Foundation - for Energy Recovery at the Kirie Water Reclamation Plant		
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TRANSMITTAL LETTER FOR BOARD MEETING OF AUGUST 12, 2010

COMMITTEE ON MAINTENANCE AND OPERATIONS

Mr. Richard Lanyon, Executive Director

Reports on (1) Grant from the Illinois Department of Commerce and Economic Opportunity - for Solar Hot Water Panel Installation at the John E. Egan Water Reclamation Plant, and (2) Grant from the Illinois Clean Energy Community Foundation - for Energy Recovery at the Kirie Water Reclamation Plant

Dear Sir:

On August 7, 2009, the District learned that the City of Chicago Department of the Environment (DOE) had a total of 600 solar thermal panels available, at no cost, to heavy hot water industrial users as a way to promote green technology through its Renewable Energy Catalyst Fund. Since a significant amount of thermal energy is used to heat the anaerobic digesters to approximately 95º F for sludge processing operations, it was decided to pursue the possibility of securing a number of these panels for use at the District's Egan WRP.

Egan staff proceeded to contact the DOE to determine if an inter-governmental agreement will be sufficient to acquire the 45 Solargenix Winston Series CPC WS0503 panels. Authority to negotiate an inter-governmental agreement between the District and the City of Chicago will be requested of the Board if funding is available for installation.

At the same time, the District pursued an application for a grant from the Illinois Department of Commerce and Economic Opportunity (DCEO) through the American Recovery and Reinvestment Act (ARRA), Community Renewable Energy Program. The criteria for grant qualification under this program included the following:

- The renewable energy project cost should be greater than $100,000.00;

- The Grantee must contribute a minimum of 25% of the total project cost;
- Project completion by February 29, 2012.

The grants would also be awarded based on the cost-effectiveness and amount of energy generated by the project, along with its potential for job creation, business development, and greenhouse gas reduction. The grant application was submitted to the Illinois DCEO on October 26, 2009. On February 11, 2010, the DCEO notified the District that the application was recommended for funding through the ARRA Community Renewable Energy Program. Grant Agreement No. 09-462029 was signed by the District on March 31, 2010, and the District was notified of award in the amount of $68,510.00 in a letter dated April 15, 2010.

The estimated total cost of the project is $212,035.00. However, the District will be responsible for less than one-third of the full amount, as the following breakdown shows:

	DCEO Grant	**City of Chicago**	**MWRDGC**
45 Solargenix Panels		$75,015.00	
Equipment, Pumps, Piping, Valves, Tanks, Installation and Testing	$68,510.00		$68,510.00
TOTAL	$68,510.00	$75,015.00	$68,510.00

The 45 solar panels are expected to generate a total of approximately 2,040 therms annually, and will provide all of the heating needs for the boiler makeup water at an annual cost savings of approximately $2,000.00. This project will recoup the District's investment of $68,510.00 in approximately 20 to 30 years.

It is expected that the solar panels could be delivered during 2011 and the District will procure the services of a certified installer to install the panels at the Egan WRP with the intention of having a fully functional system implemented by January 31, 2012.

Apart from the economic considerations, there are several expected benefits from this project, including a reduction in Egan's use of natural and digester gas with a resultant decrease in its carbon footprint, greenhouse gas emissions, and utility costs. This energy production saves the equivalent of 10.8 metric tons per year of carbon dioxide that would otherwise be released into the atmosphere, if the energy had to be produced through the burning of fossil fuel. The installation of the panels will also create local employment opportunities. Finally and most importantly, this project will serve as a demonstration of this technology for possible use in other applications at the District. Egan staff will document the performance of the system to determine its actual technical and economic effectiveness.

Additionally, by a letter dated April 26, 2010, the Illinois Clean Energy Community Foundation (ICECF) awarded a grant of $87,500.00 to the District for the installation of heat pumps, which will be used to recover energy from Kirie WRP effluent to provide heating and air conditioning for the buildings at the plant. The heat pumps re-circulate water and transfer heat in the process. Because the temperature range of WRP effluent is relatively constant, in the summer the circulating water will pick up heat from the building and move it to the plant effluent. In the winter the fluid will pick up heat from the effluent and move it to the building. Heat pump technology is well established, but using this technology to recover energy from plant effluent is novel.

This grant was awarded under the "Model Geothermal System" program and is expected to save at least fifty percent of the energy required by the current natural gas heating system. The system will use electricity to operate the pumps, but the thermal energy recovered from the plant effluent is renewable energy and will provide for energy efficient heating and air conditioning.

The criteria for the ICECF program under this program included the following:

- The Grantee must be a charitable (federally recognized 501c3) nonprofit organization or a local government agency serving Illinois residents;
- The Grantee must contribute a minimum of 50% of the total project cost;
- Project completion by April 30, 2011.

The total project cost is $175,000.00, consisting of $75,000.00 for system design, testing and optimization, and $100,000.00 for capital equipment and installation. The District will contribute the required minimum 50% of the total project cost, amounting to $87,500.00 providing that funds are available. Equipment procurement and installation will be by contract.

Requested, Manju Prakash Sharma, Acting Director of Maintenance and Operations,
MPS:SO'C:MAG:LSC:IJA
Respectfully Submitted, Frank Avila, Chairman Committee on Maintenance and Operations
Disposition of this agenda item will be documented in the official Regular Board Meeting minutes of the Board of Commissioners for August 12, 2010