



Legislation Details (With Text)

File #: ID#15-715 **Version:** 1 **Name:**
Type: Action Item **Status:** Withdrawn
File created: 8/3/2015 **In control:** City Council
On agenda: 8/27/2015 **Final action:** 8/27/2015

Title: Actions pertaining to the Fresno/Clovis Regional Wastewater Reclamation Facility (RWRF) 2-Megawatt Solar Energy Facility (Bid File 3380) (Council District 3)
1. ***RESOLUTION - 4th amendment to Annual Appropriation Resolution (AAR) No. 2015-104 appropriating \$1,367,500 in the Sewer Enterprise State Revolving Loan Fund for the Regional Wastewater Reclamation Facility 2-Megawatt Solar Energy Facility (Requires 5 affirmative votes)
2. Award a \$10,024,426.24 contract as negotiated, to MD Energy Inc. of Rancho Cucamonga, California for the design and construction thereof

Sponsors: Department of Public Utilities

Indexes:

Code sections:

Attachments: 1. Attachment 1 - Guaranteed Annual Electrical Power Production.pdf, 2. Attachment 2 - Preliminary Schedule of O&M services.pdf, 3. Attachment 3 - Financial Feasibility.pdf, 4. Attachment 4 - Summary of Key Contractual Commitments and Responsibilities for MD Energy Inc..pdf, 5. Attachment 5 - Annual Appropriations Resolution.pdf, 6. Attachment 6 - Report from Evaluation Committee.pdf, 7. Attachment 7 - Fiscal Impact Statement.pdf, 8. Attachment 8 - MD Energy Contract.pdf

Date	Ver.	Action By	Action	Result
8/27/2015	1	City Council	withdrawn	

REPORT TO THE CITY COUNCIL

August 27, 2015

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THROUGH: STEPHEN A. HOGG, Assistant Director
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SUBJECT

Actions pertaining to the Fresno/Clovis Regional Wastewater Reclamation Facility (RWRF) 2-Megawatt Solar Energy Facility (Bid File 3380) (Council District 3)

1. ***RESOLUTION - 4th amendment to Annual Appropriation Resolution (AAR) No. 2015-104 appropriating \$1,367,500 in the Sewer Enterprise State Revolving Loan Fund for the Regional Wastewater Reclamation Facility 2-Megawatt Solar Energy Facility (Requires 5 affirmative votes)

2. Award a \$10,024,426.24 contract as negotiated, to MD Energy Inc. of Rancho Cucamonga, California for the design and construction thereof

RECOMMENDATIONS

The Department of Public Utilities (DPU) recommends that the Fresno City Council award a design-build-operate contract in the amount of \$10,024,426.24 to MD Energy Inc. and approve the Appropriation Resolution to appropriate the necessary additional funds to construct a 2-Megawatt (MW) Solar Energy Facility at the Fresno-Clovis Regional Wastewater Reclamation Facility.

EXECUTIVE SUMMARY

The Department of Public Utilities recommends the award of a design-build-operate contract to MD Energy Inc. to design, construct, and operate a 2-MW Solar Energy Facility at the Fresno-Clovis Regional Wastewater Reclamation Facility. The contract includes 10 years of operation and maintenance services for the new 2-MW Solar Energy Facility. The 2-MW Solar Energy Facility has been sized to offset 50-percent of the increased electrical demands associated with the construction and operation of a new 30 million gallon per day (mgd) Tertiary Treatment and Disinfection Facility (TTDF). The 30-mgd TTDF is the cornerstone project for the City's Recycled Water Program, which will provide 25,000 acre-feet per year of non-potable water supply for the community. Phase 1 of the TTDF facility is currently under construction with a capacity of 5-mgd, and it is scheduled to be placed into service September 2016.

DPU received only one proposal for the subject Project, and conducted a due-diligence review of single proposal to confirm the qualifications and experience of MD Energy Inc. to provide the required expertise, experience, project management, labor, materials, equipment, and supplies required to design, build, and operate a 2-MW Solar Energy Facility. Based on the due diligence investigation conducted by DPU staff for the MD Energy Inc. proposal, DPU staff have determined that MD Energy Inc., and its associated subcontractors, is a responsible bidder.

To confirm the financial feasibility of the 2-MW Solar Energy Facility, DPU conducted a cost-benefit analysis comparing the debt service payments and operation and maintenance (O&M) costs for the Project with the electrical savings expected for the Project. Based on the financial feasibility assessment conducted by DPU, the Project will result in total net savings of approximately \$800,000 in Year 1 through Year 10; \$1.8 million in Year 11 through 20; \$1.6 million in Year 21 through Year 25; and \$2.1 million in Year 25 through Year 30. If the City were to forego the low-interest loan, and pay cash for the 2-MW Solar Energy Facility, the simple payback period for the Project would be approximately 18 years.

Based on the additional investigations and assessments conducted by DPU staff, it is recommended that the Fresno City Council award a design-build-operate contract in the amount of \$10,024,426.24 to MD Energy Inc. and approve the Appropriation Resolution to appropriate the necessary additional funds to construct a 2 Megawatt (MW) Solar Energy Facility at the Fresno-Clovis Regional Wastewater Reclamation Facility.

BACKGROUND

In 2009, the State of California adopted a Recycled Water Policy establishing a mandate to increase

the use of recycled water in California by 200,000 acre-feet per year by 2020, and by an additional 300,000 acre-feet by 2030. Since 2009, the Department of Public Utilities (DPU) has been proceeding with planning, permitting, design, and construction activities necessary to implement a 25,000 acre-foot per year Recycled Water Program for the City of Fresno.

Recycled Water Implementation Plan

In response to the State's 2009 Recycled Water Policy, DPU initiated the preparation of a Recycled Water Master Plan to guide the City's decision-making process in the planning and implementation of recycled water projects for urban landscape irrigation; golf course, school, and cemetery irrigation; agricultural irrigation, and industrial non-potable uses. The Recycled Water Master Plan identified potential recycled water use demands at approximately 38,000 acre-feet per year in and around the City's service area, and another 31,000 acre-feet per year for groundwater recharge in and around the City's service area. The Recycled Water Master Plan was completed in December 2010, and in November 2012, the Fresno City Council adopted the City's 2010 Urban Water Management Plan, which included a forecast of future recycled water demands for the City of 25,000 acre-feet per year by 2025.

DPU's implementation plan for a 25,000 acre-foot per year Recycled Water Program includes the following major components:

1. Construction of a 30 million gallon per day (mgd) TTDF at the Fresno-Clovis Regional Wastewater Reclamation Facility. The 30-mgd TTDF will produce recycled water in compliance with the State of California's Title 22 Code of Regulations for Recycled Water. The 30-mgd TTDF will be constructed in three phases: 5-mgd, 10-mgd, and 15-mgd. Phase 1 of the TTDF facility is currently under construction with a capacity of 5-mgd, and it is scheduled to be placed into service September 2016.
2. Construction of a 2-MW Solar Energy Facility will offset a portion of the added electrical power demands of the 30-mgd TTDF. The full electrical power demand for the 30-mgd TTDF is estimated to be approximately 4-MW.
3. Construction of approximately 25 miles of recycled water transmission and distribution pipelines, booster pumping stations, and storage reservoirs. The pipelines, pumping stations, and storage reservoirs will be used to deliver recycled water from the TTDF at the Fresno-Clovis Regional Wastewater Reclamation Facility to the western portions of the City's service area. The recycled water transmission and distribution system will consist of pipeline sizes ranging from 54-inches in diameter to 12-inches in diameter. The bid opening for the first phase of recycled water distribution system was conducted on Friday, August 7, 2015.
4. Construction of up to three satellite recycled water treatment facilities in the eastern portion of the City's service area to capture raw wastewater for recycled water production in closer proximity to recycled water demands on the eastern portion of the City. The preliminary design for all three facilities is currently underway.

Tertiary Treatment and Disinfection Facility and Solar Energy Facility

In August 2010 (and amended in April 2012), the Fresno City Council approved a consultant services agreement with Parsons Water and Infrastructure Inc. to initiate the planning, permitting, and design for the first module (5-mgd) of the TTDF Project and the 2-MW Solar Energy Facility at the Fresno-Clovis Regional Wastewater Reclamation Facility.

On June 26, 2014, the Fresno City Council (a) adopted the finding of Mitigated Negative Declaration for the construction of the 5.0-mgd TTDF and 2-MW Solar Energy Facility, and (b) awarded a construction contract in the amount of \$28.6 million to construct the first module (5-mgd) of the TTDF. Construction of the first module is scheduled to be completed September 2016.

DPU has submitted this Agenda Item to the Fresno City Council to award a design, build, and operate contract to MD Energy Inc. from Rancho Cucamonga, California for the 2-MW Solar Energy Facility which will offset a portion of the added power demands for the first, and all future, phases of the 30-mgd TTDF.

2-MW Solar Energy Facility Procurement Process

The procurement process for the 2-MW Solar Energy Facility was based on soliciting proposals for a design-build-operate contract. Using this approach, DPU provided prospective proposers with (a) specifications and warranty requirements for all equipment items to be provided, (b) performance requirements for electrical power production, (c) performance requirements for system operations and maintenance, and (d) general arrangement drawings showing the proposed location and orientation of the system, and the points of interconnect, at the Fresno-Clovis Regional Wastewater Reclamation Facility.

The Request for Proposals (RFP) was advertised by the City's Purchasing Department on April 1, 2015, with a Proposal due date of May 5, 2015. A pre-proposal meeting was conducted on April 21, 2015 to provide prospective proposers with an opportunity to view and inspect the construction site and ask questions about the RFP. At the close of the proposal period (May 5, 2015), twenty pre-proposal questions were received from prospective proposers. DPU did not receive any questions related the RFP due date of May 5th, or any requests to extend the RFP submittal date past May 5, 2015. It is the practice of DPU to give careful consideration to bidder's request for time extensions on solicitations. The most recent project that had a bid opening date extended was the SW1 Recycled Water Distribution System Project, which was extended two weeks to August 7, 2015. The engineer's estimate for the SW1 Recycled Water Distribution System Project was \$10.2 million, which is similar in size to the bid price for the 2-MW Solar Energy Facility.

Eleven prospective proposers requested plan sets for the 2-MW Solar Energy Facility, but only a single proposal was received, and that proposal was from MD Energy Inc. of Rancho Cucamonga, California.

MD Energy Inc. Qualifications and Experience

Upon receiving only one bid for the subject Project, DPU initiated a proposal review process to confirm the qualifications and experience of MD Energy Inc. to provide the required expertise, experience, project management, labor, materials, equipment, and supplies required to design, build, and operate a 2-MW Solar Energy Facility in accordance with the Project Specifications.

MD Energy Inc. is headquartered in Rancho Cucamonga, California, and is a wholly-owned subsidiary of Solar 3D, which is headquartered in Santa Barbara, California. The project manager for MD Energy Inc. will be Mr. Daniel J. Mitchell who has been licensed for 22 years as an Electrical Contractor, 21 years as a General Building Contractor, and 8 years as a General Engineering Contractor.

The photovoltaic modules for the Project will be provided by SunPower (SPR-E20-327-COM). The inverters for the Project will be provided by SMA America (Sunny Central 2200-US). The single-axis tracking system will be provided by Array Technologies (DuraTrack HZ Single-Axis Tracker). MD Energy Inc. has assembled a team of subcontractors that has experience working together on similar projects. The names and roles of the subcontractors that will work on the Project are described below:

SunWorks is headquartered in Roseville, California, and is a wholly-owned subsidiary of Solar 3D. Sunworks will be responsible for installing all direct-current (DC) stringing circuits, DC combiner boxes, and DC homerun circuits to the inverters. In addition, Sunworks will be responsible for overseeing the installation of the photovoltaic modules, including inspections, testing, and final operational commissioning.

Russell Pacific Construction Services is located in Carmel, California, and will be responsible for geotechnical investigations, surveying, foundation engineering, pile driving, and installation of the tracking system. The tracker system to be installed by Russell Pacific Construction Services will be a product manufactured by Array Technologies (DuraTrack HZ Single-Axis Tracker).

Allesandro Electric is located in Sacramento, California, and will be responsible for providing, installing, and testing all alternating-current (AC) electrical components required for the Project. This work will include the provision and installation of electrical conduits, step-up transformers, switchboards, and panel boards. The work also includes modifying the existing 12.47 kV, 1200 amp bus switchgear.

Swan Engineering is located in Rocklin, California, and will be responsible for all civil-site work including trenching for conduit and duct banks, electrical pull boxes and manholes, electrical equipment pads, maintenance roadway construction, dust control during construction and weed control. Swan Engineering falls under the definition of Disadvantaged Business Enterprises as a Small Business Enterprise.

Following is a listing of relevant project experience for the MD Energy Inc. team for solar power projects 1-MW in size or greater:

- Jackson Family Wines - 2.4-MW Roof/Ground Mount Solar PV System
- SCE/Prologis - 2-MW Roof Mount Solar PV Solar PV System
- UNFI - 1.1-MW Roof Mount Solar PV System
- UC Davis - 1-MW Roof Mount
- Sun City Lincoln Hills - 1.1-MW Ground Mount
- Quaresma Dairy - 1-MW Ground Mount
- Baloian Farms - 1.2-MW Roof Mount
- Rivermaid Trading Company - 1.4-MW Ground Mount
- Innovative Produce - 1-MW Roof Mount
- Payne Farms - 1-MW Ground Mount

Based on the due diligence investigation conducted by DPU staff for the MD Energy Inc. proposal, DPU staff have determined that MD Energy Inc. is a responsible bidder, and possesses the necessary and required qualifications, experience, project management, labor, materials, equipment, and supplies required to design, build, and operate a 2-MW Solar Energy Facility in accordance with

the Project Specifications.

Financial Feasibility Assessment of 2-MW Solar Energy Facility

MD Energy Inc. proposes to use high-efficiency, American-made solar panels for the City's 2-MW Solar Energy Facility. The MD Energy Inc. bid price to design, build, and operate the City's 2-MW Solar Energy Facility is \$10,024,426.24, and the engineering services costs associated with the Project totaled \$299,966. The State Water Resources Control Board, Division of Financial Assistance, has agreed to finance the City's engineering, construction, and first 10 years of O&M services costs for the 2-MW Solar Energy Facility with a low-interest loan. The low-interest loan will be for approximately \$10,400,000 in principal, an interest rate of 1.7 percent and a term of 30 years. The estimated debt service payment for this low-interest loan is \$447,000.

To confirm the financial feasibility of the 2-MW Solar Energy Facility, DPU conducted a cost-benefit analysis comparing the debt service payments and O&M costs for the Project with the electrical savings expected for the Project. If the electrical savings are greater than the City's annual debt service payments and O&M costs, then the Project is deemed to be financially feasible.

Based on the contract requirements for the Project, the Solar Energy Facility to be provided by MD Energy Inc. is required to have a total electrical power production capacity of 4,643,124 kilowatt-hours (kWh) in the first year, and the system is to be online and available for service 90 percent of the year. Therefore, the guaranteed minimum electrical power production to be delivered to the City in Year 1 will be 4,178,812 kWh ($0.90 \times 4,643,124$ kWh). For each year thereafter, the contract allows for 0.25-percent degradation in power production. Accordingly, the minimum electrical power production guaranteed for Year 2 is 4,168,364 kWh, which is 0.25-percent less than Year 1. This calculation for minimum guaranteed power is repeated for each year of the contract using 0.25-percent degradation in annual power production (**See Attachment 1**). The contract with MDE is structured such that if MD Energy Inc. fails to deliver the annual electrical power production in any of the first 10 years of system operation, then MD Energy Inc. will reimburse the City the cost equal to the amount of electrical power not delivered to the City and purchased from PG&E.

During a typical year, the Fresno-Clovis Regional Wastewater Reclamation Facility uses approximately 47,300,000 kWh, and 31,000,000 kWh are provided from DPUs onsite cogeneration facility, and 16,300,000 kWh are provided from PG&E's power distribution grid. Based on the City's most recently completed fiscal year (2015), the blended electrical power rate for the Fresno-Clovis Regional Wastewater Reclamation Facility is \$0.1154 per kilowatt-hour. This blended rate incorporates the City's on-peak and off-peak demand charges; on-peak and off-peak usage rates; and on-peak and off-peak credits. Information provided by PG&E indicates that the City's blended electrical power rate has increased an average of 2.84 percent during the past 10 years.

With regard to operations and maintenance costs, during the first 10 years of operation, the City will not be required to provide any labor, equipment, materials, or supplies to support any O&M services required for the 2-MW Solar Energy Facility. Rather, during the first 10 years of operation, MD Energy Inc. will provide all necessary and required O&M services for the 2-MW Solar Energy Facility in accordance the equipment manufacturer's recommendations and the O&M services schedule that is included in the contract. After 10 years, the City will assume all O&M responsibilities for the 2-MW Solar Facility. These O&M services will be provided by MD Energy Inc. and monitored closely by the City, to ensure that the 2-MW Solar Energy Facility is transferred to the City fully-functional and in good working order after the first 10 years. The value of the O&M services component in the MD

Energy Inc. contract is \$589,052 of the \$10,024,426.24 total contract cost. A preliminary schedule of O&M Services to be provided by MD Energy Inc. is presented in **Attachment 2**.

With values defined for minimum guaranteed annual power production, annual power production degradation rates, annual increases in power costs, and annual O&M costs after the first 10 years, DPU assessed the financial feasibility of the 2-MW Solar Energy Project. The results of the financial feasibility assessment are presented in **Attachment 3**.

Based on the financial feasibility assessment presented in Attachment 2, the Project will result in net savings of approximately \$800,000 in Year 1 through Year 10; \$1.8 million in Year 11 through 20; \$1.6 million in Year 21 through Year 25; and \$2.1 million in Year 25 through Year 30.

If the City were to forego the low-interest loan, and pay cash for the 2-MW Solar Energy Facility, the simple payback period for the Project would be approximately 18 years.

A summary of the key contractual commitments and responsibilities assigned to MD Energy Inc. for key items related to the Project is presented in **Attachment 4**.

Findings and Recommendation

Based on the due diligence investigation conducted by DPU staff for the MD Energy Inc. proposal, DPU staff have determined that MD Energy Inc., and its associated subcontractors, is a responsible bidder.

Based on the financial feasibility assessment, the 2-MW Solar Energy Facility will result in annual electrical power savings that are greater than the City's annual debt service payments and O&M costs associated with the Project. Therefore, the Project is deemed to be financially feasible.

The subject Project was approved during the CEQA process as a mitigation measure to offset greenhouse gas emissions which would have resulted from the additional electrical power demands associated with the TTDF. Therefore, the Project results in the TTDF project being greenhouse gas neutral up to 15-mgd.

Based on the evaluations conducted by DPU staff, it is recommended that the Fresno City Council award a design-build-operate contract in the amount of \$10,024,426.24 to MD Energy Inc. and approve the Appropriation Resolution to appropriate the necessary additional funds to construct a 2 Megawatt (MW) Solar Energy Facility at the Fresno-Clovis Regional Wastewater Reclamation Facility.

As a result of this Project, the City will use renewable energy to produce high-quality recycled water through the new TTDF without increasing greenhouse gas emissions, and the recycled water will reduce water demands on the City's potable water system.

ENVIRONMENTAL FINDINGS

A Mitigated Negative Declaration (MND) was adopted by the Council on June 26, 2014 for the TTDF project that included the 2-MW Solar Energy Facility. The solar facility is part of the previously approved TTDF project which passed through the CEQA process. The solar energy component was added to the TTDF so that the overall Project would remain consistent with any and all applicable plans, policies or regulations that might be adopted for the purpose of reducing greenhouse gas

emissions, including the San Joaquin Valley Air Pollution Control District's Climate Change Action Plan. The Project supports the principles of sustainability by reducing demands on the City's potable water system by using recycled water for non-potable uses in the community, and implementing an on-site renewable energy source to produce the recycled water.

An analysis has been performed pursuant to CEQA Guidelines §15162 to determine whether subsequent environmental review is required for the 2-MW Solar Energy Facility. Based on this analysis the following findings are made to support the determination that no subsequent environmental review is required:

1. No substantial changes are proposed in the Project which will require major revisions of the previous MND due to the involvement of new significant environmental effects, or a substantial increase in the severity of previously identified significant effects.
2. No substantial changes occur with respect to the circumstances under which the Project is undertaken which will require major revisions of the previous MND due to the involvement of new significant environmental effects, or a substantial increase in the severity of previously identified significant effects.
3. There is no new information which was not known or could not have been known at the time of the previous MND that the Project will have significant effects not discussed in the MND.

Furthermore, since a MND was previously adopted for this Project, the considerations set forth in CEQA Guidelines §15162(a)(3)(C) and (D), related to the adequacy and feasibility of previously adopted mitigation measures, are not applicable. Based upon these findings, it has been determined that no further environmental documentation is required for this Project.

LOCAL PREFERENCE

Local preference was not implemented because no proposals were received from local vendors.

FISCAL IMPACT

This project, located in Council District 3, will not impact the General Fund. Funds in the amount of \$14,325,000 were budgeted in the FY15 Sewer Enterprise Fund No. 40527. The award of the project was postponed into FY16 to allow additional technical and financial review. This delay was deemed prudent given there was only one proposal. Funds in the amount of \$9,067,000 were budgeted in 40527 in FY16. The fiscal impact of this contract will be \$10,434,426.24. An AAR is necessary to increase the appropriation in the SRF loan fund for the cost of this project.

Attachments:

1. Guaranteed Annual Electrical Power Deliveries
2. Preliminary Schedule of O&M Services (first 10 years)
3. Financial Feasibility Assessment
4. Summary of Key Contractual Commitments and Responsibilities for MD Energy Inc.
5. Annual Appropriations Resolution
6. Report from Evaluation Committee
7. Fiscal Impact Statement
8. Contract

