Modesto Irrigation District

Request for Information

Demand Response Program Evaluation and New Program Options

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1 SUMMARY OF REQUEST

The purpose of this RFI is to collect information from vendors in the demand response sector that could help the District with options to evaluate its existing demand response program and the potential for the development of new demand response programs.

The RFI asks vendors in the demand response sector to provide information on any, or all of the following preferences:

- Evaluation of the District's air conditioner load control program (STEP)
- Information on the development and implementation of a smart thermostat program
- Information from load aggregators for a contract demand response MW
- Information on battery storage demand response
- Information on vendor management of the District's demand response program
- Combination of preferences or other options for a demand response program

2 BACKGROUND INFORMATION ON THE MODESTO IRRIGATION DISTRICT

MID is a publicly owned utility supplying electricity, irrigation and domestic water. Its primary customers are the residents and businesses in the Modesto area, located in California's Central Valley. Established in 1887 under the California Irrigation District Law, MID has provided irrigation water for agriculture since 1904. Currently, MID serves approximately 2,300 irrigation water customers and 64,000 irrigated acres. MID also treats, delivers and wholesales up to 67,000 acre-feet of drinking water per year to the City of Modesto. Electric service has been provided by MID since 1923. MID currently provides full electric service to over 122,000 residential, commercial, industrial and agricultural accounts in Modesto, Empire, Salida, Waterford and Mountain House as well as parts of Escalon, Oakdale, Ripon and Riverbank.

MID utilizes a diverse mix of resources including hydro, gas, solar, and wind. A variety of long and short term resources help MID to maximize cost stability and resource flexibility. MID´s investment in transmission facilities enables purchases and sales of power throughout the western United States. In addition to providing full electric service to over 100,000 retail customers, MID also participates in wholesale energy markets. On March 25, 2021, MID started operating in the California Independent System Operator's (CAISO) Energy Imbalance Market (EIM).

As a public utility, MID is locally controlled and owned by the customers it serves. MID is governed by a five member board of directors, each of whom is elected by registered voters to represent a specific geographic division for a four year term. The board of directors appoints a general manager, a general counsel, and a secretary. The general manager directs MID´s daily business operations.

Business activities are conducted through eight work groups: Electric Resources, Electric Transmission & Distribution, Finance & Customer Services, Human Resources, Information Technology, Planning & Marketing, and Water Operations.

3 BACKGROUND ON THE DISTRICT'S DEMAND RESPONSE PROGRAMS

The District's Demand Response Programs

MID's mission is to provide electric, irrigation, and domestic water services for its customers, delivering the highest value at the lowest cost possible through teamwork, technology, innovation, and commitment. In keeping with this mission, the District has a load management program that helps ensure MID will provide reliable electric service to our customers through peak demand seasons.

The District has two demand response programs: Shave the Energy Peak (STEP) and the Base Interruptible program. Both programs are considered supply resources for capacity planning purposes.

Shave the Energy Peak (STEP)

The District's demand response (DR) program, which began in 1984 as a one-way powerline communications technology to control customer's air conditioners (A/Cs) using load control receivers (LCRs) during summer peak days evolved in 2002 to a one-way paging technology with new LCRs. The STEP program runs from June through September and the District pays a monthly credit of $5 for residential and $2/ton for commercial enrolled customers, of which there are 11,352 residential and 374 commercial STEP accounts.

The District owns and maintains the STEP program. Since 2002, there have not been any changes to the load management software or LCR hardware. Several departments are involved in management of this program. The Energy Services department manages marketing and enrollment for DR programs, the Meter department handles installation and maintenance of the LCRs, the IT department manages the server hardware and software, and the Resource Planning department conducts the measurement and validation of the STEP events.

When the STEP system is activated, a Canon Yukon master station send signals to paging receivers embedded in the Canon LCR connected to the customer's air conditioner. The paging signal is sent from two different paging companies: American Messaging and Spok. STEP is currently designed to cycle one of three blocks of participating air conditioning units every ten minutes. All three blocks can also be shut off simultaneously for an emergency demand reduction. STEP events are typically run when the temperature is expected to exceed 100°F. The STEP system was run on August 17, 2020, using the typical 1/3 block cycling, and was estimated to contribute a load drop of 3-5 MW.

Commercial Interruptible Demand

The District's Interruptible Demand Program is a 4-month program, running from June through September, where the District may request enrolled customers to reduce their load by a customer specified committed amount to help alleviate conditions on the electrical grid. For a commercial or industrial customer to qualify for this program, they must be able to reduce their load by a minimum

of 100 kilowatts (kW) for each month of the program period. There are currently six large commercial customers enrolled in this program, with a total average program load reduction commitment of 13.6MW.

Customers enrolled in the program receive a fixed monthly credit of $3.62 per kilowatt for their approved load reduction commitment as stated in their Load Reduction Plan. Each Interruptible event is limited to a three (3) hour period Monday through Friday, between 1:00 and 9:00 p.m.

The District can call on the program a maximum of 12 Interruptible Demand events per year. Certain grid conditions may require the District to request customers to participate in reducing load between the Partial Peak hours of 8:00 a.m.-1 p.m. and 9:00 p.m.-11:00 p.m. During these Partial Peak events, the District would ask customers to reduce load up to their demand reduction commitment. Customers are asked to make necessary efforts to reduce load as much as possible but are not required to meet their committed load reduction during Partial Peak events.

4 BACKGROUND ON THE DISTRICT'S INFRASTRUCTURE TO SUPPORT DEMAND RESPONSE PROGRAMS

Although the District's STEP LCR program uses commercial paging companies to reach the LCRs for signaling DR events, the District has a network infrastructure to support other demand response technologies.

Advanced Meter Infrastructure (AMI)

The District installed an AMI system in 2009 that replaced both commercial and residential meters with smart meters from Landis & Gyr and GE. The meters communicate back to the Main Office over a mesh network topology developed by Silver Spring Networks, which was acquired by Itron, Inc. in 2018. The meters communicate over the mesh network to Access Points located at various substations connected to a substation fiber optic network that terminates at the District's Main Office. The AMI servers that collect and store the meter data are hosted by Itron in a Software as a Service environment.

The meters communicate with the Access Points using spread spectrum unlicensed frequencies, and there is also a short-range RF connection to the meters using Zigbee protocol. Zigbee is a licensed product that can be activated on all the meters. The District has not tested the Zigbee protocol for any demand response devices.
The District has done some tests using the SSN/Itron Direct to Grid (DtG) protocol with communication from residential air conditioner load control devices that communicate directly to the electric meter Access Points. The District purchased the DtG license from Itron for the number of devices that were being polled. Test DR events were sent to the test DtG LCR devices and verified that the signal was received by the LCR, however no data is available on how well this interface performed during DR events.

5 RFI REQUIREMENTS PROCESS

5.1 RFI CONTACT FOR QUESTIONS AND SUBMISSION

All vendors interested in submitting an RFI or that have any questions regarding this RFI should notify:

Erick Davis
Sr. Electrical Engineer
Electric Resources, Resource Planning and Development
(209) 526-7416
erick.davis@mid.org

Vendors are asked to send all RFI response material via email on or before **October 1, 2021.**

5.2 RFI SCHEDULE

RFI key dates are the following:

July 28, 2021	RFI made available to the responders
October 1, 2021	Deadline for receiving response (all material)
October - November, 2021	Evaluation of responses. Vendors may be invited to present their products and services to the District in the form of meetings and live demonstrations.

5.3 INFORMATION TO RESPONDENTS

5.3.1 Purpose and Use of this RFI

This RFI is only a request for information about potential products/services and no contractual obligation on behalf of the Modesto Irrigation District whatsoever shall arise from the RFI process.

This RFI is issued as a means of technical discovery and information gathering. This RFI is for planning purposes only and should not be construed as a solicitation nor should it be construed as an obligation on the part of the District to make any purchases. This RFI should not be construed as a means to pre-qualify vendors. The Modesto Irrigation District may utilize the results of this RFI in drafting a competitive solicitation (RFP).

Based on the information provided by the respondents to this RFI, a determination will be made regarding any actual contracting through a procurement process which, at the District's option, could include but not be limited to: a formal bid process, using an existing District contract, procurement via Federal GSA contract(s), or a piggyback of a contract established as a result of the public bid of another public agency.

This RFI does not commit the Modesto Irrigation District to pay any cost incurred in the preparation or submission of any response to the RFI.

5.3.2 RFI Ownership & Confidentiality

RFI Ownership: All responses to the RFI will become the property of the Modesto Irrigation District and will not be returned.

Confidentiality: Vendors responding to this RFI acknowledge that Modesto Irrigation District is subject to disclosure as required by the California Public Records Act (CPRA). Modesto Irrigation District will have no liability whatsoever for any confidential information provided by vendors pursuant to this RFI.

6 REQUESTED INFORMATION

6.1 EVALUATION OF THE DISTRICT'S AIR CONDITIONER LOAD CONTROL PROGRAM

MID's air conditioner load control program, or STEP (Shave the Energy Peak) program is a dispatchable DR program that controls the load from residential and commercial air conditioners during peak demand days.

Respondents are invited to provide information on how they would evaluate the existing AC load control program. Part of this evaluation would be the costs/benefits for:

- Discontinuation of the A/C load control program and removal of the LCRs, or,
- Replacement of the LCRs and IT hardware/software with a new direct load control system with either a one-way or two-way communications system. This would be an entirely new program that would replace the existing STEP program.

6.2 INFORMATION ON THE DEVELOPMENT AND IMPLEMENTATION OF A SMART THERMOSTAT PROGRAM

MID has a smart thermostat rebate for customers that is offered through the energy efficiency rebate program. This program is not coupled with any demand response program for controlling smart thermostats.

Respondents are asked to provide information on:

- A strategy to market, enroll, and manage a smart thermostat demand response program.
- Smart thermostat programs that would use either behavioral or dispatchable DR
- Determining estimated MW and potential growth that could be realized from a smart thermostat DR event

6.3 INFORMATION FROM LOAD AGGREGATORS FOR A CONTRACT DEMAND RESPONSE MW

DR Aggregators, in partnership with smart thermostat and/or load control vendors handle the delivery of DR event signals to their enrolled customer's thermostats/air conditioners and aggregate the load.

MID is interested in receiving information from load aggregator companies on the potential to contract for a fixed amount of demand response MW and to allow MID customers to enroll directly with the aggregators' programs online.

6.4 INFORMATION ON BATTERY STORAGE DEMAND RESPONSE

Battery storage demand response programs allow customers to sign up for rewards when a utility or aggregator draws energy from the enrolled customer's battery system during a demand response event.

The District is interested in receiving information on if there is a potential for the development and incorporation of a demand response battery storage program.

6.5 INFORMATION ON VENDOR MANAGEMENT OF THE DISTRICT'S DEMAND RESPONSE PROGRAM

The District manages its demand response program. The Energy Services department manages marketing and enrollment for DR programs, the Meter department handles installation and maintenance of the LCRs, the IT department manages the server hardware and software, and the Resource Planning department conducts the measurement and validation of the STEP events.

The District is interested in obtaining information from vendors that offer demand response implementation and management services. These services could include any, or all of the following:

- Program design
- Marketing
- Equipment installation
- Call center management
- Curtailment event management
- Incentive processing
- Demand response event measurement & validation
- Complete turnkey solution

6.6 COMBINATION OF PREFERENCES OR OTHER OPTIONS FOR A DEMAND RESPONSE PROGRAM

Vendors are asked to provide information on any, or all of the above listed preferences for a demand response program, or to include information on other alternatives not listed here that could help the District more fully evaluate feasible alternatives. Vendors are encouraged to include any services they offer, including DERMS and its capabilities, such as event management, device communications, integrations, reporting, security, user interface, enrolled customer communications and enrollment.

7 QUESTION AND RESPONSE FORMAT

Question	Response
Vendor Information	
Name of person responsible for the information contained in this RFI. Please include address, phone and email.	
Have you implemented demand response programs for another utility of a similar size to the District? If so, please provide reference information.	
Describe any third-party alliances, relationships, or dependencies.	
Vendors responding to request to evaluate the District's air conditioner load control program (STEP)	
Describe how your company will evaluate the District's Air Conditioner Load Control Receiver Program, based on either: -Discontinuing the A/C load control program and removal of the existing LCRs, or -Replacing the LCRs and IT hardware/software with a new direct load control system with either a one-way or two-way communications system.	Please provide attached materials specific to the District's existing STEP program determining factors to either remove or replace it. If replacing it, list the total number of air conditioning LCR installations completed by your company.
Vendors responding to request for the development and implementation of a smart thermostat program	
Describe how your company would develop a strategy to market, enroll, and manage a smart thermostat demand response program for the District. In this strategy, please describe if the smart thermostat program would use either behavioral or dispatchable DR.	Attach as required. List the total number of smart thermostat installations completed by your company.
Provide information on how your company would determine estimated MW and potential growth that could be realized from a smart thermostat DR event.	Please provide information related to the District's customer base and demographics.
Vendors responding to the request for Information from load aggregators for a contract demand response MW	
Describe how your company would contract with the District for a fixed amount of demand response MW and to allow MID customers to enroll directly with the aggregators' programs online.	Please provide information related to the District.
Vendors responding to the request for a battery storage demand response program	
Describe how your company would develop and incorporate a demand response battery storage program for the District.	Provide information related to the District's customer base and demographics.
Vendors responding to request for management of the District's demand response program	
Describe how your company would implement and manage a demand response program for the District.	Please describe any of the following services offered by your company: •Program design

Question	Response
	•Marketing •Equipment installation •Call center management •DR Event management •Incentive processing •DR event measurement & validation •Complete turnkey solution
Vendors responding to a combination of preferences or other options for a demand response program	
Please list any, or all of the above program preferences that your company can provide to the District.	Attach as required.
Provide any services offered, including DERMS and its capabilities, such as event management, device communications, integrations, reporting, security, user interface, enrolled customer communications and enrollment.	Attach as required.

7 UTILITY DEMAND RESPONSE PROJECT REFERENCES

State years of experience and list three previous projects completed by providing the following:

- Name of utility including contact information.
- Size of utility (meters/customers)
- Date of implementation
- Project description