

# **CITY OF MADISON**

## **REQUEST FOR BIDS**



RFB #: 13023-0-2024-BP

Title: Streets West Battery Energy Storage

City Agency: Engineering

Due Date: Enter the Due Date  
2:00 PM CST

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## 1 NOTICE TO BIDDERS

### 1.1 Summary

The City of Madison Engineering ("City") is soliciting Bids from qualified vendors for Streets West Battery Energy Storage. Vendors submitting Bids ("Bidders") are required to read this Request for Bids ("RFB") in its entirety and follow the instructions contained herein.

### 1.2 Important Dates

Deliver Bids no later than the due time and date indicated below. The City will reject late Bids:

Issue Date:  
Questions Due Date: Questions Due Date  
Answers Posted Date:  
Due Date: Enter the Due Date, 2:00 PM CST

### 1.3 Format

The City is requesting bids in the following format: Electronic Only. Electronic versions less than 20MB should be emailed to the address in section 1.5.

Complete and return Forms A through E to City of Madison Purchasing Services by Enter the Due Date, 2:00 PM CST. Please do not send back this RFB document.

### 1.4 Labeling

All email correspondence must include RFB #13023-0-2024-BP in the subject line.

### 1.5 Delivery of Bids

Delivery of electronic copy to: via email to [bids@cityofmadison.com](mailto:bids@cityofmadison.com)

Bids must be delivered as instructed. Deliveries to other City departments and/or locations may result in disqualification.

### 1.6 Appendix A: Standard Terms & Conditions

Bidders are responsible for reviewing Appendix A, the Standard Terms and Conditions, prior to submission of their bids. Appendix A applies to the submission of bids and in the absence of a signed contract becomes part of the contract terms. Part I of Appendix A provides legal terms relevant only to the submission of bids. Part II of Appendix A provides legal terms that would apply *only in the absence of a signed contract*.

### 1.7 Appendix B1: Sample Contract for Purchase of Services for Software/Technology Agreement – Custom DOE Grant Funded

Bidders are responsible for reviewing the sample contracts in Appendix B prior to submission of their Bids.

**Appendix B1:** A contract similar to the Sample Contract for Purchase of Services for Software/Technology shall will serve as the basis for all service contract(s) resulting from this RFB. For bids that include a SaaS, PaaS or IaaS solution, the City reserves the right to negotiate additional appropriate legal terms governing that technology.

**Please also review section 1.26** of this RFB for additional contracting requirements. **By submitting a bid, Proposers affirm their willingness to enter into contract(s) containing the terms found in**

**Appendix B1.** While the City strives to provide the most appropriate sample contract for this RFB, the City reserves the right to modify the sample form for any resulting contract. The City does not negotiate legal terms prior to award.

While the City strives to provide the most appropriate sample contracts for this RFB, the City reserves the right to modify the sample(s) as needed. For example, other legal terms may be required depending on the nature of the technology solution proposed by the vendor.

#### 1.8 Appendix C: Information Technology Department Software Acquisition Questionnaire (SAQ)

This questionnaire is included as a reference at this time, but will be required for all finalists. The SAQ includes important technical questions that must be answered for the City's IT department, including important security questions, and must be answered to their satisfaction.

Do not submit it at this time. Finalists will be required to submit a completed SAQ.

#### 1.9 Affirmative Action Notice

If Contractor employs 15 or more employees and does aggregate annual business with the City of \$50,000 or more for the calendar year in which the PO and/or Contract is in effect, Contractor shall file, within thirty (30) days from the PO/Contract effective date and BEFORE RELEASE OF PAYMENT, an Affirmative Action Plan designed to ensure that the Contractor provides equal employment opportunity to all and takes affirmative action in its utilization of applicants and employees who are women, minorities and/or persons with disabilities. A sample affirmative action plan, Request for Exemption forms, and instructions are available at: [www.cityofmadison.com/civil-rights/contract-compliance/vendors-suppliers/forms](http://www.cityofmadison.com/civil-rights/contract-compliance/vendors-suppliers/forms) or by contacting a Contract Compliance Specialist at the City of Madison Affirmative Action Division at (608) 266-4910. Vendors must register for an account to complete the required forms online, here: <https://elam.cityofmadison.com/citizenaccess>

Contractor shall also allow maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this PO/Contract.

Job postings: All contractors who employ 15 or more employees (regardless of the dollar amount of this contract or their annual aggregate business with the City) must notify the City of all external job openings at locations in Dane County, Wisconsin, and agree to interview candidates referred by the City or its designated organization. Job posting information is available at: <http://www.cityofmadison.com/civil-rights/programs/referrals-and-interviews-for-sustainable-employment-raise-program>. Instructions for contractors: [http://www.cityofmadison.com/civil-rights/documents/RalSE\\_Job\\_Posting\\_Instructions.pdf](http://www.cityofmadison.com/civil-rights/documents/RalSE_Job_Posting_Instructions.pdf)

The complete set of Affirmative Action requirements for this purchase can be found in **paragraph 20 of Appendix A – Standard Terms and Conditions** and, in **Section 13 of Appendix B – Sample Contract for Purchase of Services**.

#### 1.10 Multiple Bids

Multiple Bids from Bidders are permitted; however, each must fully conform to the requirements for submission. Bidders must sequentially label (e.g., Bid #1, Bid #2) and separately package each Bid. Bidders may submit alternate pricing schemes without having to submit multiple Bids.

#### 1.11 City of Madison Contact Information

The City of Madison  
Engineering is the procuring  
agency:

Jon Evans  
City of Madison Engineering  
PH: (608) 243-5893  
[jevans@cityofmadison.com](mailto:jevans@cityofmadison.com)

The City of Madison  
Purchasing Services  
administers the procurement  
function:

Brian Pittelli  
Purchasing Services  
City-County Bldg, Room 407  
210 Martin Luther King, Jr. Blvd.  
Madison, WI 53703-3346  
PH: (608) 267-4969  
FAX: (608) 266-5948  
[bpittelli@cityofmadison.com](mailto:bpittelli@cityofmadison.com)

For questions regarding  
Affirmative Action Plans  
please contact:

Contract Compliance  
Department of Civil Rights  
City-County Bldg., Room 523  
210 Martin Luther King, Jr. Blvd.  
Madison, WI 53703  
PH: (608) 266-4910  
[dcr@cityofmadison.com](mailto:dcr@cityofmadison.com)

The City employs spam filtering that occasionally blocks legitimate emails, holding them in 'quarantine' for four calendar days. The contacts listed in this RFB will acknowledge all emails received. Bidders not receiving acknowledgement within twenty-four hours shall follow-up via phone with specific information identifying the originating email address for message recovery.

#### 1.12 Inquiries and Clarifications

Bidders are to raise any questions they have about the RFB document without delay. Direct all questions, **in writing**, to the Purchasing Services administrator listed in Section 1.10.

Bidders finding any significant ambiguity, error, conflict, discrepancy, omission, or other deficiency in this RFB document shall immediately notify the Buyer and request clarification. In the event that it is necessary to provide additional clarification or revision to the RFB, the City will post addenda – see 1.13 below. Bidders are strongly encouraged to check for addenda regularly.

Bids should be as responsive as possible to the provisions stated herein. Exceptions are not permitted. The City of Madison reserves the right to disqualify any and all bids that are non-responsive or that include exceptions.

#### 1.13 Addenda

In the event that it is necessary to provide additional clarification or revision to the RFB, the City will post addenda to its Bids distribution websites – see 1.14 below. It is the Bidders responsibility to regularly monitor the websites for any such postings. Bidders must acknowledge the receipt of any addenda on Form B. Failure to retrieve addenda and include their provisions may result in disqualification.

#### 1.14 Bid Distribution Networks

The City of Madison posts all Request for Bids, addenda, tabulations, awards and related announcements on two distribution networks – VendorNet and DemandStar. The aforementioned documents are available **exclusively** from these websites. It is the Bidders responsibility to regularly monitor the bid distribution network for any such postings. Bidders failure to retrieve such addenda and incorporate their appropriate provisions in their response may result in disqualification. Both sites offer free registration to City Bidders.

State of Wisconsin  
VendorNet System:

State of Wisconsin and local agencies bid network. Registration is free.  
<http://vendornet.state.wi.us/vendornet>

DemandStar by Onvia: National bid network – Free subscription is available to access Bids from the City of Madison and other Wisconsin agencies, participating in the Wisconsin Association of Public Purchasers (WAPP). A fee is required if subscribing to multiple agencies that are not included in WAPP.

Bid Opportunities: [www.cityofmadison.com/finance/purchasing/bidDemandStar.cfm](http://www.cityofmadison.com/finance/purchasing/bidDemandStar.cfm)

Home Page: [www.demandstar.com](http://www.demandstar.com)

To Register: <https://www.demandstar.com/app/registration>

Please note when registering: Pick the **Wisconsin Association of Public Procurement (WAPP)** to select all current Wisconsin government agencies.

#### 1.15 Local Vendor Preference

The City of Madison has adopted a local preference purchasing policy granting a scoring preference to local suppliers. Only suppliers registered as of the bid's due date will receive preference. Learn more and register at the City of Madison website: [www.cityofmadison.com/business/localPurchasing](http://www.cityofmadison.com/business/localPurchasing).

#### 1.16 Oral Presentations/Site Visits/Meetings

Bidders may be asked to attend meetings, make oral presentations, inspect City locations or make their facilities available for a site inspection as part of this RFB process. Such presentations, meetings or site visits will be at the Bidders expense.

#### 1.17 Acceptance/Rejection of Bids

The City reserves the right to accept or reject any or all Bids submitted, in whole or in part, and to waive any informalities or technicalities, which at the City's discretion is determined to be in the best interests of the City. Further, the City makes no representations that a contract will be awarded to any Bidder responding to this request. The City expressly reserves the right to reject any and all Bids responding to this invitation without indicating any reasons for such rejection(s).

The City reserves the right to postpone due dates and openings for its own convenience and to withdraw this solicitation at any time without prior notice.

#### 1.18 Withdrawal or Revision of Bids

Bidders may, without prejudice, withdraw Bids submitted prior to the date and time specified for receipt of Bids by requesting such withdrawal before the due time and date of the submission of Bids. After the due date of submission of Bids, no Bids may be withdrawn for a period of 90 days or as otherwise specified or provided by law. Bidders may modify their Bids at any time prior to opening of Bids.

#### 1.19 Non-Material and Material Variances

The City reserves the right to waive or permit cure of nonmaterial variances in the offer if, in the judgment of the City, it is in the City's best interest to do so. The determination of materiality is in the sole discretion of the City.

#### 1.20 Public Records

Bidders are hereby notified that all information submitted in response to this RFB may be made available for public inspection according to the Public Records Law of the State of Wisconsin or other applicable

public record laws. Information qualifying as a “trade secret”—defined in State of Wisconsin Statutes—may be held confidential.

Bidders shall seal separately and clearly identify all information they deem to be “trade secrets,” as defined in the State of Wisconsin Statutes. Do not duplicate or co-mingle information, deemed confidential and sealed, elsewhere in your response.

S. 19.36(5)

(5) TRADE SECRETS. An authority may withhold access to any record or portion of a record containing information qualifying as a trade secret as defined in s. 134.90(1)(c).

s. 134.90(1)(c)

(c) “Trade secret” means information, including a formula, pattern, compilation, program, device, method, technique or process to which all of the following apply:

1. The information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.
2. The information is the subject of efforts to maintain its secrecy that are reasonable under the circumstances.

The City cannot ensure that information will not be subject to release if a request is made under applicable public records laws. The City cannot consider the following confidential: a bid in its entirety, price information, or the entire contents of any resulting contract. The City will not provide advance notice to Bidders prior to release of any requested record.

To the extent permitted by such laws, it is the intention of the City to withhold the contents of Bids from public view—until such times as competitive or bargaining reasons no longer require non-disclosure, in the City’s opinion. At that time, all Bids will be available for review in accordance with such laws.

#### 1.21 Usage Reports

Annually, the successful Bidders shall furnish to City Purchasing usage reports summarizing the ordering history for each department served during the previous contract year. The report, at a minimum, must include each and every item or service ordered during the period, its total quantities and dollars by item/service and in total. The City reserves the right to request usage reports at any time and request additional information, if required, when reviewing contract activity.

#### 1.22 Partial Award

Unless otherwise noted, it will be assumed that Bidders will accept an order for all or part of the items/services priced.

#### 1.23 Tax Exempt

The City of Madison as a municipality is exempt from payment of federal excise taxes (Registration Number 008-1020421147-08) and State of Wisconsin taxes per Wisconsin statute 77.54(9a). Federal Tax ID #39-6005507. A completed Wisconsin Department of Revenue Form S-211 (R.2-00) can be found on the City website. Our tax-exempt number is ES 42916.

#### 1.24 Cooperative Purchasing

Bidders may choose to extend prices offered on bids to other municipalities. Under Wisconsin Statutes, a municipality is defined as a county; city; village; town; school district; board of school directors; sewer district; drainage district; vocational, technical and adult education district; or any other public or quasi-public corporation, officer, board or other body having the authority to award public contracts. This is known as “cooperative” or “piggyback” purchasing, a practice common amongst units of government. The



City is not responsible for any contract resulting from a cooperative purchase using this RFB as a basis; they are made solely between the bidders and third party unit of government.

### 1.25 Bidders Responsibility

Bidders shall examine this RFB and shall exercise their judgment as to the nature and scope of the work required. No plea of ignorance concerning conditions or difficulties that exist or may hereafter arise in the execution of the work under the resulting contract, as a consequence of failure to make necessary examinations and investigations, shall be accepted as an excuse for any failure or omission on the part of the Bidders to fulfill the requirements of the resulting contract.

### 1.26 City's Contracting Policies for Software and Technology – IMPORTANT NOTICES

**See Appendix B1- Contract for Purchase of Services (Software /Technology).** This is a sample contract for services that would cover all service aspects of the project, including professional, training, data conversion, implementation services, support and maintenance, hosting, and any software that is delivered as SaaS.

**SaaS solution / Hosting** - if the proposed solution includes Software-as-a-Service (SaaS) or other cloud hosted services, Appendix B1 will be used, and the City reserves the right to negotiate appropriate legal terms for such services. See details below.

#### IMPORTANT LEGAL NOTICES FOR SOFTWARE AND TECHNOLOGY CONTRACTS:

**Vendor Contract Documents and Legal Terms:** The City of Madison does not have a standard license agreement or SaaS subscription agreement. Therefore, bidders selected as finalists will be asked, during the final stages of this RFB, to submit their standard legal terms governing their software and technology. This could include an end user license agreement (EULA), SaaS subscription agreements, Service Level Agreements (SLA) for up time and response times, contracts for support and maintenance services, confidentiality language (if any), data protection language, sample hosting agreements, and any other contract forms ***appropriate for the proposed solution***.

The City will use the sample Contract for Purchase of Services in Appendix B1 as the baseline for this contract and reserves the right to reject any vendor form contracts. However, we expect the vendor to suggest legal terms for the above topics and to prepare the SOW when applicable. If the vendor's contract documents meet the approval of the City Attorney, the City will consider using your contract form(s) together with the City's mandatory legal terms found in Appendix B1. The City reserves the right to negotiate all contract documents.

**Scope of Work (SOW):** For projects with implementation or other professional services, the vendor must provide a comprehensive Statement of Work or Scope of Work describing every stage of the project in detail, and may also include a project schedule or methodology for creating the project schedule. The parties will work together to prepare the final SOW which will become part of the contract.

**Milestone Payment Schedule:** The City will pay for implementation or other professional services occurring over a period of time according to a negotiated schedule based on the City's written acceptance of each milestone. Acceptance criteria for each milestone shall be included in the SOW.

**Hosting, Data Ownership, Security:** If your bid involves SaaS or other cloud hosted services or infrastructure where customer data will be stored, hosted, reviewed or analyzed by the vendor, please be aware that the City of Madison has specific requirements for its data as a unit of government under State of Wisconsin public records laws. In the resulting contract, you will be required to:

- agree to data handling, retrieval and destruction protocols (See Section 28 in Appendix B1)
- cooperate with any public records requests under Wisconsin law, and indemnify and defend the City of Madison against any claims resulting from your failure to produce our records to us.

- You must agree to make the City's data available for download in a format acceptable to the City for not less than ninety (90) days after contract expiration or termination.
- You may be required to propose data security, back-up and disaster recovery protocols for the security and safe-keeping of the City's data. (See other requirements of this RFB.)
- The City must approve all data centers and their geographic location, which must be within the U.S. This includes third party data centers such as AWS or Azure.
- Unless otherwise agreed, ownership and all intellectual property rights to the City's data remains with the City of Madison and the City does not license its data for use by any other party.
- propose a Service Level Agreement (SLA) for uptime, response times, and remedies for failing to meet those targets. (see below.)

**Service Level Agreements (SLA).** For any hosted solution, vendors should propose a Service Level Agreement (SLA) with guaranteed uptime, response times, back-up recovery, RTO, RPO. The SLA should also provide remedies for failing to meet those targets, including a system for credits or refunds. No Indemnification or Limitations of Liability: The City of Madison does not agree to indemnify, defend or hold harmless any other party including our contracted vendors or other third parties. The City does not agree to limit a contractor's liability to the City for general or direct damages, this includes dollar limits or caps on the contractor's monetary liability. The City does expect our vendor to indemnify us for general claims as well as intellectual property infringement claims against the City resulting from your software/licensed products/services. See Appendix B.

**No fees for early cancelation or termination of services.** The City of Madison does not agree to fees or penalties for early termination or cancelation of any portion of the contract. Likewise the City does not agree to pay for future contracted annual services if a multi-year contract must be terminated early. See section 25.B. of Appendix B1. The City expects to negotiate terms for annual services that include the City's right to non-renew or cancel on at least an annual basis, with prior written notice to the vendor, without penalty. Where the City agrees to pay annual fees in advance, such as maintenance, hosting or subscription fees, the City does not expect such fees to be refunded in the event of an early termination.

**Click-through EULAs, TOS, TOU and Confidentiality Agreements:** Please be aware that our employees are not authorized to bind the City of Madison to contractual terms and therefore, cannot click to accept any end-user license agreements, terms of service, terms of use, privacy policies, or other click-through legal terms. The selected vendor must agree to negotiate any such terms to the City's satisfaction and provide executable copies for signature rather than using click-through agreements. Likewise, the City does not compel its employees to sign confidentiality agreements protecting the contractor's confidential information, rather, we will negotiate any needed confidentiality provisions on behalf of the City as a whole.

**NDAs:** Due to obligations under public records laws, the City of Madison does not sign non-disclosure agreements and does not compel our employees to sign them. Any confidentiality concerns will be handled as part of negotiated confidentiality provisions in the resulting contract.

**Online Terms of Use applicable to external users (the public):** The City of Madison takes seriously the privacy and the legal exposure of members of the public who are accessing City services through your system. When applicable, we expect to review all online Terms of Use, Privacy Policies and other legal terms that apply to external users and expect the ability to modify such terms if needed.

**IT Network Connection Policy:** The policy linked below applies and will be incorporated into the contract if any portion of the services or system will require the vendor to make a connection to the City's network: <http://www.cityofmadison.com/attorney/documents/posNetworkConnection.doc>

## 2 DESCRIPTION OF SERVICES/COMMODITIES

### 2.1 Background on DOE's Connected Communities Program for GEBs

Grid-interactive efficient buildings (GEBs) offer an integrated approach to coordinating building energy loads for cost savings, continuous demand management, and to optimize energy use for additional grid services. Advanced controls enable flexibility regarding when and how building electrical and thermal loads are operated. In an optimized manner, GEBs can mitigate peak demand challenges, enhance grid reliability/energy resiliency, and balance the supply of renewable energy generation. Buildings offer a unique opportunity for cost-effective demand-side management because they are the nation's primary users of electricity and building energy use drives a comparable share of peak power demand.

However, many of these loads are flexible to some degree; with proper communications and controls, loads can be managed to draw electricity at specific times and at different levels, while still meeting occupant productivity and comfort requirements. The US Department of Energy's (DOE) Building Technologies Office is building on existing energy efficiency efforts to optimize the interplay among energy efficiency, demand response, behind-the-meter generation and energy storage to increase the flexibility of demand-side management, all enabled through smart controls. This results in a lower, "flatter," more flexible energy load profile, which in turn delivers a more resilient and productive building, optimizes capital investments, reduces operating costs, and provides access to new revenue.<sup>1</sup>

The DOE is deploying and testing the GEB concept through their Connected Communities funding program, and the City of Madison (City) and local utility Madison Gas and Electric (MGE) have been selected to receive funding as participants. This program will demonstrate not just one but groups of buildings combined with other types of distributed energy resources (DERs), including electric vehicle (EV) managed charging, smart inverters, HVAC and lighting load management, and battery energy storage systems (BESS). The project objective is to orchestrate operation of these systems to reliably and cost-effectively serve as grid assets by strategically deploying efficiency and demand flexibility. Implementing partners on the DOE project include the City, MGE, Slipstream, HGA, RMI, ACEEE, and bluEvolution.

### 2.2 Introduction to the City of Madison Demonstration

Through this Grid-interactive Efficient Building pilot, GEB platforms will first be deployed in City buildings. Each building will have an energy management information system (EMIS) which will be responsible for receiving utility or grid signals (such as OpenADR) and coordinating with each asset (including the microgrid supervisory controller) to provide demand management. A key design task will be working with the EMIS vendor to develop an effective approach to orchestrating the coordinated response of all GEB assets to a utility signal.

### 2.3 Scope of Work

The purpose of this specific Request for Bid (RFB) is to solicit bids from qualified BESS manufacturers and integrators to provide a grid tied BESS with capabilities to serve a future islandable microgrid. In addition to the BESS, the RFB also details requirements for the bidder to provide an integrated supervisory BESS controller that will integrate to the Energy Management Information System (EMIS) being provided by others through the GEBs contract.

The intent is that the City of Madison Facilities Department and its journeymen electrician will serve as the Electrical Contractor for this project. The bidder will be responsible for providing the BESS (48 19 13) and associated supervisory controller. The City will be responsible for all conduit, wiring, breakers, new panelboard and other devices outside of division 48 19 13 scope of work. The City of Madison will be responsible for utility interconnection agreements and permitting. The drawings and specs identify specific delineation of scope but a general summary is included below. Where conflicts exist, drawings and specifications take precedent.

#### Prime Bidder Equipment and Services Provided through RFB

- Complete Battery Energy Storage System (BESS) including
  - Integral bi-directional grid forming inverter
  - UL 1741 Edition 3 SA listed inverter
    - Edition 3 SB listed preferred
  - Internal HVAC
  - Unitary controller with battery management system and other foundational logic for basic operation of the BESS
  - Fire Suppression
  - DC Bus and battery terminations
  - UL 9540 – listed or field certification
  - NEMA 3R enclosure
  - Commissioning
  - Transportation of BESS to site
- Supervisory controller with EMIS integration
  - Optimized economic battery dispatch
  - Web based GUI
  - Configurable utility tariff rates
  - EMIS Communication

#### Owner Provided Responsibilities, Equipment and Services

- Utility interconnection forms
- Permitting and Inspections
- Panelboards and breakers
- Conduit and wiring
- AC terminations
- BESS Equipment Pad
- Trenching
- Equipment installation
- Picking BESS from truck and locating on pad

For the Streets West facility, the primary objective of the BESS (as a part of the Connected Communities project) is to provide utility cost savings and ability to provide grid support services by coordinating with the EMIS signals such as load shed events. When additional funding is available, the intent is that the system will be further modified to be capable of operating as an islandable microgrid as detailed in E051 Future Electrical 1-Line. The microgrid is intended to improve the resilience of the facility when faced with long duration electrical outages. Equipment provided as part of this procurement should be designed such that it is suitable for future islanded operation.

The Streets West facility has existing solar PV arrays and inverters, and a BAS. An EMIS vendor, Ace IoT, has been selected as part of the GEBs contract.

This project is in alignment with the U.S. Department of Energy's National Labs research on energy management systems and Grid-interconnected Efficient Buildings, which emphasizes the role of BESS in managing grid-wide electricity demand curves and contributing to a more resilient and efficient power grid.

The BESS supervisory controller will receive signals from the GEB's provided EMIS. This capability is essential, as the U.S. Department of Energy's National Labs have highlighted the importance of energy management information systems and Grid-Interactive Efficient Buildings in facilitating more dynamic interactions with the grid to optimize electricity demand management and support grid stability.

## 2.4 Criteria for Selection

Selection of the BESS and associated supervisory controller will be selected based on cost and compliance to all specification requirements. Please provide documentation with bid as required per specification to ensure compliance with documents. Where products are not in compliance with specification, please indicate on [waiver form](#).

## 2.5 Terms of Work

It is anticipated that the BESS would be delivered to the site no later than October 2024, and all integration and commissioning is completed by December 2024. The project partners will then monitor system performance through January 2026.

To access systems owned and managed by the City of Madison, all relevant City IT policies and guidelines must be adhered to and are required to be followed in relation to any work performed under this RFP. The following documents contain the official policy of the City regarding the appropriate use of City networks and a directory of technology standards. Reference Administrative Procedure Memorandum No. 3-9, 3-20, and Network Connection Agreement:

- <https://www.cityofmadison.com/mayor/apm/3-9.pdf>
- <https://www.cityofmadison.com/mayor/apm/3-20.pdf>
- <https://www.cityofmadison.com/attorney/documents/posNetworkConnection.doc>

All relevant City of Madison IT policies and guidance can be accessed here:  
<https://www.cityofmadison.com/employeenet/information-technology/policies-standards>

## 2.6 Site Walkthrough and Virtual Tour

There are two optional tours that will be provided.

An in-person tour will be provided on XXXXX

A virtual tour will be provided on XXXXX

For any questions, please contact Jon Evans, [jevans@cityofmadison.com](mailto:jevans@cityofmadison.com).

## 2.7 Buy American Requirement

All manufactured products that will be permanently affixed to a public building are subject to federal Buy American requirements. Winning firms product must meet Buy American requirements and provide certification from the manufacturers (or equivalent documentation). See the [Build America, Buy America](#) website and [DOE's Implementation of the Buy America Requirement for Infrastructure Projects](#) guide for general information. The [Part 184 – Buy American Preference for Infrastructure Projects](#) website contains the specific requirements.

## 2.8 Utility Rate Structures

The Streets West Facility is on MGE's CG-4 electric tariff for commercial buildings with a maximum 15-minute demand in excess of 20 kW, but no more than 200 kW<sup>2</sup>. Table 1 summarizes the various charges associated with this tariff.

The summer period is from June 1 through September 30. The winter period is for all other months of the year. The on-peak period 1 is weekdays from 10 am to 1 pm, the on-peak period 2 is from 1 pm to 6 pm, and the on-peak period 3 is from 6 pm to 9 pm. On-peak periods do not include the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas.

Table 1: MGE CG-4 electric tariff summary (as of December 2022)

Unit	Summer	Winter	Description
\$/day	\$6.31090	\$6.31090	service charge
\$/kW/day	\$0.08480	\$0.08480	distribution, demand charge
\$/kWh	\$0.01590	\$0.01590	distribution charge
\$/kW/day	\$0.42653	\$0.34931	electricity, demand charge
\$/kWh	\$0.06043	\$0.06043	base (for all kWh)
\$/kWh	\$0.01849	\$0.01826	on-peak period 1 (in addition to base)
\$/kWh	\$0.02775	\$0.01552	on-peak period 2 (in addition to base)
\$/kWh	\$0.02259	\$0.01966	on-peak period 3 (in addition to base)

The Streets West facility exceeds MGE's net metering limit and is thus subject to the parallel generation buyback rates<sup>3</sup> as specified in Schedule PG-1<sup>4</sup> for any generation in excess of demand. The buyback rates are provided in Table 2.



<b>Systems integration</b>	
<b>Building and DER integration</b>	The BESS supervisory controller must have the ability to interface with the EMIS and other devices (BESS, metering, EVSE, inverters, etc) as needed via the building's local area network (LAN). The interface or gateway must be capable of reading via third party protocols such as OpenADR and/or industry standard software protocols (e.g. BACnet, Modbus, DNP3, and/or OCPP).
<b>Scalability</b>	Scalable to include multiple assets within the portfolio. This could potentially scale to multiple different portfolios of buildings in MG&E territory.
<b>Upgrades</b>	Deployed technology must be upgradable to stay current with software and hardware compatibility.
<b>User interface</b>	
<b>Key Performance Indicators</b>	Ability to generate performance indicators and provide visualization of performance in dashboard or simplified indicators.
<b>Alarm Summary</b>	Must provide the ability to review alarms, sort by category (e.g. priority, location, date, etc.) and track number of occurrences using a parent/child hierarchy.
<b>Visualization</b>	Visualizations should include: state-of-charge (SOC), battery state of health (SOH), kW input and output by hour and day, and predicted SOC. kW input and output shall include all auxiliary loads for the BESS such as HVAC, controls, etc. Key data shall be stored at a minimum interval of 1-min for at least 12 months.
<b>Data Policies</b>	Meet or exceed data policies, including data privacy, storage, retention, destruction, and usage per City Tech Standards.
<b>Demand Management</b>	
<b>Automated Demand Response</b>	Ability to receive DNP3, IEEE 2030.5, or OpenADR (including integration to OpenADR top node) signals and implement pre-defined load shed. This functionality will be coordinated by the EMIS and commands passed to BESS Supervisory controller.
<b>Utility Rate Tracking</b>	BESS supervisory controller (coordinated with the EMIS) can use utility rate information to identify the cost impacts of demand and usage including on-peak and off-peak or other similar rate structures.
<b>Record and Report Data DR Events</b>	Ability to record data as specified by utilities, grid operators, and/or aggregators for the purposes of verifying participation in mandatory demand response tests and events.



### 3 STREETS WEST INFORMATION

#### 3.1 Background

Streets West is a 75,922 square foot building with significant office (10,937 square feet) and vehicle garage (64,985 square feet) areas, located at 1501 W Badger Rd, Madison, WI 53713. It was originally built in 1981 with ongoing renovations. These retrofits will be designed to comply with IECC 2012. The building is occupied Monday through Friday from 6 am to 4 pm and is particularly active during snow emergencies.

Streets West is one of three adjacent city-owned facilities that already have solar PV and back-up generators on-site, shown in Figure 1.



Figure 1. Site layout for Streets West (north/top of image) and Engineering Operations (south/bottom of image) showing proposed changes. PV array shown in Streets West rooftop is the initial 99 kW array; the additional 200 kW array was installed after this photo was taken.

The facilities house Madison's streets division and engineering operations and are city headquarters for several critical government functions: emergency support services, snow removal, road maintenance, and sewer maintenance.

Streets West has 299 kW of solar PV installed, with no further roof capacity for additional PV (see Section 4.2.3 for details). All inverters are compatible with SunSpec Modbus and could likely be integrated directly with any future microgrid.

The site has an older 100-kW diesel generator which is near end-of-life – but it will remain in service as part of the project.



Table 2. Existing diesel generator details.

Capacity (kW)	Fuel	Year installed	Make	Model
100	Diesel (day tank supplied from vehicle refueling)	1981	Cummins	100-0DYC-15R

The site currently houses about 70 vehicles and fuel-operated machines, including both heavy- and light-duty vehicles. The adjacent Engineering Operations building houses an additional 150 vehicles and machines. The City of Madison plans to electrify as much of its fleet as possible over the next 10 years. When considering a BESS for this site, the expanding EV fleet and need for managed EV charging must be considered – more details of proposed future stages for the project are provided in section 3.2.

Figure 2: Proposed BESS location (1501 W Badger Rd, Madison, WI 53713)



### 3.2 Long-Term Site Plan

Long-term, the City of Madison envisions that Streets West, Engineering Operations, the smaller adjacent buildings, and the nearby Library Service Center are integrated as a single, fully islandable microgrid, able to withstand outages of 24 hours operating at full capacity, and indefinitely when operating in a limited capacity. This would be accomplished through a combination of electrical interconnection of each building, rooftop solar (maximizing available rooftop space), stationary BESS, the existing 300 kW natural gas generator at Engineering Operations, and vehicle-to-grid (V2G, with the expectation that all 200+ vehicles at the site would be electrified). A feasibility study of this planned system was conducted previously<sup>5</sup>, though V2G was not included.

### 3.3 Facility Load Profile

The site has a dedicated electric service from MGE, recently upgraded to a 3000 A, 480V three phase service. Table 4 includes summary statistics of the facility's load.

Table 3. Summary of load and solar attributes.

Metric	Value
<b>2021 consumption (kWh)</b>	258,004
<b>2021 peak demand (kW)</b>	65
<b>2021 solar capacity (kW<sub>dc</sub>)</b>	99.90
<b>2021 solar production (kWh)</b>	116,237
<b>Current solar capacity (kW<sub>dc</sub>)</b>	298.56
<b>Current ICEV fleet</b>	62
<b>Current EV fleet</b>	2

A 15 minute load profile is provided in the supplemental data – note that this includes the charging load of the two EVs currently stationed at the site.

### 3.4 EMIS

A previous RFP process resulted in the selection of Ace IoT, HGA, and ControlWorks to provide the EMIS for Streets West. A VOLTTRON-based platform will be used to interface with and provide select control signals to the BESS supervisory controller, such as demand shed targets. Communication via several protocols is supported: Modbus, API, IEEE 2030.5, and MQTT.

The BESS supervisory controller partner will need to work closely with Ace IoT, HGA, and ControlWorks during the EMIS and BESS implementations to ensure proper coordination and functioning of the two systems. The BESS supervisory controller will provide the primary logic for the BESS dispatch and economically optimized dispatch.

### 3.5 Solar Photovoltaic Arrays

The first solar array was installed on the site in 2017, with a second array currently being commissioned. With the new array, the site's limit for PV capacity will likely be reached, as all available roof space will have been utilized. Details of the arrays are included in Table 6.

Table 4. Selected details of existing and planned solar arrays.

Array size (kW <sub>dc</sub> )	Year installed	Inverters	SunSpec Modbus compatibility	Public data portal
99.90	2017	Fronius Primo 15.0-1	Native.	<a href="#">SolarWeb</a>
198.66	2023	SolarEdge SE100KUS, SE66.6KUS with P860 or P960 optimizers.	With firmware version 3+.	
<b>298.56</b>				

All inverters are compatible with SunSpec Modbus, either natively, with a firmware upgrade, or with an external hardware upgrade. This enables integration with most microgrid controllers, enabling the controller to utilize the voltage regulation, power factor management, export limiting capabilities, and other smart inverter functions of each inverter.<sup>6</sup> Any required inverter hardware or firmware upgrades would be the responsibility of the City of Madison.

Any solar inverter integration will be handled through the GEBs project and is not required through the BESS supervisory controller.

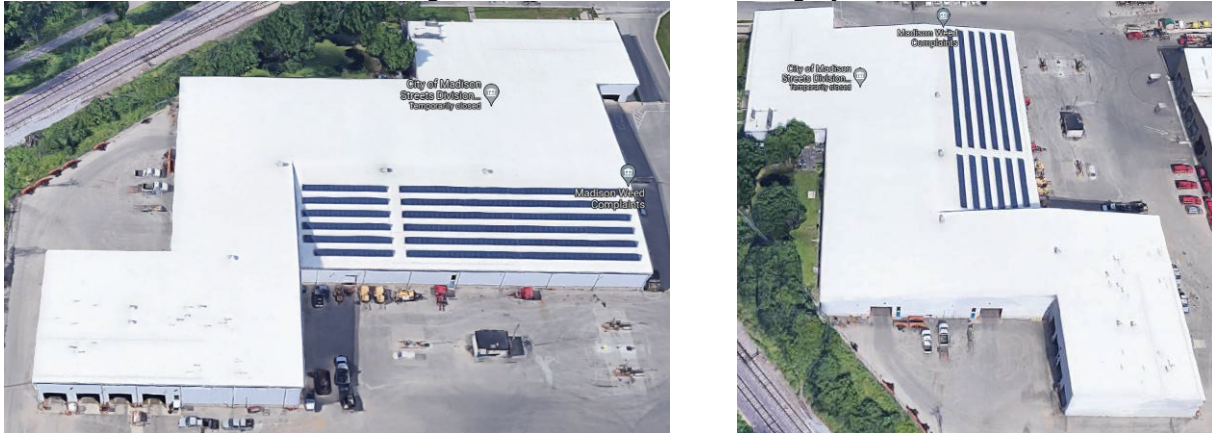
### 3.6 Additional Facility Details

Additional details which may be relevant are provided below.

Figure 3: Streets West main entrance and south façade.



Figure 4: Streets West aerial imagery.



The office's HVAC systems includes a multizone AHU and several furnaces. The locker rooms are served by a multizone VAV AHU. The air distribution for the office is CAV with a hot deck/cold deck arrangement. The air distribution for the locker rooms is VAV with reheat. Cooling for all systems is provided by direct expansion within the AHUs and furnaces with an efficiency of 10 EER. Heating is provided by 2 natural-gas fired boiler with an efficiency of 80% or directly in the furnaces at 80-90%. HW is distributed to heating coils in the AHUs by 2 constant speed HW pumps. An air-side economizer provides free cooling at outdoor air drybulb temperatures below 60 °F. The BAS is Honeywell Tridium running Niagara version N4.10. End-point communications utilize BacNET IP. Building automation system controls in this facility vary from others in that some pneumatic controls still operate, and some HVAC equipment has not been integrated into the Honeywell BAS. There are 3 JACES onsite connecting to the N4 virtual server. The vehicle garage is heating-only. Heating and ventilation is provided by gas-fired makeup air units.

The building's lighting system is fluorescent T-8s with manual controls.

The building has 1 EnelX JuiceBox Pro 32 EV charger. At 208 V and current limit of 16 A, the chargers approximate total electric demand is 3.3 kW.

The building's electric demand, energy and power quality are measured with a SquareD/Schneider Electric PM5000 meter. This meter is BAS connected and data will be available through the EMIS.

Streets West is on MGE's GSD-2/FS-1 natural gas tariff for commercial buildings with who use at least 25,000 therms but less than 200,000 therms in 12 consecutive months. It includes a \$3.7196/day customer service charge, a \$0.1437/therm distribution charge, a \$0.0119/therm administrative charge, and a \$0.8638/therm natural gas service charge.

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<sup>1</sup><https://rmi.org/our-work/buildings/pathways-to-zero/grid-interactive-energy-efficient-buildings/>

<sup>2</sup><https://www.mge.com/MGE/media/Library/pdfs-documents/rates-electric/e4-3-0-ScheduleCg-4.pdf>

<sup>3</sup><https://www.mge.com/MGE/media/Library/pdfs-documents/rates-electric/e2-2-0-ScheduleMSC-2.pdf>

<sup>4</sup><https://www.mge.com/MGE/media/Library/pdfs-documents/rates-electric/e11-1-0-SchedulePg-1.pdf>

<sup>5</sup><https://slipstreaminc.org/sites/default/files/2022-07/City%20of%20Madison%20-%20Microgrid%20Feasibility%20Study%20-%20Final%20Report.pdf>

<sup>6</sup><https://sunspec.org/sunspec-modbus-specifications-2/>

**4 REQUIRED INFORMATION AND CONTENT TO BE INCLUDED WITH BID**

1. Form A – Signature Affidavit
2. Form B – Receipt Forms and Submittal Checklist
3. Form C – Contractor Profile Information
4. Form D1 – Cost Proposal
5. Form D2 – Cost Proposal Excel Workbook
6. Form E – References
7. Appendix D – Qualification Questions