ADMINISTRATED BY GDS ASSOCIATES, INC.

North Carolina Eastern Municipal Power Agency

Request for Proposals

Battery Energy Storage System

Issued: January 14, 2021
Deadline: March 11, 2021

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1 Overview

North Carolina Eastern Municipal Power Agency (NCEMPA) is a joint action agency created and existing under Chapter 159B of the General Statutes of North Carolina. NCEMPA's members are 32 cities and towns located in eastern North Carolina, each of which owns and operates its municipal electric distribution system. NCEMPA is the full requirements wholesale power supplier to its members and procures power from an investor-owned utility, pursuant to which the supplier provides native-load firm power to serve the loads of NCEMPA's members. NCEMPA is managed by ElectriCities, Inc, which is a not-for-profit membership organization of municipally owned electric utilities that are spread across North Carolina, South Carolina, and Virginia.

NCEMPA is billed for its demand usage in each month through aggregated 60-minute integrated demands measured coincident with its supplier's system peak demands (i.e., 12 coincident peaks, or "12 CP cost allocation"). Under the agreement, NCEMPA is permitted to institute or promote activities, including the use of battery energy storage systems (BESS), that are designed to manage or reduce the members' demands and/or loads through demand-side management (DSM) and/or demand response (DR) programs.

NCEMPA seeks competitive proposals for a BESS to support NCEMPA's DSM and DR activities. NCEMPA is requesting pricing for six different BESS system configurations as outlined in Table 1-1. One of these configurations will be selected based on site-specific costs and project evaluation criteria. Commercial Operation of the BESS is contemplated to commence no later than December 1rst 2022.

TABLE 1-1. SUMMARY OF SYSTEM CONFIGURATIONS BEING CONTEMPLATED

Configuration	1	2	3	4	5	6
Nominal AC Power Capacity	5MW	5MW	5MW	10MW	10MW	10MW
Nominal DC Energy Capacity	10MWH	15MWH	20MWH	20MWH	30MWH	40MWH
Expected Duration at Nominal Power	2hr	3hr	4hr	2hr	3 hr	4hr
Use Case	Demand Side Management of 12 Coincident Monthly Peaks per year					
Expected Cycles	Up to 150 full cycles per year					
Useful Life	Minimum 15 Years, COD is December 1rst 2022					

The goal of this RFP is to select a finalist/winning Seller to proceed with a project with whom NCEMPA will execute an agreement. NCEMPA is currently in the process of reviewing selected sites for internal approval. A short-list of Sellers will be given the opportunity to respond to a second round of bidding which will include an approved site location, a draft contract, and a technical addendum to this RFP with site specifications.

The successful Seller shall be responsible for all design, engineering, permitting, material, equipment, labor, installation, testing & commissioning required for the satisfactory operation of the proposed system for a planned operational life of at least 15 years. The Seller will provide a turn-key system which can be operated by NCEMPA according to the specification provided in this RFP document. Please provide pricing for each configuration as an independent unit, assuming that only one configuration will be awarded.

TABLE 1-2. SUMMARY OF REQUESTED PRICING FOR ALL SIX CONFIGURATIONS

Requested Pricing	Description
System Contract Pricing	Contract price for each individual turn-key system (six total)
Energy Capacity Guaranty	Fixed rate ($/kW-mo) for 15 years
Long Term Service Agreement	Fixed rate ($/kW-mo) for 15 years

2 Project Description

2.1 BACKGROUND

Information contained in this RFP is provided for background use only. NCEMPA makes no representation that the information is complete or applicable to any Seller's Proposal.

2.1.1 Use-Case Description

Pursuant to the agreement between NCEMPA and its supplier, NCEMPA has the ability to manage or reduce NCEMPA's or its Members' demands and/or loads through energy and load-shape modifying activities, including the use of BESS technology.

DSM is the energy and load-shape modifying activities undertaken by NCEMPA and/or a Member that are designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand. DSM includes those activities engaged in by NCEMPA or its Members designed in whole or in part, to control demand and which are typically characterized by centralized control or by supplying load signal information. DSM will be used behind the Delivery Point Meter and the battery will be cycled as needed to accomplish monthly load shaping strategies. NCEMPA or its scheduling agent will direct DSM battery operation which can be assumed to be up to 150 times per year.

The proposed BESS configuration shall be optimized to provide maximum potential for dispatch over a two, three or four-hour period for peak demand reduction as the primary use case. Peak demand usually occurs between hours ending 3 PM – 7 PM during the summer months and hours ending 7 AM – 9 AM during the winter months. Peaks during the shoulder months may occur during the morning or evening hours.

As such, NCEMPA will dispatch the proposed BESS as a DSM and/or DR tool to manage its 12 CP billing demands. NCEMPA will dispatch the BESS based on its supplier's system peak demand predictions. The

BESS shall receive a signal from NCEMPA's telemetry and control system that will be used to dispatch the system.

2.1.2 Site and Interconnection Requirements

The BESS shall be located near/behind an existing substation owned by one of NCEMPA's Members. The most suitable sites are being evaluated at the time of this RFP release as this RFP seeks to obtain indicative pricing ahead of the site approval process. The BESS shall integrate with NCEMPA's SCADA network via fiber optic cable installed from the BESS to the substation control house. The Seller should assume that there is existing fiber communication line installed and available for use with their proposed BESS project.

2.2 SCOPE OF SUPPLY

2.2.1 Scope

NCEMPA seeks a "turn-key" proposal for a dispatchable 2-hour, 3-hour, and 4-hour BESS system with a 15-year+ useful life behind the Delivery Point Meter. Seller shall provide turn-key pricing for engineering, design, procurement and manufacturing/assembly of all components required to deliver the BESS configurations in Table 1-1 according to the scope and technical requirements in this RFP.

NCEMPA will provide site due diligence to allow a BESS system to be installed. Site environmental impact and interconnection studies will be executed prior to commencement of the project. NCEMPA will be responsible for the removal and disposal of any vegetative waste/debris from site, if required. NCEMPA will also make available appropriate staff during any required excavation to ensure integrity of NCEMPA's host city substation ground grid.

NCEMPA's preference for the BESS project design would include a means for future augmentation(s) of batteries to the initial BESS project or alternative lifecycle management approach to maintain the Expected Duration and Nominal Power, as an additional offering to providing the turn-key system. Proposal evaluation will also consider the Seller's ability to provide Long Term Service Agreement (LTSA) over the first 15 years of operation.

Seller shall:

- design, fabricate, procure, deliver, assemble, test & commission, and warrant a fully functional turn-key BESS that meets or exceeds all requirements herein; including protective and reverse-power relaying, and connection to the Seller-provided BESS step-up transformer secondary connections and NCEMPA's SCADA interface. NCEMPA or its host city will be responsible for the extension of NCEMPA's host city electric distribution system to the BESS step-up transformer.
- design, install, program and make ready for use all communications equipment/software, within the BESS, necessary for integration of the BESS to NCEMPA's existing SCADA network located at the substation. NCEMPA will be responsible for communication wiring and conduit between the BESS and the host city's substation control house.

- design, install, program and make ready for use a BESS Energy Management System (EMS) capable of integrating with NCEMPA's SCADA, remote dispatch/operation, and performing any/all functions required for the operation of a BESS.
- The Seller shall furnish the design and installation for the structural components of the BESS, concrete pads/foundations as required, and conduit required for the complete BESS.
- Provide all required equipment, materials, labor, and tools required to install, test & commission the BESS.
- be responsible for obtaining and paying for all permits, licenses, certificates, inspections, etc., both permanent and temporary.
- Provide pricing for service of this facility through an LTSA in order to maintain equipment warranties and provide Availability and Performance Guaranties for 15 years after the Commercial Operation Date (COD).
- Provide pricing to guarantee energy capacity for a 15-year term at the Expected Duration at Nominal Power.

2.2.2 Technical Requirements

The successful Seller shall be responsible for the following project elements to adhere to the Technical Requirements. The Seller shall ensure successful completion of a turn-key design-build BESS. It is the intent of these technical requirements that the BESS shall be complete and fully operable. Any details, equipment, components, software, labor, services etc. not explicitly mentioned in these specifications but required for satisfactory operation shall be the responsibility of the Seller.

- The BESS shall support autonomous operation, and shall be capable of being charged, discharged and controlled via remote telemetry, recognizing and responding to the dispatch control point signal or equivalent when on-line. Charging and discharging operations will be accomplished directly through NCEMPA.
- System to be integrated into the approved distribution system location assuming an existing spare 23kV breaker.
- Seller shall provide any and all component and system technical data required by NCEMPA to conduct the interconnection studies.
- Seller shall provide auxiliary load requirements for powering the system during normal and emergency conditions. Pricing shall include an auxiliary load transformer.
- Modes of Operation shall include DSM activities and manual real power command. Once initiated in an operating mode, the BESS shall remain at the designated output until terminated by local/remote signal or the BESS discharge limit is reached.
- The EMS shall include functionality for remote charging and discharging operations for all 24 hours in a day.
- The EMS shall be capable of maintaining a selectable resting state of charge (e.g. 30%) while being synced to the distribution system grid behind the Delivery Point Meter.
- The ramp rate and output level shall be selectable, and the output level shall be programmable, on a continuous real time basis by the remote signal from NCEMPA's SCADA system. The BESS shall be capable of ramping to a predetermined output level as set by a remote signal from NCEMPA's SCADA system or by entering a ramp rate into the EMS HMI and discharging upon remote command. Minimum selectable ramp must be 10% Nominal AC nameplate capacity per second, ramping to full load in 10 seconds or less. Ramp rate should be programmable for each dispatch interval.

- The BESS shall support 24/7 real-time remote monitoring and operation. The EMS shall provide monitoring points throughout the BESS included but not limited to: Inverter AC and DC Voltage, current, kW, kVA, kVAR, Power factor; Battery Rack Voltage and Current, Battery module min/max voltage, auxiliary system critical parameters, fire detection/suppression monitoring points, state of charge of battery modules, and 3 temperature monitoring points per battery rack including an average of temperature sensors in battery rack (average, max, min).
- EMS shall provide remote access to monitor data as well as a minimum of 30-day on-site memory storage capacity.
- The BESS shall utilize DNP3 and MODBUS Protocols for network integration.
- The thermal management system must maintain battery temperatures to within manufacturer specifications (temperature differential, minimum temperature, maximum temperature).
- Seller shall design battery systems to the site-specific seismic criteria and weather conditions.
- Cybersecurity requirements (based on the National Institute of Standards and Technology "Framework for Improving Critical Infrastructure Cybersecurity", Version 1.1, April 16, 2018, or any approved later version in effect as of the bid date) shall apply.
- The Seller shall provide such temporary structures as required for proper storage of materials and equipment during construction prior to the COD.
- Proposals shall include a recommended spare parts list with pricing and availability.

2.2.3 Code Compliance:

Seller shall assure that the BESS will comply with the following codes:

- American National Standards Institute (ANSI 62.41, ANSI C12.1)
- Federal Communications Commission (FCC Part 15A)
- Institute of Electrical and Electronics Engineers (IEEE 519, 929, 1537, & 1547)
- Underwriters Laboratories (UL1741, UL1973, UL9540, UL9540a)
- National Electric Code, latest version
- North Carolina Building Code, latest version
- National Fire Protection Association (NFPA855), latest version
- Local Building and Safety Codes, latest version

2.2.4 Commercial Terms

To create an equitable comparison beyond technical and pricing evaluation criteria, the contemplated terms and conditions apply when offering pricing:

- Delay Damages: Damages for not meeting the COD is \$250/MW_{AC}-day.
- LTSA pricing should contemplate damages for missing the coincident peak hour in any one month due to an unplanned BESS outage event or BESS unavailability at \$20,000/MW_{AC}-month, which will be capped annually at \$60,000/MW_{AC}-year.
- Force Majeure Events, and the anticipated length of time of the Force Majeure Event, will not incur performance penalties such as delay of COD and/or unavailability during a coincident peak.
- Seller shall represent that pricing includes the circumstances on that date, including the existence of the Covid-19 pandemic. Seller's pricing contends that COD is reasonable and achievable and remains committed to achieving that date. The Parties nevertheless recognize that the Covid-19

pandemic is unpredictable and future consequences of the pandemic and the responses may present barriers to Seller's performance, including unavailability of equipment and potential government orders impairing development or construction activities. The Parties shall take all commercially reasonable technical and commercial precautions to prevent consequences; however, if Seller remains unable to perform then Seller shall be excused for such Covid-19 related delays.

- The Successful Seller shall be required to furnish separate Performance and Payment Bonds in amounts at least equal to \$80,000/MW_{ac} pre-COD as Performance Security for the faithful performance of the Contract and as security for the payment of all persons performing labor and furnishing materials and equipment in connection with this Contract.
- The Successful LTSA Seller shall be required to furnish separate Performance and Payment Bonds in amounts at least equal to \$60,000/MW_{ac} post-COD as Performance Security for the faithful performance of the Contract and as security for the payment of all persons performing labor and furnishing materials and equipment in connection with this Contract.
- Insurance with the coverages indicated:
    - Workman's Compensation Insurance in the statutory amount.
    - Comprehensive General Liability Insurance of not less than \$1,000,000 each occurrence and \$3,000,000 aggregate, including Comprehensive Broad Form Endorsement with Contractual Liability Coverage.
    - Automobile Liability Insurance of not less than \$250,000 per person, \$500,000 per occurrence bodily injury and \$100,000 property damage.

2.2.5 Commercial Operation Certification

Seller shall be responsible for the development and performance of a Commissioning & Acceptance Testing program that will ensure that the BESS will perform as designed and that the system meets the Technical Requirements and performs as expected in the contemplated use-case. Commissioning documentation shall include but is not limited to:

- Electrical Design verification
- Certificates of Code Compliance
- Energy and Power Capacity acceptance testing
- Modes of Operation testing in Local/Remote Control
- Functional acceptance testing of fire detection and suppression
- SCADA Integration and point verification
- First Responder Orientation

3 RFP Communications

3.1 ADMINISTRATION OF RFP

All questions or other communications regarding this RFP should be directed to the following RFP email address of NCEMPA's consultants, GDS Associates, Inc. ("GDS").

NCEMPA.2021BatteryRFP@gdsassociates.com

GDS Associates, Inc.	
Attention:	Matt Smith | Senior Project Engineer
Phone Number:	404-710-8348

3.2 SUBMITTAL INSTRUCTIONS

One electronic copy of the proposal should be emailed to NCEMPA.2021BatteryRFP@gdsassociates.com and must be delivered no later than **4:00 PM (Eastern) on March 11, 2021**. All proposal submissions must include a completed Technical Proposal Form (Appendix A) and a narrative per the format in Section 5.

Each Seller is expected to carefully review the information provided in this RFP as it contains important instructions which should be followed in preparing the proposal(s). Copies of each proposal will be forwarded to NCEMPA and their legal counsel.

3.3 RFP ATTACHMENTS AND ADDENDA

Should any addenda to the RFP be necessary, such addenda will be issued via the RFP website, **https://www.gdsassociates.com/requests-for-proposals/**, and potential Bidders are expected to monitor the RFP website for updates.

Attachments to this RFP at the time of release:

A. Attachment A – Notice of Intent to Respond
B. Attachment B – Technical Proposal Form

4 Schedule

NCEMPA reserves the right to modify this schedule if, in the sole opinion of NCEMPA, such modifications are necessary. The following schedule and deadlines apply to this solicitation:

2021 RFP Schedule	
January 14th	RFP Release
January 28th	Pre-bid meeting via conference call
February 15th	Deadline for RFP questions
February 26th	Published responses to all RFP questions
March 11th	**Proposal Due Date**
Mar 15th – Apr 16th	Evaluation Period
April 23rd	Short List Selected
April 30th	Issue site specific Technical Addendum
May – Sep 2021	Final selection and contract negotiations
December 1, 2022	**Commercial Operation Date**

The proposal process begins with the issuance of this RFP on January 14, 2021, and will continue until **4:00 PM (Eastern), March 11, 2021**, (the "Proposal Due Date"). Responses to this RFP received after the Proposal Due Date may, in the sole discretion of NCEMPA, be deemed non-responsive and given no further consideration in this RFP process.

A RFP pre-bid meeting will be held on **January 28, 2021** and any interested Sellers are encouraged to participate. In order to participate, interested Sellers will need to provide contact information to GDS via the RFP email address. Supplemental information will be provided during the pre-bid meeting and there will be a Q&A session. Any and all questions submitted by potential Sellers during the pre-bid meeting or afterwards, up until February 15th, along with NCEMPA's responses, will be made available on the RFP website.

NCEMPA anticipates a COD of December 1, 2022, approximately 14 months after completion of contract negotiations. COD may be refined during contract negotiations to reflect specific project timelines. If an alternative COD is expected, please state the expected project timeline.

5 Proposal Content

NCEMPA will review and may utilize information submitted by a Seller and reserves the right to request additional information from Seller during the proposal evaluation process. The following outline describes how the Seller should prepare and organize their respective BESS proposal. Proposal content must include, organized according to the outline, the following information:

Section 1: Executive Summary

1. Short description of proposed BESS project
2. Pricing summary table
3. Primary contact information

Section 2: Firm Background and Relevant Experience

1. Key team members for the Seller, relevant project management experience and capability, and related project experience (e.g. bios of Team members)
2. Seller's history of providing similarly sized projects over past 3 years
3. Three client BESS project references including contact organization, name, title and email address
4. Possible conflicts of interest and any legal claims

Section 3: Project Description

1. General project discussion
2. Project schedule
3. Description of Seller's LTSA approach
4. Description of Seller's battery augmentation approach
5. Discussion of non-conforming technical requirements, commercial terms, etc.

Section 4: Technical Specifications

1. Technical solution overview
2. Description for major components (e.g. batteries, inverters, transformers)
3. System architecture and augmentation strategy in that system
4. Expected and guarantied energy capacity curves for 15-year useful life
5. Expected monthly consumption and peak power of auxiliary loads
6. Control system specification including interface data requirements, network parameters, and required communication protocols
7. Decommissioning and disposal cost assumptions for battery disposal and equipment removal

Appendices:

A. Appendix A – Technical Proposal Form from RFP documents
B. Appendix B - Supplier Data Sheets for batteries, inverters, fire detection/suppression, containers, auxiliary transformer, step-up transformer, etc.
C. Appendix C - Representative project layouts (including dimensions) and single-line diagrams
D. Appendix D - Seller Financial Documentation

6 Evaluation Criteria

Prospective Sellers are advised that price will be important in the evaluation, however, proposals will also be compared and evaluated on non-price or qualitative criteria. Therefore, the lowest price submittal may not be selected. The proposal should include enough detail to enable GDS and NCEMPA to evaluate all fixed and variable charges associated with the proposal.

The principal criteria to be used in evaluating Proposals include, but are not limited to:

1. Pricing for the project and total cost of ownership
2. History of relevant project experience and corresponding references
3. Cost effectiveness and performance of battery lifecycle management strategy
4. Reputation and safety record of equipment selected
5. Long Term Service Agreement strategy
6. Viability of equipment warranties and energy capacity guaranty
7. Degree of conforming to technical requirements and commercial terms
8. Financial viability of the Seller, including its parent or any other guarantor of services under the Seller's proposal
9. Key team members for the Seller, relevant project management experience and capability, and related project experience
10. Possible conflicts of interest and any legal claims

NCEMPA reserves the right to consider any other factors deemed to be relevant to the successful integration and operation of the BESS.

Proposals will be evaluated based on their ability to reliably and economically meet NCEMPA's needs. Proposals should provide all relevant information necessary to conduct a thorough analysis of their solution(s) based on the above scope. Proposals will be analyzed over a range of scenarios defined by price and non-price variables.

7 Seller Qualifications and Experience

Seller shall have successfully completed other projects similar in size and scope to the project that they are proposing in this RFP. Seller must demonstrate that they have the financial and technical wherewithal to meet all obligations in their proposals. Unaudited financials may be accepted in the case that audited financials are not available.

8 Confidentiality and Reserved Rights

All proposals shall become the property of NCEMPA. NCEMPA will not disclose to third parties (including competing bidders) any information contained in a proposal that is clearly labeled "CONFIDENTIAL" unless such disclosures are required by law or by order of a court or government agency having appropriate jurisdiction, or to secure the approval of lenders. NCEMPA reserves the right to disclose proposals to legal or engineering consultants for the purpose of assistance in evaluating proposals but will require the consultants to maintain the confidentiality of the document. This RFP is solely an invitation to submit proposals.

NCEMPA reserves the right to:

- Reject any and all proposals received in response to this RFP for any reason;
- waive any requirement in this RFP;
- negotiate configurations with more than one Seller simultaneously;
- terminate negotiations;
- not select the proposal with the lowest price; and
- request clarifications from Seller at any time.

9 Incurred Costs

All costs directly or indirectly related to the preparation of a proposal in response to this RFP shall be the sole responsibility of, and shall be borne by, the Seller(s) incurring such costs. NCEMPA shall not reimburse any Seller for any costs incurred in the preparation or submission of a proposal and/or in negotiating an agreement as a result of a proposal.

10 Contract Incorporation

Seller should be aware that the contents of a selected proposal might become a part of any subsequent contractual agreements. If NCEMPA decides to move forward with a Seller, they will negotiate a contract with such Seller that will embody the general principles and concepts established in the Seller's proposal. In the event negotiations with a Seller do not, within a reasonable period of time, produce satisfactory contracts to NCEMPA, NCEMPA reserves the right to terminate those negotiations and pursue other options available to it including, without limitation, entering into negotiations with another party.

Any winning bid that result from the proposal evaluation and negotiation processes will be subject to approval by NCEMPA.

11 Rejection of Proposals

NCEMPA reserves the right to accept any proposal, or to reject all proposals and to re-issue this RFP if all proposals are rejected, or if they deem it otherwise necessary. NCEMPA reserves the right to revise this RFP, including the desired power and energy specifications, at any time. Additionally, NCEMPA reserves the right to accept proposals other than the lowest cost proposal. Factors other than cost, as described above, will be considered in the proposal evaluation process.

12 Supplemental Information

NCEMPA reserves the right to request additional information from Sellers or to request Sellers to submit supplemental materials in fulfillment of the content requirements of this RFP or to meet additional information needs. NCEMPA also reserves the right to waive any technical or format requirements contained in the RFP.

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