



Administered by
UNIVERSITY OF MAINE SYSTEM
Office of Strategic Procurement

REQUEST FOR PROPOSALS

Backpressure Turbine and Generator System
University of Maine

RFP # 13-08

ISSUE DATE:
January 15, 2008

PROPOSALS MUST BE RECEIVED BY:
February 5, 2008

DELIVER PROPOSALS TO:

University of Maine System
Office of Strategic Procurement
Attn: Hal Wells
16 Central Street
Bangor, ME 04401

SECTION ONE

1.0 GENERAL INFORMATION:

- 1.1 Purpose: The University of Maine System, acting through the University of Maine is seeking proposals for a factory fabricated, assembled and tested system consisting of two (2) steam turbines and a (1) generator mounted on a common steel base as described below.

This Request for Proposals (RFP) states the instructions for submitting proposals, the procedure and criteria by which the manufacturer may be selected, and the contractual terms by which the University intends to govern the relationship with the selected manufacturer.

- 1.2 Definition of Parties: The University of Maine will hereinafter be referred to as the "University." Respondents to the RFP shall be referred to as "Bidders." The bidder to whom the Contract is awarded shall be referred to as the "Contractor."
- 1.3 Scope of Work: Provide one factory fabricated, assembled and tested system consisting of two (2) steam turbines and one (1) generator mounted on a common steel base. The Contractor will deliver the system and provide startup service after installation. Installation will be bid separately.
- 1.4 Evaluation Criteria: An evaluation team will review and score each proposal submitted, assigning points for each of the criteria below.

Evaluation Criteria	Possible Points	Weight	Total Points
Annual Maintenance downtime and materials costs	5	3	15
Major overhaul downtime, material costs and frequency	5	3	15
Generating Capacity	5	5	25
Cost/Delivery time after receipt of order	5	5	25
Total Points	20		80

- 1.5 Alternates: *The University will **NOT** accept a turbine/generator set other than those listed below. For other components – marked “**or approved equal**”, the following applies.* Unless otherwise provided for in this solicitation, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named; but conveys the general style, type, character, and quality of the article desired. Any article which the University, in its sole discretion, determines to be the equal of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted. It is the bidder's responsibility to clearly and specifically indicate the product being offered and to provide sufficient descriptive literature, catalog cuts and technical detail to enable the University to determine if the product offered meets the requirements of the solicitation. Failure to furnish adequate data for evaluation purposes may result in declaring a bid non-responsive. Unless the bidder clearly indicates in its Proposal that the product offered is an "equal" product, such Proposal will be considered to offer the brand name products referenced in the solicitation.

- 1.6 Award: The University intends to award this contract to a single bidder. Presentations may be requested of two or more bidders deemed by the University to be the best suited among those submitting proposals on the basis of the selection criteria. After presentations have been conducted, the University may select the bidder which, in its opinion, has made the proposal that is the most responsive and most responsible and may award the contract to that bidder. The University reserves the right to waive minor irregularities. Scholarships, donations, or gifts to the University, will not be considered in the evaluation of proposals. The University reserves the right to reject any or all proposals, in whole or in part, and is not necessarily bound to accept the lowest cost proposal if that proposal is contrary to the best interests of the University. The University may cancel this Request for Proposal or reject any or all proposals in whole or in part. Should the University determine in its sole discretion that only one bidder is fully qualified, or that one bidder is clearly more qualified than any other under consideration, a contract may be awarded to that bidder without further action.
- 1.7 Award Protest: Bidders may appeal the award decision by submitting a written protest to the University of Maine System's Director of Strategic Procurement within five (5) business days of the date of the award notice, with a copy of the protest to the successful bidder. The protest must contain a statement of the basis for the challenge.
- 1.8 Confidentiality: The information contained in proposals submitted for the University's consideration will be held in confidence until all evaluations are concluded and an award has been made. At that time, the winning proposal will be available for public inspection. Pricing and other information that is an integral part of the offer cannot be considered confidential after an award has been made. The University will honor requests for confidentiality for information of a proprietary nature to the extent allowed by law. Clearly mark any information considered confidential.
- 1.9 Communication with the University: It is the responsibility of the bidder to inquire about any requirement of this RFP that is not understood. Responses to inquiries, if they change or clarify the RFP in a substantial manner, will be forwarded by addenda to all parties that have received a copy of the RFP. Addenda will also be posted on our web site, www.maine.edu/strategic/upcoming_bids.php. The University will not be bound by oral responses to inquiries or written responses other than addenda.

Inquiries must be made to: Hal Wells
Office of Strategic Procurement
University of Maine System
16 Central Street
Bangor, Maine 04401
(207) 973-3302

- 1.10 Submission: A **SIGNED** original and two (2) copies of the proposal must be received at the Office of Strategic Procurement, University of Maine System, 16 Central Street, Bangor, Maine 04401, in a sealed envelope by close of business on **Tuesday, February 5, 2008**. The RFP must be date stamped by the Office of Strategic Procurement in order to be considered. Normal business hours are 8:00 a.m. to 5:00 p.m., Monday through Friday. Proposals received after the due date will be returned unopened. There will be no public opening of proposals (see Confidentiality clause). Bidders are strongly encouraged to submit proposals in advance of the due date to avoid the possibility of missing the due date because of unforeseen circumstances. Bidders assume the risk of the methods of dispatch chosen. The University assumes no responsibility for delays caused by any package or mail delivery service. A postmark on or before the due date WILL NOT substitute for receipt of proposal. In the event of suspended University operations on the day that proposals are due, proposals will be accepted on the next regularly scheduled business day. Bidders may wish to call 207-973-3298 for information regarding University hours. Additional time will not be granted to any

single bidder however additional time may be granted to all bidders when the University determines that circumstances require it. **FAXED OR E-MAIL PROPOSALS WILL NOT BE ACCEPTED.**

- 1.11 Proposal Envelope: The signed proposal should be returned in an envelope or package, sealed and identified as follows:

From _____
Name Due Date Time RFP No.

- 1.12 Proposal Understanding: By submitting a proposal, the bidder agrees and assures that the specifications are adequate, and the bidder accepts the terms and conditions herein. Any exceptions should be noted in your response.
- 1.13 Costs of Preparation: Bidder assumes all costs of preparation of the proposal and any presentations necessary to the bidding process.
- 1.14 Debarment: Submission of a signed proposal in response to this solicitation is certification that your firm (or any subcontractor) is not currently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal department or agency. Submission is also agreement that the University will be notified of any change in this status.
- 1.14 Proposal Validity: Unless specified otherwise, all proposals shall be valid for 60 days from the due date of the proposal.
- 1.15 Specification Protest Process and Remedies: If a bidder feels that the specifications are written in a way that limits competition, a specification protest may be sent to the Office of Strategic Procurement. Specification Protests will be responded to within five (5) business days of receipt. Determination of protest validity is at the sole discretion of the University. The due date of the proposal may be changed if necessary to allow consideration of the protest and issuance of any necessary addenda. Specification protests shall be presented to the University in writing as soon as identified, but no less than five (5) business days prior to the proposal due date and time. No protest against the award due to the specifications shall be considered after this deadline. Protests shall include the reason for the protest and any proposed changes to the specifications. Protests should be delivered to the Office of Strategic Procurement in sealed envelopes, clearly marked as follows:

SPECIFICATION PROTEST, RFP #_____

SECTION TWO

2.0 GENERAL TERMS AND CONDITIONS:

- 2.1 **Contract Administration:** The University of Maine's Purchasing Department or its designee shall be the University's authorized representative in all matters pertaining to the administration of this Contract.
- 2.2 **Contract Documents:** If a separate contract is not written, the Contract entered into by the parties shall consist of the RFP, the signed proposal submitted by the Contractor, the specifications including all modifications thereof, and a purchase order, all of which shall be referred to collectively as the Contract Documents.
- 2.3 **Contract Modification and Amendment:** The parties may adjust the specific terms of this Contract (except for pricing) where circumstances beyond the control of either party require modification or amendment. Any modification or amendment proposed by the Contractor must be in writing to the Office of Strategic Procurement. Any agreed upon modification or amendment must be in writing and signed by both parties.
- 2.4 **Contract Validity:** In the event one or more clauses of the Contract are declared invalid, void, unenforceable or illegal, that shall not affect the validity of the remaining portions of the Contract.
- 2.5 **Clarification of Responsibilities:** If the Contractor needs clarification of or deviation from the terms of the Contract, it is the Contractor's responsibility to obtain written clarification or approval from the Contract Administrator.
- 2.6 **Litigation:** This Contract and the rights and obligations of the parties hereunder shall be governed by and construed in accordance with the laws of the State of Maine without reference to its conflicts of laws principles. The Contractor agrees that any litigation, action or proceeding arising out of this Contract, shall be instituted in a state court located in the State of Maine.
- 2.7 **Indemnification:** The Contractor agrees to be responsible for, and to protect, save harmless, and indemnify the University and its employees from and against all loss, damage, cost and expense (including attorney's fees) suffered or sustained by the University or for which the University may be held or become liable by reason of injury (including death) to persons or property or other causes whatsoever, in connection with the operations of the Contractor or any subcontractor under this agreement.
- 2.8 **Assignment:** Neither party of the Contract shall assign the Contract without the prior written consent of the other, nor shall the Contractor assign any money due or to become due without the prior written consent of the University.
- 2.9 **Equal Opportunity:** In the execution of the Contract, the Contractor and all subcontractors agree, consistent with University of Maine System policy, not to discriminate on the grounds of race, color, religion, sex, sexual orientation, transgender status or gender expression, national origin or citizenship status, age, disability or veteran's status and to provide reasonable accommodations to qualified individuals with disabilities upon request.
- 2.10 **Sexual Harassment:** The University is committed to providing a positive environment for all students and staff. Sexual harassment, whether intentional or not, undermines the quality of this educational and working climate. The University thus has a legal and ethical responsibility to ensure that all students and employees can learn and work in an environment

free of sexual harassment. Consistent with the state and federal law, this right to freedom from sexual harassment was defined as University policy by the Board of Trustees.

Failure to comply with this policy could result in termination of this Contract without advanced notice. Further information regarding this policy is available from:

The University of Maine
Karen Kemble
Director of Equal Opportunity
Alumni Hall
(207) 581-1226

2.11 Contractor's Liability Insurance: During the term of this agreement, the Contractor shall maintain the following insurance:

<u>Insurance Type</u>	<u>Coverage Limit</u>
1. Commercial General Liability (Written on an Occurrence-based form)	\$1,000,000 per occurrence or more (Bodily Injury and Property Damage)
2. Automobile Liability (Including Hired & Non-Owned)	\$1,000,000 per occurrence or more (Bodily Injury and Property Damage)
3. Workers Compensation	Required for all personnel (In Compliance with Applicable State Law)

The University of Maine System shall be named as Additional Insured on the Commercial General Liability insurance.

Certificates of Insurance for all of the above insurance shall be filed with:

Office of Strategic Procurement
University of Maine System
16 Central Street
Bangor, Maine 04401

Certificates shall be filed prior to the date of performance under this Agreement. Said certificates, in addition to proof of coverage, shall contain the standard Acord statement pertaining to written notification in the event of cancellation, with a thirty (30) day notification period.

As additional insured and certificate holder, the University should be included as follows:

University of Maine System
16 Central Street
Bangor, Maine 04401

2.12 Smoking Policy: The University of Maine System must comply with the "Workplace Smoking Act of 1985" and M.R.S.A. title 22, §1541 et seq "Smoking Prohibited in Public Places." In compliance with this law, the University of Maine System has prohibited smoking in all University System buildings except in designated smoking areas. This rule must also apply to all contractors and workers in existing University System buildings. The Contractor shall be responsible for the implementation and enforcement of this requirement within existing buildings.

2.13 Payments: Payment will be upon final acceptance of product and submittal of an invoice to the Contract Administrator by the Contractor on a Net 30 basis unless discount terms are

offered. Invoices **must** include a purchase order number.

- 2.14 Installation: **Any special installation requirements** will be submitted with the Proposal to the University. All transportation and installation arrangements will be the responsibility of the Contractor. Equipment will be delivered directly to the Central Steam Plant, College Avenue, Orono, Maine 04469

SECTION THREE

3.0 PERFORMANCE TERMS AND CONDITIONS:

3.1 Employees: The Contractor shall employ only competent and satisfactory personnel and shall provide a sufficient number of employees to perform the required services efficiently and in a manner satisfactory to the University. If the Contract Administrator or designee, notifies the Contractor in writing that any person employed on this Contract is incompetent, disorderly, or otherwise unsatisfactory, such person shall not again be employed in the execution of this Contract without the prior written consent of the Contract Administrator.

3.2 The Contractor shall:

3.2.1 Provide equipment that complies with applicable Federal, State and local codes, ordinances and regulations.

3.2.2 Furnish, deliver and supervise the start-up of a dual back pressure turbine-generator set.

3.2.3 Provide a qualified engineer to perform the startup services specified below (estimate 40 hours):

- Engage a factory-authorized service representative to test, inspect, and adjust system components and equipment installation and to perform startup service.
- Perform installation and pre-startup checks according to manufacturer's written instructions.
- Review connections of all piping, power and control wiring.
- Check cold alignment.
- Perform cold steam pipe and pipe reaction checks.
- Inspect field wiring including point-to-point checkout.
- Flush Lube oil system.
- Perform startup checks according to manufacturer's written instructions.
- Check hot alignments.
- Test all controls and trip functions.
- Test turbine at rated speed and over-speed trip.
- Tune and check all PID loops.
- Provide technical support on plant interface issues.
- Close breaker and generate electricity.
- Provide operator training.

- Prepare written reports that document testing procedures and results.
- 3.2.4 Training: Engage a factory-authorized service representative to train University's maintenance personnel to adjust, operate, and maintain back-pressure turbines.
- 3.2.5 Demonstration: After completion of the installation, at a time when steam load is available and at a time to be mutually agreed upon the Contractor and the University conduct a performance test on the unit to determine that it is capable of continuous power generation as specified in Contractor supplied turbine performance curves, and that manufacturer's guarantees have been met.

SECTION FOUR

4.0 PRODUCT SPECIFICATIONS

4.1 Turbine Specifications:

Manufacturers: Dresser-Rand or Elliot (*no alternates*)

Turbine/generator set shall be designed and constructed in accordance with API -611 and 612 and local laws and regulations and codes having jurisdiction in area installed. Turbine nozzle connections shall comply with NEMA - SM 23, standards for allowable loads for nozzles on rotating equipment.

Description: Factory-fabricated, -assembled, and -tested system consisting of two (2) steam turbines and a generator mounted on a common steel base; a generator circuit breaker and a complete generator protection and automatic control system

- The turbines shall be connected to a common, double shafted induction generator.
- Provide couplings w/ guards.
- Skid mounted unit shall be pre-piped and pre-wired.
- Turbine / Generator Skid: Equipment shall be all assembled on a common steel base including all accessories, piping and wiring.
- Skid piping shall include all piping necessary to extend drains, vents and instrument air to edge of the skid for field connections.
- Skid wiring shall include all conductors and conduit necessary to consolidate terminations for all skid instrumentation and control devices in a common terminal box.
- Utility Requirements: Vendor shall clearly state specific requirements for instrument air, cooling water, (if applicable) control power and related infrastructure as part of the Proposal.

Turbine design data:

- Steam Inlet Pressure -150 psig.
- Steam Temperature -366 deg. F, (dry and saturated).
- Steam Exhaust Pressure - 50 psig.
- Maximum Steam Flow - 60,000 pph.
- Turbine #1 Steam Flow - 20,000 pph.
- Turbine #2 Steam Flow - 40,000 pph.

Turbine description (***or approved equal***):

- Cast iron steam chest and casing.

- Dynamically balanced built-up rotor with stainless steel blades, forged disk, shrunk and keyed to chrome molybdenum steel shaft.
- Carbon ring packing.
- Sleeve type bearings.
- Anti-friction (ball) type thrust bearings.
- Manual hand valves.
- Trip and throttle valves.
- Pneumatic governor valve actuator.
- Bearing RTD's.

4.2 Generator Specifications:

Manufacturers: Kato, Marathon, or Reliance (no alternates)

Generator design data:

- Type – Induction.
- Voltage - 4160 Volts.
- Phase/Frequency - 3/60 Hz.

Generator Description (**or approved equal**):

- Oversized terminal box with terminal standoff connectors.
- Space heater.
- Bearing RTD's.
- Stator RTD's.
- Insulation Class – F.
- Insulation Temperature Rise - 105 deg. C over 40 deg. C.
- Cooling - Self ventilating.
- Bearings - Greased ball.
- Duty – Continuous.
- Efficiency at 100 % load - 95%.

4.3 Couplings Description (**or approved equal**):

- Two (2) Flexible stainless steel disc spacer type coupling, (Lovejoy **or approved equal**), dynamically balanced to AGMA 10.
- Coupling guards shall be provided.

4.4 Control System Description (**or approve equal**): The turbine/generator protection and control system will provide automatic system startup, operation and controlled shutdown housed in two free standing, pre-wired panels. System to include but not limited to the following:

- Programmable controller, (PLC) as manufactured by Allen Bradley, **or approved equal**.
- PLC shall include software by Compact Logix, **or approved equal**.
- Operator interface terminal (OIT) with color touch screen.
- Dual channel tachometer, (Stacktach, **or approved equal**) with independent over speed trips.
- Generator Protection Relay, (GE Multilin, **or approved equal**) for generator protection, monitoring and metering.
- Surge capacitors and lightning arrestors.
- Generator circuit breaker rated at 1,200 amperes shall be provided, complete with voltage and current transformers.
- Vendor to verify breaker size.
- Alarms and trips as seen below:

Condition	Alarm	Trip
Generator Reverse Power (Motoring)	X	X
Communications Failure (1)	X	
PLC Battery Low	X	
Emergency Stop		X
Overspeed		X
Speed Sensor Mismatch		X
Speed Sensor Failure		X
Failure to Accelerate		X
Low Lube Oil Pressure	X	X
High Lube Oil Temperature	X	X
High Exhaust Pressure	X	X
Generator Protective Relay Failure		X
Generator Protective Relay Trip		X
Inadvertent Circuit Breaker Opening (2)		X
Loss of Control Power		X

- (1) No Critical functions depend upon communications
(2) Trips the turbine

Generator Protective Relay Trips
Under or over voltage (26 & 59)

Reverse power (32)
Negative sequence current (46)
Negative sequence voltage (47)
Instantaneous overcurrent (50)
Time overcurrent (51)
Under or over frequency (81)

- The base controller, (not including the circuit breaker) shall be housed in a free-standing NEMA 12 enclosure. This enclosure shall be installed within the steam plant, in proximity to the turbine/generator set.
- Foot print limitations: Roughly 2-feet x 3-feet.
- The circuit breaker may or may not include some of the items listed above. The vendor shall offer clarification, keeping in mind the dimensional limitations for the base controller.
- The Circuit breaker (and related components) shall be housed in a NEMA 12 enclosure for floor mounting within the University Steam Plant.

SECTION FIVE

5.0 SUBMISSION REQUIREMENTS:

Bidders shall ensure that all information required herein is submitted with the Proposal. All information provided should be verifiable by documentation requested by the University. Failure to provide all information, inaccuracy or misstatement may be sufficient cause for rejection of the Proposal or rescission of an award. Bidders are encouraged to provide any additional information describing operational abilities. Responses to each requirement below should be in order and clearly marked with the section number to which they respond.

- 5.1 Business Profile: No financial statements are required to be submitted with your Proposals, however, prior to an award the University may request financial statements from your company, credit reports and letters from your bank and suppliers.
- 5.2 Product Data: Include performance data, operating characteristics, furnished specialties, and accessories:
- General description of turbine/generator set and auxiliary equipment.
 - Turbine performance curves.
 - Weight of assemblies.
 - Listing of components shipped separately.
 - List of recommended spare parts with prices.
 - Schedule of shop drawings.
 - Complete Appendix A – Equipment Data Sheet.
- 5.3 Shop Drawings: For turbines, trim, and accessories. Include plans, elevations, sections, details, and attachments to other work:
- P&IDs of steam, oil and cooling system.
 - Forces and moments for foundation design.
 - Dimensioned skid and equipment drawings.
 - Mounting details.
 - Electrical drawings.
 - Control schematics.
 - Cable and raceway schedule.
- 5.4 Source quality-control test reports.
- 5.5 Startup service reports.

- 5.6 Operation and Maintenance Data: For turbines and accessories to include in emergency, operation, and maintenance manuals. Provide two (2) hard copies as well as one (1) DVD copy. Information to be provided shall include:
- Instructions for unit operations:
 - General information.
 - Start up procedures.
 - Shut down procedures.
 - Emergency trip procedures.
 - Lay up and storage procedures.
 - Cleaning.
 - Maintenance and overhaul instructions:
 - Annual Maintenance downtime (hours)
 - Major overhaul downtime and frequency (hours)
 - Lubrication instructions.
 - Parts lists:
 - Complete list.
 - Recommended spares.
 - Source for parts.
 - Product data on all equipment supplied.
 - Field wiring diagram.
 - As fabricated drawings.
- 5.7 Warranties: Provide warranty information, both on parts and labor, applying to all equipment that may be purchased as a result of this RFP. This would include units/components not manufactured by the Contractor.
- 5.8 Service: The service and engineering support available must be described, with costs specified for:
- Service contract agreement that would be effective upon warranty expiration.
 - Individual service calls as required.
 - Spare parts for which local stocking is recommended.
- 5.9 Pricing:
- Turbine Generator _____
 - Field Service hourly rate _____
 - Field Service Rate Beyond 40 Hours _____
 - Annual Maintenance materials cost _____
 - Major overhaul materials cost _____

5.10 Delivery:

- Delivery time after receipt of order_____

SIGNATURE PAGE

COMPANY NAME: _____

By: _____
(Signature)

(Print Name)

(Title)

(E-mail Address)

(Date)

APPENDIX A – EQUIPMENT DATA SHEET

A. The following data sheet of the manufacturer's standards is to be filled in by the bidder and submitted with his/her proposal.

B. Equipment data:

1. #1 Turbine type and model: _____
2. Inlet connection size: _____
3. Outlet connection size: _____
4. #1 Turbine speed: _____
5. #2 Turbine type and model: _____
6. Inlet connection size: _____
7. Outlet connection size: _____
8. #2 Turbine speed: _____
9. Generator manufacturer: _____
10. Generator type and model: _____
11. Generator speed: _____
12. Skid weight: _____
13. Skid size: _____
14. Control cabinet size: _____

C. Performance data:

1. #1 Turbine output at rated flow: _____
2. #1 Turbine efficiency: _____
3. Generator output at rated flow w/#1: _____
4. #2 Turbine output at rated flow: _____
5. #1 Turbine efficiency: _____
6. Generator output at rated flow w/#2: _____
7. Generator output at rated flow w/#1 and #2: _____
8. Generator efficiency: _____

D. Utility requirements:

1. Instrument air pressure, (psig): _____
2. Cooling water flow (gpm) and press (psig): _____

E. Maintenance Requirements:

1. Maintenance downtime requirements in
First five (5) years: _____