

SOURCES SOUGHT NOTICE

Transportable Weather Radar Facility

This Sources Sought Notice is for market research purposes only and does not constitute a Request for Proposal or Quotation. It is not considered to be a commitment by the Government to award a contract nor will the Government pay for any information provided; no basis for claim against the Government shall arise as a result from a response to this Sources Sought Notice or Government use of any information provided.

Pursuant to FAR Part 10 (Market Research), the purpose of this notice is to:

1. Determine if sources capable of satisfying the agency's requirements exists.
2. Determine whether the acquisition should utilize any of the small business programs in accordance with FAR Part 19.

Pursuant to FAR Part 6 and FAR Part 19, competition and set-aside decisions may be based on the results of this market research. This notice in no way obligates the Government to any further action.

Requirement: This notice is issued by the National Oceanic and Atmospheric Administration (NOAA) Western Acquisition Division and National Severe Storms Laboratory (NSSL) to identify sources capable of providing the following:

The objective is to acquire a fully transportable weather radar facility in support of fire weather and post-wildfire hydrology research objectives. This facility is envisioned to be a truck-mounted dual-polarization weather radar and the delivery location is 120 David Boren Blvd, Norman, OK 73072

Anticipated Period of Performance: The anticipated delivery date is 30 September 2023. A Firm Fixed price, contract is anticipated for award.

NAICS Code/Size Standard: The applicable NAICS Code is 334511 - Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing

Scope of Work: The scope of the acquisition is noted below:

1. The radar system shall meet the following minimum specifications:
 1. Frequency: X-band
 2. Beamwidth: $\leq 1.4^\circ$ (preferred: $\leq 0.9^\circ$)¹
 3. Sensitivity: ≤ 0 dBZ at 50 km
 4. Dynamic range: ≥ 60 dB

5. Blind range: ≤ 600 m for typical weather operation (preferred: ≤ 150 m)¹. If pulse compression is used to meet the sensitivity specification, the radar system shall employ a means to mitigate the associated blind range (e.g. fill pulse)
6. User-configurable pulse repetition frequency (PRF) spanning at least 500-2000 Hz
7. User-configurable range bin spacing spanning at least 50-500m
8. Polarization: Dual-linear with simultaneous H/V
9. Sidelobe levels: ≤ -25 dB with respect to peak
10. Cross-polar isolation: ≥ 40 dB
11. Radar pedestal
 1. The radar pedestal shall support continuous, 360° rotation in azimuth
 2. The radar pedestal shall support user-defined azimuthal rotation rates up to at least $60^\circ/\text{s}$ (10 RPM) (preferred: higher rotation rates) ¹
 3. The radar pedestal shall support elevation motion from 0° (horizon) to 90° (zenith) (preferred: elevation range from 0 - 180° , horizon-to-horizon) ¹
 4. When commanded to a static azimuth or elevation, the radar pedestal shall stop at this position within 0.5° (platform-relative).
 5. The radar pedestal shall report true platform-relative azimuth and elevation within 0.1°
 6. The radar platform shall include a sensor for heading and automatically compensate for azimuth (i.e. report earth-relative azimuth instead of platform-relative).

2. The radar system shall support the following capabilities:

1. Standard Plan Position Indicator (PPI) mode with full rotational scans
2. Standard Plan Position Indicator (PPI) mode with sector scans
3. Range Height Indicator (RHI) mode
4. Programmable volume coverage patterns
5. Real-time display of base/dual-pol products: reflectivity, velocity, spectrum width, differential reflectivity, specific differential phase, differential phase shift, correlation coefficient
6. Recording of base/dual-pol products: reflectivity, velocity, spectrum width, differential reflectivity, specific differential phase, differential phase shift, correlation coefficient

7. Recording of I/Q data for each polarization channel
 8. Local storage for recorded data files shall be at least 8 TB.
 9. Ability to configure azimuth/elevation ranges within which the radar will not transmit (sector blanking)
3. Operating conditions
 1. The radar's operations temperature range shall span at least -30°C to 50°C
 2. The radar shall be operable in winds up to at least 100 kph (62 mph)
 3. The radar shall be operable in rain up to at least 100 mm/hr
4. Transport vehicle considerations
 1. The radar platform shall be transportable without requiring a commercial drivers license (CDL)
 2. The radar platform shall weigh less than 26,000 lbs during transport
 3. The radar platform shall have a max height not exceeding 162 in (13.5 ft) during transport
 4. The radar platform shall have a max width not exceeding 102.36 in (8.53 ft) during transport
 5. The transport vehicle shall have a system to lift and self-level the vehicle (for example, hydraulic or electric stabilizer jacks). Self-leveling system shall level the vehicle such that the base of the radar pedestal is level within 0.1° roll and pitch.
 6. The transport vehicle shall have cargo holds for storage.
5. Power considerations
 1. The radar shall be operable on generator power and on commercial power
 2. The radar platform shall include a generator for fully off-grid usage
 1. The generator and transport vehicle shall have a shared fuel tank.
 2. The runtime on generator power shall be at least 72 hours without refueling.
 3. The generator shall power, at a minimum, all components required for operating the radar system (including heating and cooling of the operator's enclosure) while the transport vehicle engine is off.
 4. The radar shall be operable on generator power while the transport vehicle's engine is also running.

3. The radar shall include an interface for operating on commercial power
 1. Power shall be one of the following US-standard power specifications: 60Hz 240VAC single-/split-phase OR 60HZ 120VAC single-phase
 2. The commercial power interface on the radar platform shall be a watertight male pin and sleeve inlet, properly rated for the voltage/current handling.
 3. The commercial power source shall power, at a minimum, all components required for operating the radar system (including heating and cooling of the operator's enclosure) while the transport vehicle engine is off.
 4. The radar system shall be operable on commercial power while the transport vehicle's engine is running.

6. Deployment and Operation

1. The radar platform shall feature a powered lift system to elevate the radar pedestal/antenna during deployment and lower the radar pedestal/antenna during transport.
 1. With the lift at its maximum height, the height of the bottom of the radar antenna shall be higher than the highest point of the transport vehicle cab and any other obstructions, excluding antennas.
 2. With the lift at its minimum height, no part of the radar platform shall exceed the max height for transport, as specified in 4.3.
2. The radar system shall be deployable by a single trained operator in less than one hour, to include leveling the radar platform, elevating the powered lift, starting the generator, powering on all radar components and control systems, and starting a scan.
3. The radar system shall support fully local operation when on generator power or commercial power.
 1. The radar platform shall have an enclosed area for operator(s) to occupy while operating the radar system locally. A dedicated space within the transport vehicle cab may suffice if the below requirements are met (preferred: enclosed control center separate from truck cab) ¹
 2. A local operator shall be able to control the radar system from the operator area, including starting and stopping the radar system, defining scan strategies, viewing the real-time display, and recording data.
 3. A local operator shall be able to access the internet from the operator area.
 4. The operator area shall feature seating for at least two operators, a light, and a work surface for writing or placing a laptop.
 5. The operator area shall include heating and air conditioning that do not require the transport vehicle's engine to be running.

4. The radar system shall support fully remote operation when on commercial power.
 1. Remote operation shall include remote use of graphical interfaces (e.g. using VNC, Remote Desktop, or X-Window forwarding) for radar control and data display.
 2. Remote operation shall include remote monitoring of critical system status, fault, and safety information (for example, subsystem power status, equipment temperatures, interlock status, lift elevation, platform inclination and heading, waveguide pressure, hydraulic pressure, or other applicable system status information that would be unobservable to a remote user)
 3. Preferred capability: Ability to power cycle specific equipment remotely (e.g. using a networked PDU or controllable relays) ¹
 4. Power lift for radar system and self-leveling system for transport vehicle shall not be remotely operable
 5. The radar system shall provide primary network connectivity through a cellular modem/router and must meet the following requirements:
 1. Built in multi-carrier support with automatic failover capabilities
 2. Network management and configuration capabilities such as VPN Tunneling, NAT, IP based filtering, DHCP, web based configuration and remote firmware update capabilities.
 6. The radar platform shall provide remote surveillance capabilities via camera(s) that meet the following requirements:
 1. The camera(s) shall provide an unobstructed 360 degree view around the radar platform, including view of the radar antenna and powered lift. (Preferred: views of inhabited spaces such as the truck cab and/or operator enclosure)¹
 2. The camera(s) shall feature motion notification or alarming capabilities
 3. The camera(s) shall feature a web based configuration/management interface
 4. The camera(s) shall support RTSP
 5. Preferred capability: ability to remove the radar system from the transport vehicle for long-term deployment on a stationary tower

7. Constraints

1. The radar system shall use the Vaisala RVP900 digital receiver and signal processor and Vaisala IRIS software. (Note: This requirement is driven by consistency with other NSSL radar systems in order to streamline training and reduce O&M

cost. Alternative signal processors with similar specifications do not meet this requirement.)

2. The radar platform shall be serviceable and upgradable by the government customer beyond the warranty/service plan period.
 1. Government customer shall have full ownership of the delivered radar platform and rights to modify hardware and software.
 2. Vendor shall prefer the use of COTS parts and non-proprietary software wherever possible.
 3. Any proprietary software shall have a well-documented application programming interface (API).

8. Other deliverables

1. Purchase shall include a three-year warranty/service plan covering all parts and labor for at least the first year after delivery and technical support, to include software updates and unlimited phone/email support, for the full three-year duration.
2. Vendor shall support milestone review meetings with the government customer including but not limited to the following. The scope and content of these reviews will depend on the maturity of the systems in the proposal (i.e. modification to existing product versus full custom build).
 1. Preliminary Design Review
 2. Critical Design Review
 3. Test Readiness Review
 4. System Acceptance Review
3. Documentation
 1. Vendor shall deliver a formal set of documentation thoroughly describing all aspects of the radar platform.
 2. Documentation shall be created with the intent of transition operation, maintenance, support, and enhancement of the radar platform to the government. Maintenance documentation should be organized to help the maintainer start from a high level and locate the appropriate low-level documentation.
 3. The documentation requirement explicitly includes but is not necessarily limited to the following:
 1. Operator manual describing deployment/undeployment, local operation, and remote operation.

2. Mechanical drawings of major mechanical systems (e.g. radar pedestal, powered lift system, physical assembly of equipment on the transport vehicle)
3. Drawings and/or photos depicting physical layout of components
4. Block diagram(s) of the radar system and major subcomponents, including connections for power, communications, and RF. Each major component should be represented and uniquely identified. The block diagram(s) and supporting text should depict functional relationships among components.
5. Separate interconnection diagram(s) for major subcomponents featuring jack identifiers, physical jack types, and cable types. The interconnection diagram(s) and supporting text should depict physical relationships among components.
6. List of recommended periodic maintenance actions.
7. Identification of the intended least line replaceable units (LRUs) within the radar system and serviceable subcomponents, along with information about source (COTS or custom) and recommended spares.

Submission of Information: Companies having capabilities necessary to meet or exceed the stated requirements are invited to provide information to contribute to this market survey/sources sought notice including commercial market information and company information.

Companies may respond to this Sources Sought Notice via email to: darrin.moore@noaa.gov or jade.moreira@noaa.gov no later than 25 April 2023 at 5:00pm ET.

Please provide the following information/documentation:

1. **Name of Company, Address and Unique Entity ID.**
2. **Point of Contact and Phone Number.**
3. **Business Size applicable to the NAICS Code:** 8(a) Small Business Concern, Hub Zone Small Business Concern, Service-Disabled Veteran Owned Small Business Concern (SDVOSBC) or a Small Business Concern.
4. **Statement for Proposal Submission:**
 - Evidence of experience in work similar in type and scope to include contract numbers, project titles, points of contact and telephone numbers.
 - Brief statement on how your company will perform the work.
 - Confirmation that your company WILL submit a proposal as a prime contractor if a solicitation is issued as a result of this Sources Sought Notice.

Interested parties: Need to be registered in the System for Award Management (SAM). Failure to submit sufficient detailed information may result in considering a company as not a viable source and may influence competition and set-aside decisions. Regardless of the information obtained from this Sources Sought Notice, the Government reserves the right to consider any arrangement as deemed appropriated for this requirement.

Respondents are advised that the Government is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted. No proprietary, classified, confidential, or sensitive information should be included in your response to this Sources Sought Notice. The Government reserves the right to use any information provided by respondents for any purpose deemed necessary and legally appropriate, including using technical information provided by respondents in any resultant solicitation.

After a review of the responses received from this notice, a pre-solicitation notice and solicitation may be published on the Governmentwide Point of Entry (GPE). It is the potential offeror's responsibility to monitor the GPE for release of any future solicitation that may result from this Sources Sought Notice. Responses to this Sources Sought Notice will not be considered adequate responses to any resultant solicitation.