

# *Open Project Call 2023 – Methods and Approaches for Sustainable AM Operations*

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## **John Martin**

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# Project Call

- 1 step response – Full Proposal
- Each response shall be limited to addressing only one topic
  - Please note topic number being addressed in response
- Contract extensions for topics 1 through 6 prohibited – different subrecipient agreement
- Multiple submissions by a lead proposer are welcome

America Makes RFP

## Project Call for America Makes Applied Research Projects

### Open Project Call 2023 – Methods and Approaches for Sustainable Operations (Topics 1 through 6)



Prepared by

#### The National Center for Defense Manufacturing and Machining (NCDMM)

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10 July 2023

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America Makes RFP

## Project Call for America Makes Applied Research Projects

### Open Project Call 2023 – Methods and Approaches for Sustainable AM Operations (Topics 7 and 8)



Prepared by

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# Schedule

Event	Date
Project call announcement and posting	7/10/2023
Project Call Kick-off at Virtual TRX – Registration Required	7/27/2023
Questions from proposers about scope or approach due	7/28/2023
Responses to proposers about scope or approach due	8/2/2023
Deadline for those receiving federal funding (topics 1 through 6) to complete a fully executed America Makes Membership Agreement	8/10/2023
Deadline for proposal lead (topics 7 and 8 only) to complete a fully executed America Makes Membership Agreement	8/10/2023
Fully Executed NDA with NCDMM (only if proposal contains proprietary information)	8/10/2023
Full project proposal submission due date ( <b>Note: No Concept Paper Submission</b> )	8/25/2023
Anticipated decision and notification to project proposal teams	9/25/2023
Anticipated date to have all projects on contract	11/1/2023
All project finalized reports and deliverables ( <b>topics 1 through 6 only</b> ) received no later than	6/3/2024

# Topics

- Topic 1 – Design for Dimensional Inspection of Internal features via In-Situ Process Monitoring
- Topic 2 – Thermal Manipulations for Processing Improvements
- Topic 3 – In-Process Sensor Calibration, Characterization Methods, and Operating Limits to Yield Reliable Process Data
- Topic 4 – Frameworks for Utilizing Process Monitoring in Conjunction with Ex-situ Inspection for Qualification
- Topic 5 – AM Process Pre-Qualification
- Topic 6 – “Should vs. Could” Tool and Training
- Topic 7 – Analysis of AM Sustainability and Environmental Benefits
- Topic 8 – Methods for Demonstrating Operational Qualification

**Details on considerations for approaches to each topic discussed in RFP’s**

# Background

- Topics 1 through 6
  - Topics are direct result of workshops, advisory group, and working group efforts and findings
  - These focus areas are the prioritized inputs gathered from America Makes membership
- Topics 7 and 8
  - Result of America Makes RFI on Sustainable AM Operations published earlier this year
- Thank you all for your hard work and inputs

# Funding Overview

Topic	Number of Awards Anticipated	Maximum Federal Award Available Per Proposal	Minimum Cost Share Requirement	Maximum Number of Months of Technical Effort Execution	Number of Months Required for Final Report Finalization	Maximum Allowed Period of Performance in Months
1	4	\$300,000	50% of federal award amount requested	5	2	7
2						
3						
4						
5						
6						
7	2	\$600,000	50% of federal award amount requested	21	3	24
8	3	\$1,333,000		21	3	24

**No contract extensions will be permitted for projects awarded in response to Topics 1 through 6**

# Eligibility

- Team members receiving federal funding in response to Topics 1 through 6 must be a current member of America Makes in good standing by Thursday, August 10, 2023.
- Lead proposer for responses to Topics 7 and 8 must be a current member of America Makes and in good standing by Thursday, August 10, 2023.
- Information on how to join America Makes is available at [www.americamakes.us/membership](http://www.americamakes.us/membership). Any non-America Makes members contributing to proposed effort execution are not permitted to participate in project team discussions until completing a fully executed America Makes Membership Agreement. (Note: The foreign membership approval process requires a minimum of three weeks to complete.)
- Cost share accrued in this project may also be applied towards membership, as with other project calls. However, cost-share proposed on a future project cannot be counted towards a new America Makes membership. To become a member by the deadline, organizations shall commit to a cash payment and/or complete an @Program MOU.
- A 50% cost share is required for each project submittal. Example: If \$1.00 of federal funding is requested from America Makes, \$0.50 in cost share must be committed against that \$1.00 for a total scope of \$1.50
- The lead Proposer is fully responsible for all project and subcontract performance
- The lead Proposer shall be registered in U.S. System for Award Management (SAM) and have a CAGE code and UEI number before submitting a proposal
- Proposal team acknowledges that information from this project will be shared with America Makes members in accordance with the membership agreement
- Proposal team arrangements are identified and relationships are fully disclosed
- **Any foreign nationals conducting work on the project shall be declared within the Project Team Appendix. Any project activities occurring outside of the U.S. must be reported and approved in advance by the America Makes Program Management Office.**

# Requirements

- Teaming with those with design authority to improve impact when and where relevant
- KPPs – please use details, references, and guidance in RFP
- Demonstration of impact with quantitative metrics
  - Examples provided in RFP's
- Data management – please use details, references, and guidance in RFP



# Minimum Deliverables – Topics 1 through 6

Minimum Deliverable	Timeline
<b>Minimum Deliverable</b>	<b>Timeline</b>
<b>Written Technical Progress Reports</b>	Quarterly
<b>Project update calls or virtual meetings between project team and America Makes/NCDMM PM</b>	Monthly, or more as necessary
<b>Financial and man-hour reports</b>	Monthly
<b>Kickoff Meeting</b>	1 month after award or sooner
<b>Data Management Plan including at minimum:</b>	Draft at time of proposal
<b>Any commercial software packages to be used, standards or data schemas to be used, and methodology for notating and labelling data to enable linking of various sample properties and characteristics, and plans for incremental delivery of data, and key performance parameters (KPP's)</b>	Final no later than 3 months after award
<b>Data Persistence Plan (how will data be stored and accessed after project conclusion) – this is meant to address data storage by the project lead by means aside from America Makes CORE</b>	Initial at proposal Final no later than 3 months after award
<b>Planned project deliverables list with corresponding (existing/ new) Technology Roadmap Requirements</b>	Draft at time of proposal Final no later than 3 months after award
<b>Experimental, qualification, material, testing and inspection data (feedstock, process, material, post-process, property, etc.) available in a static format and in a database with property meta-data (including CAD models and build files); non-destructive inspection data and meta-data</b>	Delivered or posted to America Makes CORE database regularly as available

# Minimum Deliverables – Topics 1 through 6

Minimum Deliverable	Timeline
<p><b>Schema and Data Compliance Reviews</b></p> <p><b>Data shall:</b></p> <p>Be provided electronically, demonstrate pedigree and provenance, identify test apparatus/manufacturing/ fabrication equipment and calibration, testing standards or processing specifications used to include sample preparation and/or manufacturing equipment configuration, experimental/ characterization/manufacturing process conditions and procedures, raw mechanical test data, data reduction and statistical analysis procedures, and any uncertainty associated with data</p>	<p>Quarterly</p>
<p><b>Presentation at an America Makes meeting (MMX/TRX)</b></p>	<p>Once per calendar year</p>
<p>Proposal lead organization shall participate on at least one swimlane working group (Design, Materials, Process, Value Chain, or AM Genome) relevant to subject matter of the project</p>	<p>Quarterly (via progress reporting)</p> <p>Effort performed (as well as hours) via working group participation shall be documented in progress reports and regular attendance should be maintained for all working group teleconferences/meetings.</p> <p>Minimum of one presentation outlining all deliverables (CDIP, associated tangible artifacts, and associated roadmap requirements), KPP's, and data management plan within 3 months of project start date.</p> <p>Minimum of one presentation of milestone achievements, KPP's, and lessons learned relevant to the fulfillment or creation of roadmap requirements no later than 60 days of the period of performance end date.</p>

# Minimum Deliverables – Topics 1 through 6

Minimum Deliverable	Timeline
<p><b>Written Final Project Report (minimum one round of revision completed with PM/NCDMM prior to final submission).</b></p> <p>At a minimum report will outline: application, approach, team members and roles, potential benefits of effort, motivations and reasoning for technical approach, KPPs, summary of tasking, methods, standards and specifications used, deviations to those standards or specifications, outcomes/results, summary and observations and analysis of data gathered, how data substantiated successful outcome of this effort, lessons learned, measurable impact(s) realized due to this effort, future opportunities for research and development realized through this effort</p>	<p>7 months after award</p> <p>Complete preliminary draft submission 5 months after award</p>
<p><b>Additional Deliverables specific to the proposed effort</b></p>	<p>“Deliver (upload to CORE) as you go” – As soon as data or deliverable is finalized for release</p>

# Minimum Deliverables – Topics 7 and 8

Minimum Deliverable	Timeline
<b>Minimum Deliverable</b>	<b>Timeline</b>
<b>Written Technical Progress Reports</b>	Quarterly
<b>Project update calls or virtual meetings between project team and America Makes/NCDMM PM</b>	Monthly, or more as necessary
<b>Financial and man-hour reports</b>	Monthly
<b>Program Review Meetings (Topics 7 and 8 only)</b>	Every 4 months
<b>Kickoff Meeting</b>	1 month after award or sooner
<b>Data Management Plan including at minimum:</b>	Draft at time of proposal
<b>Any commercial software packages to be used, standards or data schemas to be used, and methodology for notating and labelling data to enable linking of various sample properties and characteristics, and plans for incremental delivery of data, and key performance parameters (KPP's)</b>	Final no later than 3 months after award
<b>Data Persistence Plan (how will data be stored and accessed after project conclusion) – this is meant to address data storage by the project lead by means aside from America Makes CORE</b>	Initial at proposal Final no later than 3 months after award
<b>Planned project deliverables list with corresponding (existing/ new) Technology Roadmap Requirements</b>	Draft at time of proposal Final no later than 3 months after award
<b>Experimental, qualification, material, testing and inspection data (feedstock, process, material, post-process, property, etc.) available in a static format and in a database with property meta-data (including CAD models and build files); non-destructive inspection data and meta-data</b>	Delivered or posted to America Makes CORE database regularly as available

# Minimum Deliverables – Topics 7 and 8

Minimum Deliverable	Timeline
<p><b>Schema and Data Compliance Reviews</b></p> <p><b>Data shall:</b></p> <p>Be provided electronically, demonstrate pedigree and provenance, identify test apparatus/manufacturing/ fabrication equipment and calibration, testing standards or processing specifications used to include sample preparation and/or manufacturing equipment configuration, experimental/ characterization/manufacturing process conditions and procedures, raw mechanical test data, data reduction and statistical analysis procedures, and any uncertainty associated with data</p>	<p>Quarterly</p>
<p><b>Presentation at an America Makes meeting (MMX/TRX)</b></p>	<p>Once per calendar year</p>
<p><b>Presentation at one major conference/event (besides America Makes hosted event) such as RAPID+TCT, ASTM ICAM, DMC (Topics 7 and 8 only)</b></p>	<p>Once per calendar year</p>
<p><b>Proposal lead organization shall participate on at least one swimlane working group (Design, Materials, Process, Value Chain, or AM Genome) relevant to subject matter of the project</b></p>	<p>Quarterly (via progress reporting)</p> <p>Effort performed (as well as hours) via working group participation shall be documented in progress reports and regular attendance should be maintained for all working group teleconferences/meetings.</p> <p>Minimum of one presentation outlining all deliverables (CDIP, associated tangible artifacts, and associated roadmap requirements), KPP's, and data management plan within 3 months of project start date.</p> <p>Minimum of one presentation of milestone achievements, KPP's, and lessons learned relevant to the fulfillment or creation of roadmap requirements no later than 60 days of the period of performance end date.</p>

# Minimum Deliverables – Topics 7 and 8

Minimum Deliverable	Timeline
<p>Written Final Project Report (minimum one round of revision completed with PM/NCDMM prior to final submission).</p> <p>At a minimum report will outline: application, approach, team members and roles, potential benefits of effort, motivations and reasoning for technical approach, KPPs, summary of tasking, methods, standards and specifications used, deviations to those standards or specifications, outcomes/results, summary and observations and analysis of data gathered, how data substantiated successful outcome of this effort, lessons learned, measurable impact(s) realized due to this effort, future opportunities for research and development realized through this effort</p>	<p>24 months after award</p> <p>Complete preliminary draft submission 21 months after award</p>
<p>Additional Deliverables specific to the proposed effort</p>	<p>“Deliver (upload to CORE) as you go” – As soon as data or deliverable is finalized for release</p>

# Reporting

1. Technical progress reports
2. Kickoff meeting
3. Virtual teleconferences with project team
4. Program Review Meetings as applicable
5. Financial and man-hour reports
6. Man-hour reports for attending working group meetings and supporting working group activities
7. Data management plan
8. Data persistence plan
9. Presentations at national meetings/conferences as applicable
10. LAYERS manuscripts as applicable
11. Project briefings annually at America Makes Members Meeting (TRX or MMX)
12. Reports, presentations, or teleconferences upon request by NCDMM, OSD(R&E), or AFRL
13. Working group, advisory group, or steering committee participation shall include presentation of deliverables, KPP's, data management plan, milestone achievements or lessons learned relevant to the fulfillment or creation of roadmap requirements, requesting subject matter expertise support, and consultation for project steering group purposes or as necessary
14. Finalized, written report (minimum one round of revision with NCDMM required before final submission)

# Evaluation Criteria

- **Executive Summary** (Executive summary is not scored but will be considered as part of the overall value proposition of the proposal.)
- **Technical Approach and Methodology (40%)**
- **Data Management Plan (10%)**
- **Technology Dissemination to America Makes Members, AFRL, and Broader DoD Supply Chain Partners (30%)**
- **Program Management Approach (20%)**
- **Cost** (Cost and cost share are not scored but will be considered as part of the overall value proposition of the proposal.)



# Proposal and Contracting Information

- Executive Summaries must contain information which is publicly releasable, non-proprietary
  - Purpose
    - To aid in America Makes public release process for award announcement
    - To demonstrate impact and merits of Institute's efforts to the public
  
- No fee allowed
  
- Cover page should include Unique Entity Identifier (UEI) and CAGE code of at least team lead
  
- Teams must submit additional information to accelerate contracting
  - Sub-recipient agreement will be included in RFP, must be reviewed and any requested changes be sent in with proposal
  - No response certifies agreement as is upon award
    - Otherwise, award will be canceled



America Makes

# MMMX

Members Meeting & Exchange

**2023**

**August 15-16, 2023 • Youngstown, Ohio**



THE UNIVERSITY OF  
**TENNESSEE**  
KNOXVILLE

# TRX

Technical Review & Exchange

**OCTOBER 17–19, 2023**

**University of Tennessee Knoxville  
Knoxville, Tennessee**

# When America Makes America Works

