



AGENCY: Utah Division of Air Quality (UDAQ)

TITLE: Science for Solutions Research Grant - FY 2023

ACTION: Request for Proposals (RFP)

DATES:

The closing date and time for receipt of proposal submissions are February 2, 2022, 11:59 p.m., Mountain Time (MT). Proposal packages must be submitted electronically to UDAQ via email to cpennell@utah.gov by **February 2, 2022**, 11:59 p.m., MT in order to be considered for funding. Proposals received after the closing date and time will not be considered.

SUMMARY:

This notice announces the availability of funds and solicits proposals for projects designed to assist UDAQ in improving its scientific understanding in areas deemed important towards improving Utah's air quality and meeting federal air quality standards. Proposals must meet at least one of the goals and priorities defined in this RFP announcement (see Goals and Priorities section).

FUNDING/AWARDS:

The total estimated available funding for this competitive opportunity is approximately \$500,000. UDAQ anticipates awarding any number of grants from this announcement, subject to the availability of funds, the quality of proposals received, and other applicable considerations. Applicants are limited to three proposal submissions per funding cycle. Previously submitted proposals that were not funded are eligible for resubmission. Smaller project proposals will still be accepted, but larger collaborative project proposals are encouraged.

ELIGIBILITY:

Competition under this announcement is being limited to a subset of eligible applicants. Eligible applicants include research institutions (including private companies), federal/state/local/tribal government agencies, and public/private universities.

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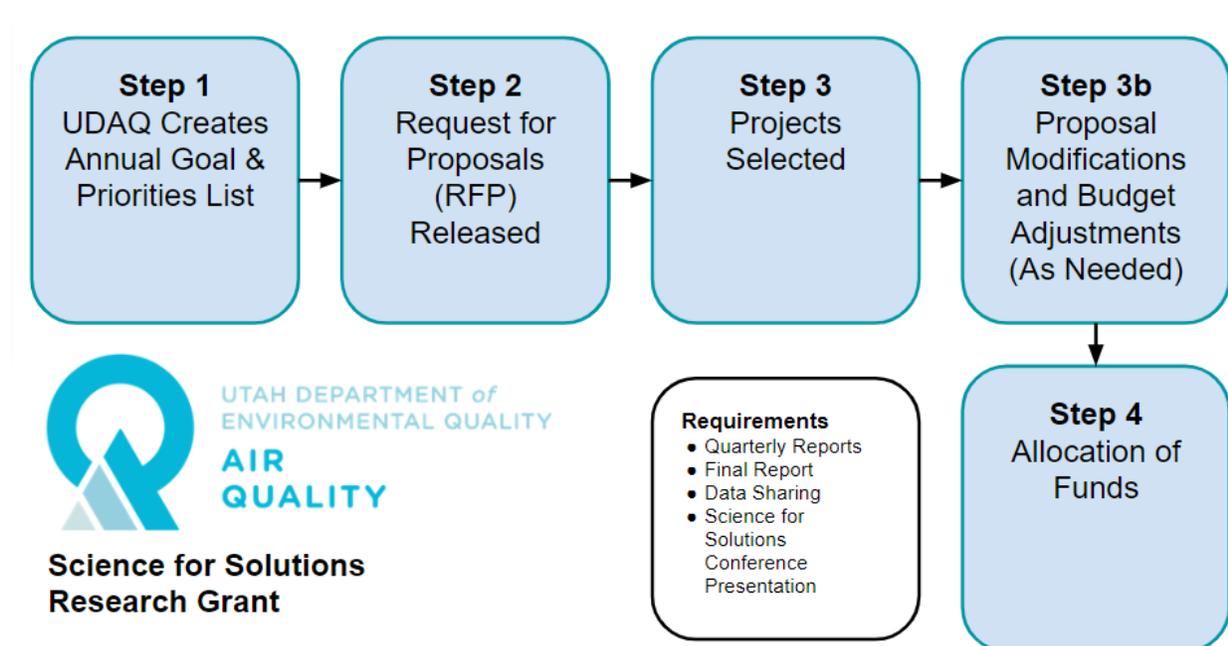
A. Background

The Science for Solutions research grant was established to solicit help from the research community in understanding and addressing important Utah air quality problems. Currently, UDAQ is prioritizing the issue of high summertime ozone pollution along the Northern Wasatch Front. The Federal Clean Air Act dictates that the State of Utah develop solutions to address high summertime ozone in the Northern Wasatch Front, where violations of the EPA's National Ambient Air Quality Standard (NAAQS) for 8-hour ozone are often observed.

However, the atmospheric chemistry, meteorology, and emissions sources that contribute to elevated ozone concentrations in Utah is complicated. In order to enhance UDAQ's ability to guide effective regulatory policy, UDAQ is soliciting air quality project proposals through this grant opportunity.

Science for Solutions Research Funding Process

The following flowchart provides an overview of the process used in allocating Science for Solutions research funding:



Step 1: UDAQ develops a list of goal and priority topics. This list will be re-evaluated each year and will change based on the specific research needs at that particular time.

Step 2: An RFP will be developed based on the annual Goals and Priorities list developed in Step 1. The RFP will be posted on DAQ's webpage [here](#).

Step 3: A UDAQ panel will use the grant scoring criteria documented in the RFP to review, score, and ultimately select project proposals to fund. If needed, consultation with individual subject matter experts will occur prior to award selection.

Step 3b: The UDAQ panel may request slight modifications to project proposals. Budget modifications may also be necessary to ensure adequate funding for all selected projects.

Step 4: Each project that UDAQ decides to fund will need to go through the necessary state contracting process. July 1st, 2022 is the earliest funds will be available.

B. Goals and Priorities

In anticipation of supporting a collaborative field campaign for the summer of 2023 that focuses on summertime ozone in the Northern Wasatch Front, UDAQ will fund research projects this year whose results or investments will directly benefit that collaborative effort. Studies that use instruments that can be applied to the future large collaborative study focusing on summertime ozone are encouraged. To be considered for funding under this RFP, each project proposal must address at least one of the following topics:

1. **Summertime Ozone Formation along the Wasatch Front**

The Wasatch Front often experiences exceedances of the national ambient air quality standard for ozone during the summer. Regulating locally-formed ozone to reach attainment is complicated by the fact that ozone has a mix of different sources (local and non-local) and its formation can be limited by NO_x, VOCs or both. To help establish control regulations, determining the sensitivity of ozone to NO_x or VOCs is needed. Identifying VOCs that are most important to ozone formation and their sources, including volatile chemical products (VCPs), is also of interest. Determining the impact of halogens emissions on ozone formation is also needed. To inform and validate air quality models, ambient measurements of speciated VOCs, including biogenic and oxygenated VOCs, at high temporal frequency and spatial resolution are also of particular importance. Measurements that can help constrain emissions inventory estimates and understand the coupling of meteorology and chemistry are also needed. Better representation of complex meteorological features and chemical mechanisms in meteorological and air quality models, including CAMx which UDAQ uses for regulatory demonstrations, are also required. Topics of interest include but are not limited to:

A. Trends, Sources and Chemistry

- Biogenic VOCs
- Aromatics, Oxygenated VOCs
- VOCs reactivity, Radicals
- Tracer compounds for VCPs
- O₃-NO_x-VOC sensitivity
- Halogens and their impact on O₃ formation
- Long-term trends in O₃, exceedances and their relation to emissions

- B. Meteorology-Chemistry Coupling
 - Regional background ozone
 - Slope and valley flows
 - Transport of O₃ and its precursors (e.g. biogenic VOCs)
- C. Emissions Inventory Improvements
 - Constraining area source inventory (e.g. scrap metal recycling facilities)
 - Halogens emissions rates
 - Speciation and magnitude of emissions from VCPs
 - Magnitude of emissions from biogenics
- D. Air Quality/Meteorological Model Improvements
 - Surface albedo estimation
 - Regional background ozone
 - Halogens chemistry
 - VCPs chemistry
 - Local flows (slope, valley flows, etc.)

2. Wildfire Emissions and Air Quality

Wildfires emit large amounts of PM_{2.5}, ozone and their precursors, leading to exceedances of the national ambient air quality standard for ozone and enhancements of PM_{2.5} concentrations during summertime. With wildfires becoming increasingly common, measurements that can be used to identify wildfire events and accurately quantify their impact on local air quality are needed to support exceptional events demonstrations. Methods and measurements that help improve model representation of fire emissions, plume rise, chemistry and transport are also of interest.

- A. Methods to improve modeling of wildfire events (transport, chemical transformation, plume chemistry and rise, emissions, etc.)
- B. Approaches for quantifying the contribution of wildfire emissions to local concentrations
- C. Approaches for accurately identifying if locally-monitored exceedances are influenced by emissions from wildfire events (e.g. tracer ratios, pollutants diurnal cycles, time lag in O₃/PM_{2.5} peak occurrences, influence of local meteorology)

C. Proposal Requirements

All proposals must meet at least one of the goals and priorities defined in this RFP announcement (see [Goals and Priorities](#) section). Proposals must include a summary information page, a detailed scope of work (SOW), detailed budget, timeline, and a list of key personnel and their roles and responsibilities. Proposals should be submitted as a PDF and not exceed 15 pages in length.

Summary Information Page

The summary information page must include the following information:

- I. Project Title
- II. Applicant Information - Include applicant (organization) name, address, principal investigator (PI), phone number, and email address.
- III. Sponsored Projects/Research Office Information (only required for university applicants). Please include your contact name, address, phone number, and email address.
- IV. Funding Requested - Specify the total amount of funding you are requesting from UDAQ. Please also list matching funds (as a percent of total project cost), if applicable.
- V. Project Period - Provide the beginning and ending dates of the project. (The earliest funds are available is July 1st, 2022).

Scope of Work

The SOW must include the following information:

Abstract - Provide a brief overview of the project, summarizing the problem/topic of focus, the rationale, key issues, previous work related to the proposed research topic, and goals addressed.

Basis and Rationale - Outline the nature of the problem or science question(s) that this research will address. UDAQ will evaluate projects based on whether the proposed project meets at least one of the goals and priorities defined in this RFP announcement (see [Goals and Priorities](#) section). Specifically identify the goals and priorities met.

Technical Approach - Describe how the proposed project will be completed by outlining the specific tasks that will be performed. Include the methods and technology that will be used to reach specific objectives. If the proposed project includes more than one research group, the role of each group must be described. If applicable, describe the data analysis plan including how the data analysis will be performed and how the data will be used. Provide statistical methods, software tools, and any analytical methods that will be utilized. Outline a plan for quality control and quality assurance.

Expected Outputs and Outcomes - Describe the expected quantitative and qualitative outcomes and outputs of the proposed project, and how the results of the project will be evaluated.

Deliverables - Describe the deliverables you plan to provide to UDAQ. Required deliverables include reports (quarterly and final), data sharing, and Science for Solutions conference participation. This section must include a data sharing plan describing how the awardee will satisfy the data sharing requirement. See [Awardee Requirements](#) section for descriptions of required deliverables, including data sharing, as well as formatting guidance for quarterly and final reports.

Other deliverables may be project dependent. For example, additional deliverables may include model code or implementation, data and/or data analysis, and/or interim findings. UDAQ may request that any additional deliverables be explicitly included in a revised proposal.

Schedule - The anticipated project completion date must be provided in the proposal. Include a timeframe and approximate start date for each proposed task (as outlined in the “Technical Approach” section of the SOW). It should be noted that there is some flexibility within the overall time frame of a particular project. UDAQ may accept projects that are either shorter or longer than one year. However, the project timeline must not exceed three years. Please note that the earliest date at which funds are available is July 1st.

Budget

Provide a detailed budget, including the following information:

- I. Personnel costs, including time and rates (e.g. environmental scientist for x hrs @ y \$/hr).
- II. Costs for specific equipment, materials/supplies, fringe benefits, including details of how these costs were calculated.
- III. Travel costs, including a brief description of travel needs.
- IV. Indirect costs, including details of how these costs were calculated.
- V. Any additional costs, including as much detail as possible to ensure spending is transparent and accounted for.

Any pass-through funding must be detailed in the same manner as the main budget.

Note: Relating to overhead and indirect costs, UDAQ prefers that no overhead (indirect costs) are included in the project. However, if overhead costs are necessary, UDAQ requires that overhead costs not exceed 10% of the total cost of the project.

It is important to note that UDAQ will evaluate proposal budgets for the following:

1. The budget’s appropriateness, including the amount allocated to each goal or task, and its adequacy to support and complete the proposed work.
2. Whether the budget includes specific amounts for each proposed task (as outlined in the “Technical Approach” section of the SOW).
3. The completeness and detail of the budget.

Budgets should be tabulated similar to the example shown below:

	Task 1	Task 2	Total	Matching Funds	Grand Total
PERSONNEL					
Scientist I @ x\$/hour x X hours					
Scientist II @ y\$/hour x Y hours					
FRINGE BENEFITS @ x % rate					
SUPPLIES					
Lines and tubings, etc.					
EQUIPMENT					
Instrument 1 @ \$/unit x X units					
TRAVEL					
Travel @ x\$/mi x X miles x miles/trip x X trips					
CONTRACTUAL					
Consultant A					
OTHER					
Publication fee, etc.					
TOTAL DIRECT COSTS					
TOTAL INDIRECT COSTS @ x%					
TOTAL PROJECT COST					

Personnel Roles and Responsibilities

Applicants must include a summarized list of the qualifications of the project manager or PI and other key personnel, as well as a description of the main roles and responsibilities of each of the noted personnel. This description must include the names, positions, and roles of all who are involved in the project. For example, “Jane Doe, field technician, will collect field samples and provide equipment maintenance as needed.”

Important Note: Using Utah DAQ Resources for your Proposed Project

If your project requires Utah DAQ resources (e.g., labor, sampling media, equipment), then please contact us (cpennell@utah.gov) prior to submitting your proposal. Please refrain from contacting other DAQ employees directly.

D. Awardee Requirements

Quarterly Reports

Award recipients of this grant opportunity are required to provide UDAQ with quarterly reports relating to project progress.

A UDAQ scientist will be assigned as a contact to every awarded project's principal investigator. Upon accepting the award, the project's principal investigator will be shortly notified who their UDAQ contact is. The UDAQ contact will be responsible for reviewing quarterly and draft final reports, in addition to serving as a general contact to the principal investigator. Quarterly reports should be sent to cpennell@utah.gov.

Quarterly reports are due every quarter until project completion. UDAQ has created a template for completing quarterly reports. UDAQ will provide the quarterly report template to awardees after July 1, 2022. The first quarterly report will be due three months after the project's start date. Subsequent quarterly reports will be due every three months afterwards until the draft final report is received by UDAQ.

Final Report

A draft final report is due to UDAQ 90 days after project completion. Final reports (draft and revised) should be sent to the project's UDAQ contact.

UDAQ will have up to one month to review the draft final report and send comments and suggestions to the project's principal investigator. After receiving UDAQ's comments and suggestions, the principal investigator will have one additional month to submit a revised final report to UDAQ. The draft final report will not be published by UDAQ, but should still be considered publicly available. All final reports will be posted and made publicly accessible via UDAQ's website.

The draft final project report, which is **due 90 days after the completion of the project**, must include a narrative including the following components:

Title Page: Include the title of the project, PI and team members, organization, dates of the project, and the date of submission of the report.

Abstract or Executive Summary: Provide a brief overview of the project, summarizing the problem/topic of focus, the rationale, key issues, and goals addressed.

Background and Significance: Provide a description of background, context, settings, participants, and significance.

Objective: Explain the main purpose of the study. Summarize the project's specific goals and objectives as stated in the original request for funding.

Methods: Provide a description of the study design including specific methods used to approach the project's aim. Include data sources/collection, measures, and limitations.

Results and Implications: Present the major results/findings/outcomes and their implications for air quality in Utah including conclusions and significance of the findings.

Recommendations: Include recommendations for future research.

Data Management: Describe where data from the study will be housed or shared.

Bibliography: Cite references.

Conference Presentation

Grant recipients are required to give a presentation about the results or progress of their funded project at an Air Quality: Science for Solutions conference (oral or poster presentation assigned by the conference committee). The presentation can be given either while the project is being completed or immediately following the completion of the project. The conference is typically held in Spring (late March or early April).

Air Quality: Science for Solutions is an annual conference coordinated between UDAQ, University of Utah, Utah State University, Weber State University, and Brigham Young University. The location of the conference changes within Utah every year, but the conference may be conducted virtually to accommodate social distancing requirements. Please see the following website for conference details: <http://airqualityscience.org>

Data Sharing

The grantee is required to share processed/finalized data with UDAQ as appropriate and make data publicly accessible within 8 months of project completion. This timeline is meant to enable grantees to publish results and data in peer-reviewed journals without conflict. Data can be shared via the UDAQ website or via the grantee's organization webpage. Modifications to this default data sharing policy must be discussed with and approved by UDAQ. Data must be publicly available for **at least 10 years** after completion of the awarded project. The grantee must provide detail of how they plan to fulfill this data sharing requirement in their project proposal.

Science for Solutions Grant Requirements Checklist

	Requirement
<input type="checkbox"/>	Quarterly reports (4 reports for a 1 year project)
<input type="checkbox"/>	Final report
<input type="checkbox"/>	Conference Presentation
<input type="checkbox"/>	Data Sharing

<input type="checkbox"/>	Additional Deliverables (if applicable)
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E. Award Information

Please read this section carefully as this section includes new information for the upcoming year. Failure to not consider these points could cause contracting complications and result in a project’s start date to be delayed.

What is the amount of funding available?

The total estimated funding expected to be available for awards under this competitive opportunity is nearly \$500,000.

Partial Funding

UDAQ will not award less than the funds asked for in the project proposal without prior discussion with the PI of the selected project.

How many awards will UDAQ allocate?

UDAQ anticipates allocating any number of awards under this announcement, subject to the availability of funds, quality of evaluated proposals, and other applicable considerations. Smaller project proposals will be accepted, but larger collaborative project proposals are encouraged. UDAQ also reserves the right to create additional awards under this announcement if additional funding becomes available after the original selections.

What is the project period for awards resulting from this solicitation?

UDAQ may award projects that are either shorter or longer than one year. However, the time limit from the disbursement of funds to project completion is a maximum of three years. A specific project period will be defined in each individual project contract.

Important Note: All multi-year funding is dependent upon renewal of Science for Solution grant funding from the Utah State Legislature. Multi-year contracts may be terminated if a change in State legislation affects the Science for Solutions grant allocation.

Matching Funds

Matching funds are not required under this competition. However, some preference is given for projects that bring in additional funding from other sources. If matching funds are part of the proposed project budget, PIs are still responsible for deliverables to UDAQ regardless if matching funds were successfully obtained or not.

Monthly reimbursements on actual costs

By default, the contract's terms and conditions will state that monthly payments by UDAQ will be made on received invoices reflecting actual costs. Please inquire if another payment scheme or invoice calendar is desired. One-time ("lump sum") payment requests will not be considered.

Indirect Costs (for in-state public universities)

Indirect costs can only be up-to 10% of the total cost of the project.

Indirect Costs (for out-of-state universities, private universities, and contractors)

Applicants are encouraged to keep indirect costs low. UDAQ reserves the right to refuse an award based on the applicant's proposed budget apportionment for indirect costs.

Pass-through funding

Each institution listed on the grant application can charge indirect costs on their portion of the funding. No indirect costs can be charged by the primary institution on pass-through funds. Only the institution receiving the pass-through funds may charge indirect costs on these funds.

Remittance address

Awardees must provide their institution's IRS W-9 form to UDAQ upon award selection. If an institution wants UDAQ to send payments to an address different than what is listed on their W-9, then UDAQ will require a signed letter on the institution's official letterhead clearly stating the requested remittance address. Otherwise, payments will be sent to the address listed on the institution's W-9 form.

Funding limits for projects

Funding limits for projects will be discussed on a case-by-case basis. Keeping in mind UDAQ's \$500,000 funding cap, a project may not necessarily be excluded for being too expensive. UDAQ may request budget adjustments from a PI after the project selection process.

Project Start Date

UDAQ will not agree to a project start date that occurs prior to the UDAQ Deputy Director's signature on the contract. The contract's terms and conditions will state that the contract starts upon the signature of the UDAQ Deputy Director. If there is a delay beyond the start date proposed in the applicant's SOW, then UDAQ and the project PI will work together on determining new deliverable dates.

Can a previously submitted, but un-awarded proposal, be resubmitted?

Yes. UDAQ priorities may change year-to-year, so researchers are welcome to resubmit a past proposal if the project proposal targets at least one of UDAQ's [Goals and Priorities](#).

F. Scoring Criteria

Proposals will be evaluated by a UDAQ committee in terms of 1) proposal quality, and 2) agency priority. Possible ratings for proposal quality will include Excellent, Very Good, Good,

Fair, and Poor. Please see the [Proposal Requirements](#) section for information on how UDAQ will be assessing proposal quality.

Proposals will also be scored in terms of how the proposed project helps UDAQ meet agency priorities (High Priority, Medium Priority, and Low Priority). Agency priorities are discussed in the [Goals and Priorities](#) section of this RFP, but may be reassessed at any point prior to award. Preference will be given to proposals that align with UDAQ's goal of supporting a large collaborative field campaign focused on summertime ozone in 2023. In other words, projects that aim to produce results, data, and air quality model enhancements that can be leveraged towards the summertime of 2023 are welcome.

G. Important Calendar Dates

The following dates and deadlines are directly related to this RFP announcement. Please note these dates as you prepare your proposal:

- RFP Announcement - **November 24, 2021**
- Proposal due to UDAQ - **February 2, 2022**
- Final awardees selected and announced - **May 6, 2022**
- Earliest that funds are disbursed - **July 1, 2022**

H. Submitting a Proposal

- Proposals must comply with the proposal submission instructions and content requirements set forth in this RFP or else they will not be reviewed.
- In addition, proposals must be submitted via email to cpennell@utah.gov on or before the proposal submission deadline. Applicants are responsible for following the submission instructions of this announcement to ensure that their proposal is timely submitted.
- To submit proposals, send your complete proposal application package via email to cpennell@utah.gov. The subject heading should include the project title and the applicant (organization) name, and "FY2023".
- Proposals submitted after the submission deadline will be considered late and deemed ineligible without further consideration unless the applicant can clearly demonstrate that it was late due to UDAQ mishandling or because of technical problems associated with the state email system used for submission.
- Applicants affiliated with universities must submit their proposals through their specific sponsored projects/research office.

I. Contact Information

Please contact Chris Pennell (phone: 801-536-4098; email: cpennell@utah.gov) for questions relating to this RFP.

J. Example Quarterly Report Template



Quarterly Report

Principal Investigator (PI):

Email:

Date:

Project Title:

Complete this report by providing descriptive responses to each question, below. Please email the completed report to cpennell@utah.gov.

Q: Briefly restate the project's goals and objectives.

A:

Q: What did you accomplish this quarter toward completing the project's goals and objectives?

A:

Q: Did you encounter any problems? If so, how did (or will) you solve them?

A:

Q: If applicable, please list any changes you're making to the project? (Project changes should be discussed with Utah DAQ prior to your report submission)

A:

Q: If applicable, please provide an updated project schedule.

A:

Q: How much has been spent so far on this project?

A: