

# **Environment and Natural Resources Trust Fund**

# 2026 Request for Proposal

# **General Information**

Proposal ID: 2026-493

Proposal Title: Atmospheric Water Collection Project for Farmers

# **Project Manager Information**

Name: Jason Amundsen Organization: Amundsen Farms, Inc. Office Telephone: (612) 245-0450 Email: jason@H2Onow.com

# **Project Basic Information**

**Project Summary:** Requested funding is to help prototype and test mobile 48-volt atmospheric water generators to produce water for agriculture. These devices are powered by batteries and solar electricity.

**ENRTF Funds Requested:** \$291,000

Proposed Project Completion: June 30, 2028

LCCMR Funding Category: Small Projects (G) Secondary Category: Water (B)

# **Project Location**

What is the best scale for describing where your work will take place? Region(s): NE

What is the best scale to describe the area impacted by your work? Statewide

When will the work impact occur? During the Project and In the Future

# Narrative

#### Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Minnesota's farms are becoming increasingly water stressed. Climate change is no longer making rainfall consistent. Aquifers are less reliable. Farms face two problems. 1.) Having water for crops and livestock. 2.) Having water where it is needed, i.e, even if a farm has water, it needs to be pumped, carried, drained, piped, etc. to where it's needed. In doing so, there's loss and costs.

It's not just farmers who face the challenges of irregular rainfall. Long-term, Minnesota's aquifers are also being threatened which impacts municipalities as well.

# What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

In collaboration with three engineering schools, six factories around the world, and an HVAC consultant, we are converting the common household dehumidifier to outdoor use, to be powered by either 12 or 24 volts. Our version runs off a DC compressor, has 20-foot leads to a battery, an outdoor housing with an IP rating, and a 5-gallon water reservoir with a pump to pump water, as needed for plants and animals. A typical use would be watering trees in an orchard or row plants, like blueberries. Another use is mobile water production for livestock. What we are doing is not theoretical. We have prototypes in hand. Using 24 volts and 550 watts produces over 10 gallons a day at 80 degrees Fahrenheit and 60% relative humidity.

We are requesting funding to design and develop a 48-volt version of these devices. These 48-volt devices are expected to produce at least 16 gallons a day and be more cost effective than the 12 and 24-volt devices. They can also be used en masse (powered by solar) to recharge our aquifers.

# What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

Funding from LCCMR would accelerate Minnesota's farmers' ability to access larger 48-volt devices, providing relief from increasingly irregular rainfall, shrinking aquifers, and eliminate the cost, time, and waste associated with transporting water. The 12 and 24-volt devices we are creating are now laying the stage for the future development of larger 48-volt devices, which is the focus of this proposal. As mentioned above, the 48-volt devices we are designing can be paired with solar panels and used to recharge aquifers.

# **Activities and Milestones**

# Activity 1: Design

Activity Budget: \$21,000

#### **Activity Description:**

Go through the design process for the development of a 48V AWG device.

#### **Activity Milestones:**

Description	Approximate Completion Date
Research	July 31, 2026
Brainstorming/initial design stage	August 31, 2026
Design review	August 31, 2026
Redesign	September 30, 2026
Finalize design	September 30, 2026

#### Activity 2: Build

#### Activity Budget: \$105,000

#### **Activity Description:**

Find manufacturer(s) for prototype development and negotiate price per unit.

#### **Activity Milestones:**

Description	Approximate Completion Date
Find manufacturer	October 31, 2026
Send in CAD files and specifications	November 30, 2026
Negotiate cost and price per unit, and establish lead times	November 30, 2026
Wait for devices to arrive	February 28, 2027

#### Activity 3: Test

Activity Budget: \$79,000

#### **Activity Description:**

Testing and verification of prototypes.

#### **Activity Milestones:**

Description	Approximate Completion Date
Establish testing facilities	January 31, 2027
Establish testing procedures	January 31, 2027
Inspect and test general functionality	March 31, 2027
Test devices	August 31, 2027
Write test reports for each test	August 31, 2027

## Activity 4: Redesign and Test

Activity Budget: \$86,000

## Activity Description:

Redesign the devices based on the results from the testing of the previous iteration of devices, and test the new, redesigned devices.

#### **Activity Milestones:**

Description	Approximate Completion Date
Redesign	September 30, 2027
Send new CAD files and new specifications to the manufacturer	October 31, 2027
Renegotiate cost per unit and wait for redesigned devices to arrive	January 31, 2028
Test redesigned devices	June 30, 2028
Write test reports for the testing of the redesigned devices	June 30, 2028

# **Project Partners and Collaborators**

Name	Organization	Role	Receiving
			Funds
University of	University of	Testing / Engineering	No
MN Duluth	MN Duluth		
School of			
Engineering			
University of	University of	Testing / Engineering	No
St. Thomas	St. Thomas, St.		
School of	Paul MN		
Engineering			
University of	Engineering	Testing / Engineering	No
Texas - Austin	School		
School of			
Engineering			

# Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

This project has the ongoing support of our business. We are also looking to possibly raise funding from investors. While we will be hiring a sales engineer, logistics specialists and marketers to ensure these devices are available to Minnesotans, we also plan to partner with farmer organizations and county extensions to reach our audience and gather feedback for improvements.

# Project Manager and Organization Qualifications

#### Project Manager Name: Jason Amundsen

Job Title: Project Manager

### Provide description of the project manager's qualifications to manage the proposed project.

Jason Amundsen is an experienced farmer, entrepreneur, and disabled veteran. In 2012 he started Locally Laid Egg Company with his wife, Lucie. Jason went from a backyard flock to 2,500 chickens on rented land. In 2015 Jason started the first commerical honeybery orchard in the United States putting in over 10,000 plants at their farm in Wrenshall, MN. Both Locally Laid and the honeyberry farm continue as thriving businesses today. Jason has 2 full-time engineers working on this water project, both with degrees in engineering physics. Further, Jason will be part of the 2025 Clean Tech Open cohort and will receive mentoring in product launching, logistics / supply chain, and international business. Jason has a BA from the University of St. Thomas in St. Paul and a M.S. from Troy State University. Jason earned his M.S. while being deployed as a NATO peacekeeper.

Organization: Amundsen Farms, Inc.

#### **Organization Description:**

We are an agricultural company located in Wrenshall, MN. Founded in 2012, we do business as Locally Laid Egg Company and H20 Now. We operate four air-b-n's, two of which allow the public to sleep in a bunkhouse next to chickens. We have three full-time employees, a full-time farm manager and two full-time engineers. Our eggs our sold in major retailers - Cub, Kowalskis, Super One, along with Co-ops like Linden Hills, the Wedge, along with providing eggs to restaurants through Upper Lakes Foods. etc. Our honeyberry farm is primarily pick your own, however we do sell some honeyberries to cideries and ice cream shops. On the farm we also produce blueberries, eggs from 500 chickens, and strawberries. This year we are experimenting with producing strawberries in high tunnels. For the water project, the two full-time engineers work with engineering students and faculty at three Universities across two states.

# Budget Summary

Category / Name	Subcategory	Description	Purpose	Gen.	%	#	Class	\$ Amount
	or Type			Ineli	Bene	FTE	ified	
				gible	fits		Staff?	
Personnel								
Intern engineer		assist in all aspects of the project			20%	2		\$50,000
Project Engineer		Work on all aspects of the project			25%	2		\$60,000
Project		Maintain Scope and work on all aspects of the			25%	2		\$80,000
Manager/Engineer		project						
							Sub Total	\$190,000
Contracts and Services								
							Sub Total	-
Equipment, Tools, and Supplies								
	Tools and Supplies	General electrical components	To connect/repair any electrical components needed during the span of the project					\$2,000
	Equipment	Data collection equipment	To collect and record data collected via testing					\$2,000
							Sub Total	\$4,000
Capital Expenditures								
		Testing facility	To run quality tests on our prototypes to ensure we are producing high quality devices that work in a variety of conditions	X				\$6,000
							Sub Total	\$6,000
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Approximately 15 trips, each around 250 miles round trip, for three people	Meet with manufacturers and universities					\$8,000

					Sub Total	\$8,000
Travel Outside Minnesota						
	Conference Registration Miles/ Meals/ Lodging	Approximately 2 trips, one each year, for three people, for four days	To attend the AHR HVAC conference			\$8,000
					Sub Total	\$8,000
Printing and Publication						
					Sub Total	-
Other Expenses						
		Prototyping/Prototypes plus shipping costs	To physically create and test our designs, then have them shipped to us for testing			\$75,000
					Sub Total	\$75,000
					Grand Total	\$291,000

# Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or	Description	Justification Ineligible Expense or Classified Staff Request
	Туре		
Capital Expenditures		Testing facility	Even though this facility exceeds \$5,000, it is essential for testing all devices to ensure they work properly and, when they do not function as desired, be updated according to
			the high quality tests performed in this facility. The facility will continue to be maintained and updated to maintain high quality testing of prototypes. <b>Additional Explanation :</b> This testing facility will be used to run quality tests for all future devices we develop, and be updated as required in the future to ensure the facility is able maintain high quality testing.

# Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub	-
			Total	
Non-State				
Cash	Amundsen Farms	To pay employees and all other expenses	Secured	\$300,000
			Non State	\$300,000
			Sub Total	
			Funds	\$300,000
			Total	

## Total Project Cost: \$591,000

This amount accurately reflects total project cost?

Yes

# Attachments

# **Required Attachments**

#### Visual Component

File: <u>9409358c-322.pdf</u>

#### Alternate Text for Visual Component

H20 Now Logo...

#### Financial Capacity

Title	File
Financial Capacity Note	<u>d235f404-6c6.pdf</u>

#### Supplemental Attachments

#### Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
board authorization	<u>27cff196-aa5.pdf</u>
sukru letter	04baec22-6c7.pdf
Fix letter	<u>d8933bf9-8f8.pdf</u>
Support Letter UST	6fd303db-4dc.pdf
Support Letter from UMD 2	<u>306dc6f0-85c.pdf</u>
12 volt specifications	47c1d824-c3c.pdf
24 volt specifications	<u>7ed75a13-687.pdf</u>
Support Letter from UMD	<u>6dbb32f8-233.docx</u>

### Administrative Use

Does your project include restoration or acquisition of land rights?

No

Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I understand the Commissioner's Plan applies.

Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?

Yes

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

Yes

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF? If so, describe here (1) the source and estimated amounts of any revenue and (2) how you propose to use those revenues:

Yes, Revenue estimates are extremely uncertain right now. We do not have costs from the factories. Nor do we have estimates for shipping, distribution, and the possibly of tariffs makes these projections nearly impossible.

#### Does your project include original, hypothesis-driven research?

No

Does the organization have a fiscal agent for this project?

No

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:

Sam Eichelberger, Engineer. Nate Capistrant, Project Manager / Engineer.

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

N/A