

# NSF ENGINES Inaugural award



## REQUEST FOR PROPOSALS

Circular Blue Economy Market Research - Proposals Due March 17, 2025

<u>Summary:</u> Current seeks a qualified research team or teams to conduct a market analysis to inform our research, commercialization, and education and job training agenda. The winning research team(s) will design and deliver a market analysis report that defines and sizes the market for one or several markets of focus, including:

- Innovative wastewater resource recovery technologies
- Recoverable materials like critical minerals and nutrients
- PFAS and emerging contaminant detection/destruction technologies
- Water-energy recovery technologies, especially as relevant to data centers, high-performance computing, and semiconductor production.

<u>Client:</u> Current is the lead organization for Great Lakes ReNEW (ReNEW), a regional innovation engine with a goal to transform the Great Lakes region into a circular blue economy. ReNEW seeks to develop and commercialize resource recovery and selective separation technologies that put materials found in wastewater (minerals like nickel, cobalt, lithium; nutrients including nitrogen and phosphorus; energy, and clean water) to productive use and removes harmful contaminants (like PFAS) from circulation.

<u>Background:</u> Great ReNEW aims to solve a core problem: Conventional water and wastewater treatment flushes valuable resources down the drain and leaves harmful contaminants behind. ReNEW's goal is to accelerate the development of technologies that help recover useful materials found in wastewater and put them into productive use while removing harmful contaminants.

**Resource recovery is critical to national security and competitiveness.** ReNEW supports technologies that separate these materials out of wastewater, while also improving technologies that allow industry to manage water and energy in a more circular way.

ReNEW's resource recovery technologies can:

- Recover and reuse critical minerals like lithium, cobalt and nickel, which are essential for the transmission and storage of energy and production of semiconductors, batteries, and other electronics, but carry high risk of supply chain disruption.
- Recover and reuse nutrients like phosphorus and nitrogen that are important fertilizers whose looming shortages threaten global food supply.
- Recover and reuse water and energy from wastewater, which are both experiencing the heightened demands of growth industries like high-performance computing, data centers, and AI, intensifying stress on already strained water and energy resources.



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 Detect, remove, and destroy PFAS, a class of hard to destroy chemicals that are frequently found in our waterways and cause significant health risks to people and communities.

#### Great Lakes ReNEW will accomplish this goal through:

- Use-inspired R&D on selective separation and resource recovery of nickel, cobalt, lithium, nitrogen and phosphorus, and elimination of PFAS and other contaminants from water and wastewater.
- Translation of innovation to market, with leading regional water hubs and testbeds in Chicago, Milwaukee, and Cleveland, launching and investing in dozens of watertech startups, and building a centralized testbed for their products.
- Workforce development to train people for quality jobs and careers and support K-12 STEM education.

The Great Lakes ReNEW strategy builds on <u>Upstream Illinois: Strategies to Boost Illinois' Blue Economy</u>, an economic development strategy Current published in 2023 to define and size the blue economy for Illinois. Now, one year into Great Lakes ReNEW, we have launched research projects and commercialization support programs to accelerate the movement of these technologies into the market. We are seeking market data to sharpen these programs, and to inform our 5-year strategic plan.

In support of Great Lakes ReNEW's work to advance and commercialize resource recovery technologies, Current aims to size and help scale the market for both recoverable materials and resource recovery technologies. This assessment will evaluate market trends, emerging technologies, and key industry players to uncover pathways for value creation from water and wastewater. Coupled with targeted investor engagement, we seek to align capital with scalable solutions, fostering partnerships that unlock economic and social benefits. By connecting market insights with investor priorities, this approach ensures impactful innovation is accelerated, creating both financial returns and measurable sustainability outcomes.

**Scope**: We are seeking a research team or teams to design and deliver an analysis that accomplishes one or several of the following tasks:

**Task 1:** Define the market and relevant segments, and determine overall size and CAGR for **wastewater resource recovery and selective separation technologies** - including advanced materials and membranes, process technologies, sensors and sensor networks. Identify opportunities, barriers to entry, key market trends, and unmet needs.

**Task 2:** Define the market and relevant segments, and determine overall size and CAGR for materials recoverable from wastewater including critical minerals (lithium, cobalt, nickel) and nutrients (phosphorus and nitrogen). Identify opportunities, barriers to entry, key market trends, and unmet needs.



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**Task 3:** Define the market and relevant segments, and determine overall size and CAGR for water-energy nexus/energy recovery technologies for water intensive industry. Identify opportunities, barriers to entry, key market trends, and unmet needs.

**Task 4:** Define the market and relevant segments, and determine overall size and CAGR for **PFAS** detection, removal, and destruction technologies relevant to drinking water and wastewater. Identify opportunities, barriers to entry, key market trends, and unmet needs.

**Task 5:** Provide updated market data about the Blue Economy across six Great Lakes states (IL, OH, WI, IN, MI, MN) using baseline definitions and methodology from Upstream Illinois blue economy strategy.

#### For each task, teams must also:

- Assess the level of competitiveness in each market. Identify leading and new players, venture investment trends, key players, and activity; M&A activity and IPOs; and key go-to-market routes.
- Develop a method for Current to regularly track and update market data, including tasks like designing pitchbook search terms and identifying industry classification codes (NAICS, others).

The research team will be responsible for designing a research methodology that includes a combination of desktop research and industry engagement. Data sources may include public economic datasets, Pitchbook, Lightcast and/or others. Current can support connections to our industry and investor partners, but successful teams will bring their own industry and investor connections or a plan to expand outreach and fill representation gaps to important players not yet engaged.

<u>Our Geography:</u> Current is headquartered in Chicago, but the Great Lakes ReNEW coalition includes partners across 6 states (Illinois, Ohio, Wisconsin, Michigan, Indiana and Minnesota), as well as national and international partners. The market for our technologies and products, however, is global. We seek to position the Great Lakes Region as the home of circular water innovation that solves both local and global water challenges.

<u>Timeline</u>: Projects must be completed before the end of 2025, but will be especially competitive if they can deliver market insights by August 2025.

<u>To Apply:</u> Proposals will be accepted on a rolling basis until March 17, 2025. Please send your response to Kalindi Parikh (<u>kparikh@currentwater.org</u>) with the subject line "Response to Market Research RFP." Your submission should include the following:

1. <u>Firm Qualifications</u> (2 pages max) Includes:



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- a. Brief description of your firm or team, including qualifications and technical expertise about the specific task(s) you are choosing to research
- b. Profiles of key personnel
- 2. Project Approach (2 pages max) Includes:
  - a. Which task (1, 2, 3, 4 or multiple) you are proposing to research
  - b. Your firm's proposed approach, including research methods and engagement strategies.
  - c. A budget that includes hours/rates estimated
  - d. A high level timeline of the work schedule.
- 3. Work Sample: A link to or PDF of an example of related work (no page limit)
- 4. <u>References</u>: At least two professional references, including at least one current or past client. Please include the contact name, organization, email address, and phone number for your references.

#### **Selection Criteria**

- Overall experience and reputation of company or team
- Technical expertise in market research and analysis, with strong track record delivering reliable market insights for emerging areas of technology
- Specific expertise in the areas of technology identified is a plus
- Experience engaging industry and investors in the research process
- Clarity of project approach with respect to project scope and timeline
- Quality and relatedness of previous work and positive references
- Project budget clarity and value, including hourly fees and total cost

**Questions?** Contact Kalindi Parikh at <a href="mailto:kparikh@currentwater.org">kparikh@currentwater.org</a>.

About Current: Current is an independent nonprofit water innovation hub, founded in Chicago in 2016. Our mission is to grow a circular blue economy, accelerate innovation, and solve pressing water challenges. We bring together corporations, advocates, researchers and governments to develop water management policies and test new technologies—projects that would be too risky or even impossible without sustained collaboration. Current has helped to raise more than \$58 million to support water innovation and economic development in the region; launched the first real-time water quality monitoring tool for Chicago waterways; drafted a blueprint to build a thriving Blue Economy in Illinois; and supported the commercialization of more than 40 water startups.

For more information, visit <u>currentwater.org</u> & <u>greatlakesrenew.org</u>

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## FREQUENTLY ASKED QUESTIONS (FAQ)

## **SELECTION PROCESS**

Does the proposing team have to be from the Great Lakes Region? No.

Will preference be given to existing partners of Current when selecting a winning firm?

Will preference be given to teams that propose to tackle all tasks vs one or some tasks? No. Current will prioritize both cost and quality when identifying (a) team(s). Proposing multiple tasks will not necessarily result in a higher score.

#### Will there be interviews?

Current may conduct interviews with top scoring teams. If selected for an interview, we will work with your team to identify a time that works for all participants. Our goal is to have interviews and selection completed within the month after the proposal deadline.

Does it matter what format the proposal uses (i.e. can we use a slide deck vs word document)? Can we attach additional information as an appendix?

The format doesn't matter as long as you stay within the page limit. We will only evaluate your proposal based on the allotted pages/required elements. Anything attached as an appendix will not factor into your score.

#### RESEARCH QUESTIONS AND METHODS

What data does Current already have that should be considered as input to this market research work?

Current's 2023 <u>Upstream Illinois</u> blue economy strategy can serve as a useful background about our approach to defining the blue economy, however it is broader in topic (inclusive of all blue economy technologies) where this analysis aims to be specific. We also have some high level market reports on wastewater/water quality, PFAS, and water efficiency industries and some pitchbook data about resource recovery based on a preliminary set of search terms developed by our team this year. We will share confidential background materials about our technology/research areas with the winning team(s).

Does Current have access to restricted data sources like Pitchbook or Lightcast, or are you expecting the consulting team to have access to these datasets?



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Current does not have access to these datasets. The research team must provide their own access to data, or develop a plan to coordinate data requests from Current's partners.

## What geography should the market analysis cover?

Depending on what tasks you are proposing for, different geographies might apply. For example, recovered materials might be relevant to a different geographic market than membrane technologies. We want to understand your methods to identify the right market geographies for technologies you will research, and suggest that you propose an approach.

Will market sizing need to be broken out by specific end markets (e.g., municipal, oil & gas, mining, etc)? Yes, we would like to understand the different industries/sectors that might be interested in our technologies.

Can you be more specific about water-energy nexus and water-energy solutions? We have defined this as <u>water and energy reduction and reuse</u>: Research that enables either a reduction in use or an increase in reuse of water for heavy water users (e.g., mining, quantum computing, data centers, semiconductors, batteries, food and beverage, agriculture, and utilities). Technologies could include Al-enabled tools, data platforms, or sensor networks to monitor and reduce consumption at industry or utility facilities. The development or advancement of technologies that enable wastewater reuse in industrial operations, reduce energy needs via water reuse, or yield greater efficiency with existing water resources. Green hydrogen is not currently a priority.

What role will your existing partner organizations play in this market research work? What knowledge gaps are you trying to fill by identifying a new research team? Our existing partners can be engaged in several ways, depending on the needs of the selected research team. They may provide support to the identified research team (especially partners with deep technical knowledge about each of the four tasks). For some examples, you could convene focus groups with investors, interview researchers to inform the market analysis, or other approaches to answer research questions. Our coalition has strengths relevant to this work, but we don't currently have anyone tasked to deliver these highly specific market analyses. Anyone is eligible to apply to this RFP (organizations from within the Great Lakes ReNEW Engine coalition included), and you may choose to engage external experts to support the research and expand on or challenge the Engine's assumptions.

#### **USES FOR THIS WORK**

#### How will this work be used by Current?

We aim to understand the market for resource recovery, PFAS and water-energy nexus technologies to justify continued investment and engagement in this space. This information will







help us shape our commercialization strategy as part of our strategic and implementation plan, and create programs and resources for technologies that respond to actual market conditions.

## Will this work be published externally?

Current will publish some version of the market information received. We will coordinate closely with the selected research team(s) to identify any limitations on sharable information. Public documents will be reviewed by our communications team before sharing.

## **BUDGET AND CONTRACTS**

# What is the total budget for this project? Should proposals tackling multiple tasks break out cost by task?

We have intentionally left this open-ended. Current is interested in understanding the real cost and total effort required to accomplish this work. If you are proposing for multiple tasks, we suggest estimating the cost per task, if feasible. If Current is interested in engaging your team for fewer tasks than proposed, we will reach out for budget clarification.

What contract mechanisms is Current open to considering? Fixed Price? T&M? Current can accommodate several contract mechanisms. This can be negotiated after the review period.