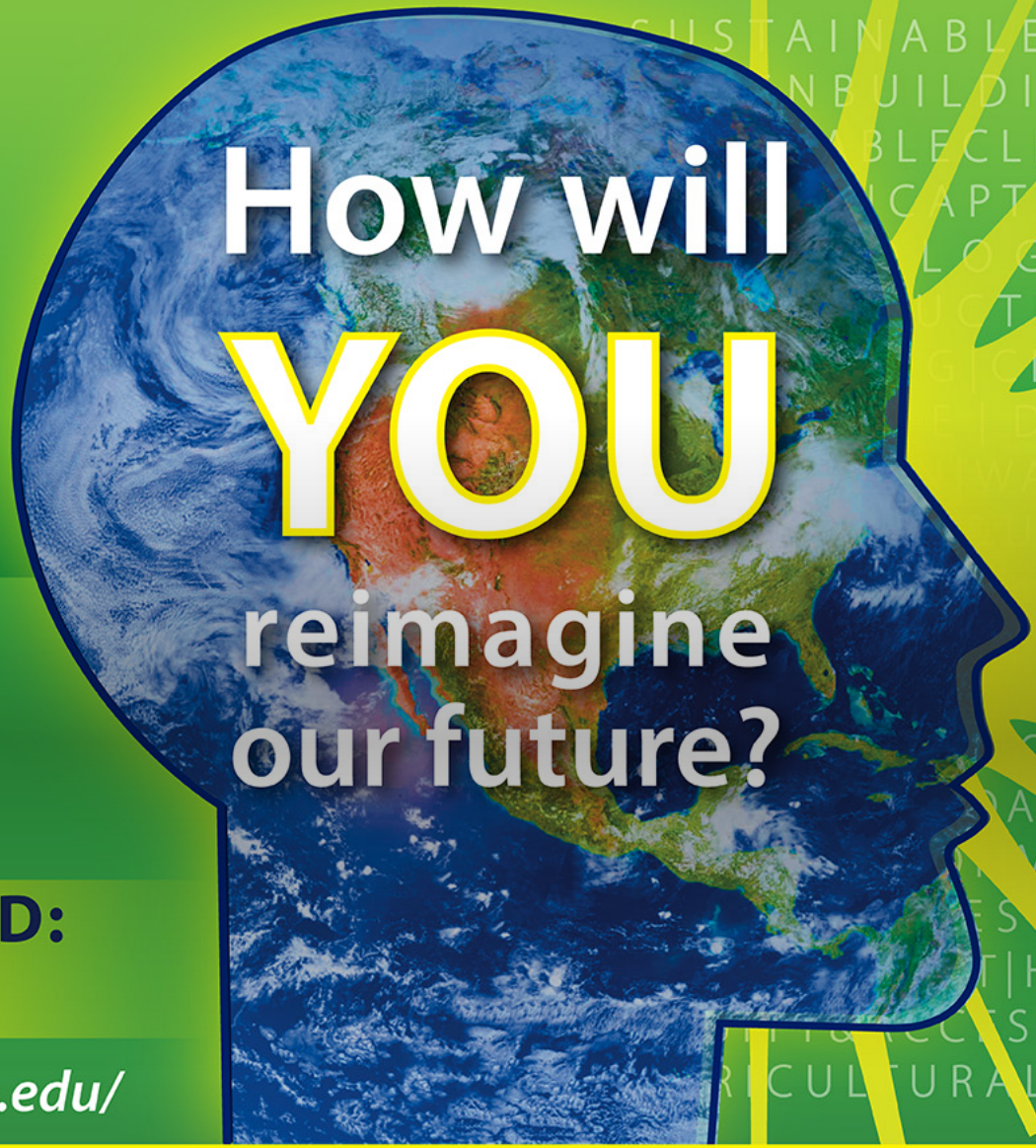
ILLINOIS GREEN FUND
STUDENT SUSTAINABILITY COMMITTEE

3rd ANNUAL

Reimagine OUR FUTURE

Undergraduate Sustainability COMPETITION



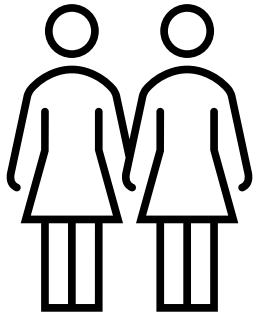
REGISTRATION PERIOD:
APR. 24 –OCT. 9, 2023

https://reimagine.web.illinois.edu/

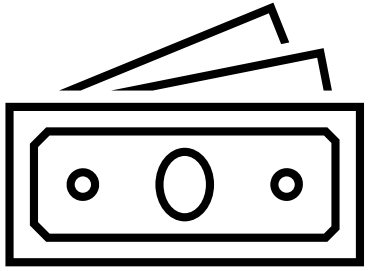
Your idea could be worth $2000 and have an impact on the future!

Workshop – 9/17

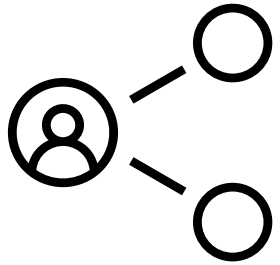
What is the SSC?



Students pay 2 fees totaling $18 each--the Sustainable Campus Environment Fee and the Cleaner Energy Technologies Fee



This sums up to ~$2 million a year that goes towards student and faculty-led sustainability projects



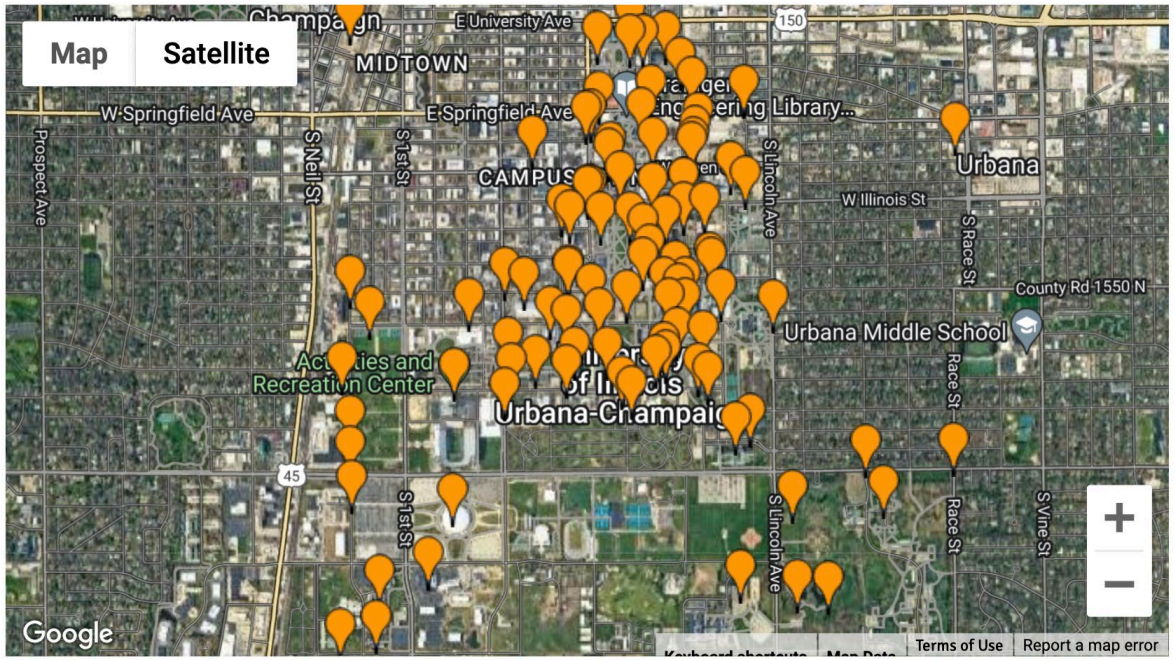
The Student Sustainability Committee distributes the fund to sustainable projects across campus as well as sustainability programming!

The Student Sustainability Committee (SSC) is here to make the campus more sustainable through student and faculty-led projects. It is student-led!

SSC's Impact

Since 2008, the SSC has allocated **$15,242,223.24** toward funding **373** projects that have made an impact on campus sustainability!

SSC FUNDED PROJECTS MAP



Getting Involved with the SSC

The SSC is comprised of both undergraduate and graduate students. If you have a passion for environmental and sustainable stewardship, join the SSC today!

General Member Registration

Past SSC Funded Projects

Geothermal Energy in the CIF

Red Oak Rain Garden

Solar Farm 2.0

& many more!

Developing Your Projects

-Who: individuals or communities can your project reach?

-What: working groups and frameworks to build projects on?

-When: is the timeline or temporal scale for your project?

-Where: are the ecosystems, communities, and geographic locations affected?

-Why: has your passion got you to this project? Can you bring your style to this project; there are many ways to implement a project, make it unique to you!

Global Sustainability Frameworks

Leaders from around the world collected at the United Nations Summit and created a globally recognized set of sustainability goals.

“There is no ‘Plan B’ because we do not have a ‘Planet B.’ We have to work and galvanize our action.”

-UN Secretary, General Ban-Ki Moon

The United Nations 17 Sustainable Development Goals

- How can your ROF project incorporate the United Nations 17 SDG?
- Which areas of sustainable development can be most impacted?
- What aspects of your project can have the most outreach and help the most?
- What level of societal development do you want to reach? Local, community, or corporate?

What type of working group does your project fall into?

1. Energy
2. Education and Justice
3. Land, Air, and Water
4. Transportation and Infrastructure
5. Food and Waste

Identifying your sustainability goals, combined with the working group type of your project, will allow you to specify and narrow your project.

The more specific a project is, the easier it is to define deliverables and results.

Time can be efficiently used with a specific goal and target in mind, resulting in successful projects!

Your Challenge

For this competition, you will develop an innovative plan or solution that promotes one or more of the United Nations Sustainable Development Goals while taking account of other relevant SDGs.

In doing so, you will address a particular sustainability problem or challenge, which could be at a local, regional, national, or international level anywhere in the world. Your plan or solution could be a program for a government or private entity, proposal, product or service, system, business plan, event, social media platform, app, game, law, organization, educational initiative, or something else. Your plan or solution must be presented in the form of a **fact sheet**.

Judging Criteria

All entries will be evaluated in terms of the five criteria below for a maximum overall score of 60 points:

Point Value	Criteria	Description
0-20	Novelty	An original (new, fresh, innovative, ground-breaking) idea or synthesis of existing ideas into a new strategy that creatively advances one or more of the SDGs. Winning submissions will have that elusive "wow factor," eliciting feelings of excitement and admiration! (These are projects that the judges would like to recommend to the Gates Foundation for funding!)
0-10	Feasibility	A convincing case is made for implementability. Implementation might rely on, say, existing or new technology; proven or new social organizations, markets, or science.
0-10	Scalability/Replicability	The idea can be scaled up and widely replicated.
0-10	Connection to SDGs	The analysis takes account of all relevant SDGs, of the ways in which they are relevant, and of the relationships among them as they pertain to the chosen sustainability problem.
0-10	Compelling Communication	The submission is written with clarity, is visually engaging, and is easy to follow. The submission has a powerful and compelling narrative.

Today's goals

We want to get your project competition ready!

-Have a panel for project leaders to get direction and individualized support for your project proposal.

-Allow time for community feedback.

-Generate energy and community support for the Reimagine Our Future Competition.

-Eat pizza!

-Demonstrate successful projects from past competitions.

Let's take a look at an example project from last year

Last year's Reimagine Our Future Winner's Fact Sheet

LITHIUM EXTRACTION FROM GEOTHERMAL BRINES

TEAM 6 -AMAN MEHTA / ARYA HARIA / ISHITA PURWAR
amanm2@illinois.edu / aharia2@illinois.edu / ipurwar2@illinois.edu - Key SDGs: 6,7 and 13

THE CHALLENGE

Lithium (Li), a non-renewable earth metal, is mined around the world for Lithium-Ion Batteries, at the expense of:

1. Water Usage - 2 million liters of water used for 1 ton of Lithium.
2. CO2 Emissions - 15 tonnes of CO2 for 1 ton of Lithium.
3. Soil, Land, Air and Water Contamination - Threat to indigenous communities.

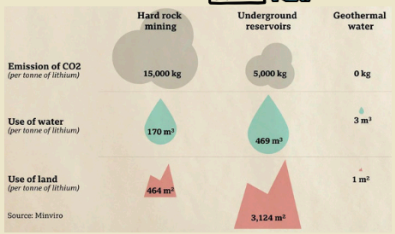


FIGURE 1 - ENVIRONMENTAL IMPACTS OF LITHIUM MINING. [BBC.COM]

IS LITHIUM REALLY THAT IMPORTANT?[YES!]

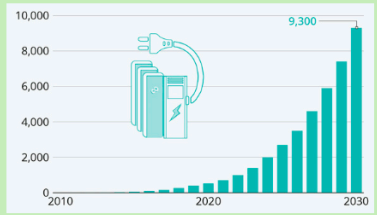


FIGURE 2 - INCREASING DEMAND OF LITHIUM [STATISTA.COM]

1. Lithium demand is rising exponentially.
2. Lithium is in the epicenter of battery systems.
3. Battery Systems are used in Electric Vehicles (EVs) and grid scale energy storage.
4. Batteries facilitate a net-zero future.
5. Renewable energy implementation will be limited without batteries

SUSTAINABILITY DEVELOPMENT GOALS (SDGS)

6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
13 CLIMATE ACTION

The solution to the Lithium mining problem should be one which doesn't **contaminate water, doesn't emit carbon** and is still relatively **affordable.**

THE SOLUTION

LITHIUM EXTRACTION FROM GEOTHERMAL BRINE

GEOTHERMAL BRINE: Geothermal brine is a hot and concentrated saline solution, having circulated through the very hot rocks o geothermal areas, and is enriched with minerals, such as lithium, boron, and potassium.

THE IDEA:

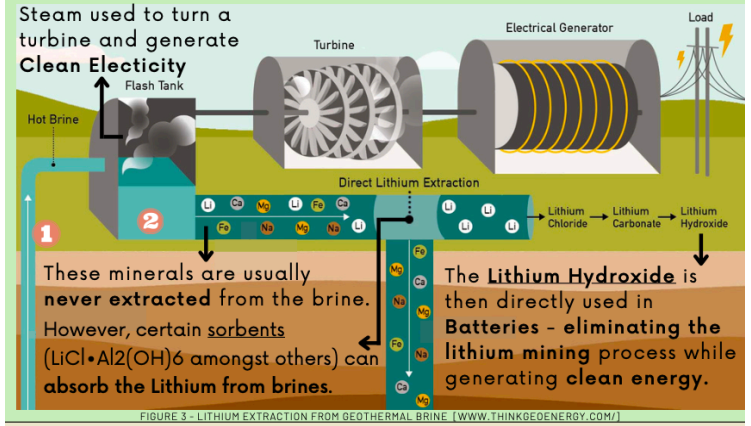


FIGURE 3 - LITHIUM EXTRACTION FROM GEOTHERMAL BRINE [WWW.THINKGEOENERGY.COM/]

- **Eliminating lithium mining** - reduced water wastage
- Reduced water, land and air **contamination**
- **90% extraction efficiency** with **negligible loss** in absorption capacity over cycles
- **Clean energy** generated and passed to the grid
- Reduced **carbon emissions** from conventional methods
- Overall, **lithium extraction becomes environmentally-friendly**

In context: $\frac{0.0005kg}{liter} \times \frac{420liters}{s} \times 91\% = \frac{0.19kg}{s}$ **of Lithium absorbed**

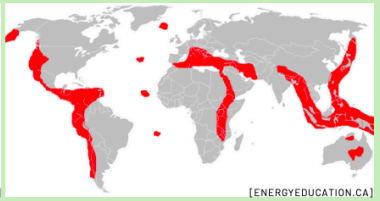
It takes 42s to absorb enough Lithium (8kg) for one EV battery.

IMPLEMENTATION

FEASIBILITY AND SCALABALITY :

[REUTERS.COM]

FIGURE 4 - LITHIUM DEPOSITS AROUND THE WORLD



[ENERGYEDUCATION.CA]

FIGURE 5 - GEOTHERMAL ENERGY PRODUCTION AROUND THE WORLD

The **correlation** between the Li deposits and the geothermal energy production shows the potential to **scale this technology and extract Li at each of those locations.** Given the **high impact and return on investment** of the above solution, governments are supporting this project to reach the **net-zero target** increasing the **feasibility of installation.**

CHALLENGES

Economical and social: Heavy monetary investment to set brine and factories. Geothermal exploration can be expensive. Both **can become cheaper** over the long run and if done on a **large enough scale. Geographical relocation of communities and land** to install plants.

Technological: Salt ions in brine **interfere** with extraction process, however, current **research is improving** those methods.

FUTURE PROSPECTS

Alongside Li, **other metals** such as **Nickel and Cobalt** which are required for battery production can also be extracted from geothermal brines. Additionally, **instead of using coal energy**, geothermal energy can now be used by the battery manufacturing factories to reduce the total emissions in the manufacturing process.

Bibliography:
1- Can geothermal energy solve the lithium shortfall? Energy.gov. (n.d.). Retrieved November 20, 2022, from https://www.energy.gov/eere/geothermal/articles/can-geothermal-energy-solve-lithium-shortfall
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3- California's in-conduit hydropower implementation guidebook. (n.d.). Retrieved November 21, 2022, from https://www.energy.ca.gov/sites/default/files/2021-05/CEC-500-2020-030.pdf
4 - Castelvecchi, D. (2021, August 17). Electric cars and batteries: How will the world produce enough? Nature News. Retrieved November 20, 2022, from https://www.nature.com/articles/d41586-021-02222-1#:~:text=Amounts%20vary%20depending%20on%20the,figures%20from%20Argonne%20National%20Laboratory
5 - Aral, H., & Vecchio-Sadus, A. (2011). Lithium: Environmental pollution and health effects. Encyclopedia of Environmental Health, 499–508. https://doi.org/10.1016/b978-0-444-52272-6.00531-6
Sincerest Thanks to: Prof. Leon Liebenberg, Prof. Lili Cai, Arpit Dwivedi, Prof. John R. Abelson

Observations

What did you notice?

- Inclusion of SDG's
- Introduction of the challenge
- Feasibility and scalability
- To the point, explained efficiently
- Incorporates what might make the implementation difficult

  - Remember this is just an example, we want you to be creative in presentation and execution!

Competition Deadlines

Application Cycle

Milestone	Deadline
Register	Oct. 9, 2023 | 11:59PM CT
Seek the Advice of a Specialist	Oct. 22, 2023 | 11:59PM CT
Submit a Fact Sheet	Nov. 19, 2023 | 11:59PM CT

Finalists Cycle

Milestone	Date
Finalists Notified	November 25
Finalists prepare their presentations	November 26-December 1
Awards Ceremony (in-person or virtual, TBA)	December 2 | 9:00AM CT

Where and How to Choose a Specialist Advisor

https://reimagine.web.illinois.edu/find-a-specialist-advisor/

Find a Specialist Advisor

You must seek the advice of a specialist regarding your ideas.

You are welcome to seek the advice of any of the specialist advisors we provide or you may consult any other specialist in the field of your idea or solution.

The matrix below matches each advisor by their SDG expertise. **NOTE: The list of specialist advisors will be updated each week.**

Specialist Advisors

Name	SDG 1	SDG 2	SDG 3	SDG 4	SDG 5	SDG 6	SDG 7	SDG 8	SDG 9	SDG 10	SDG 11	SDG 12	SDG 13	SDG 14	SDG 15	SDG 16	SDG 17
Prof. John Abelson abelson@illinois.edu							X					X	X				
Dr. Claudia Adriazola-Steil claudia.adriazola@wri.org			X	X	X					X	X						
Prof. Brian Allan ballan@illinois.edu			X												X		
Dr. Christopher Anderson canders8@uic.edu		X		X										X	X		
Mr. Ettore Arpini ettore.arpini@gmail.com								X		X	X						
Prof. Shadi Atallah satallah@illinois.edu		X										X		X	X		
Dr. Melissa Barbanell melissa.barbanell@wri.org													X		X		
Ms. Brittany Barrett brittany.barrett@wri.org			X				X		X		X		X				
Ms. Ann Baskerville Ann.baskerville@sierraclub.org								X	X				X				
Ms. Viv Bennett vbennett@tnc.org				X	X	X	X	X	X	X	X	X	X	X	X	X	X
Prof. Eric Benson																	

Contacts

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(Teaching Professor, Department of Nuclear, Plasma, and Radiological Engineering)

Professor Robert McKim – rmckim@illinois.edu

(Emeritus Professor, Department of Religion)

Professor Warren Lavey – lavey@illinois.edu

(Adjunct Professor, School of Earth, Society & Environment and College of Law)

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Allie Garlin- agarlin2@illinois.edu

Erin Kelley – erinmk3@illinois.edu

Reimagine Our Future QR Codes

Website Link

Fact Sheet Requirements

Fact Sheet Development

Fact Sheet Requirements:

Main Body: Use a combination of text and graphics. The text should be for a general audience and concise. The graphics should help communicate the challenge addressed, your proposal, and what it would achieve, if implemented.

These three elements must be included in the fact sheet:

1. The Challenge

Describe the challenge addressed and explain how addressing this challenge bears on one or more of the SDGs, paying attention to relevant SDGs and keeping in mind the connections between people and nature. Some questions to consider:

- How widespread is the challenge? Are many people or ecosystems or other forms of life affected?
- Does your proposal deal with a specific location or community? If so, explain.

2. Your Solution:

Clearly and concisely describe your main idea. Some questions to consider:

- Why do you believe the proposed action will be successful?
- Who or what will benefit from this action?
- Have efforts already been made to meet the challenge you address? If so, how does your proposal differ from the proposals of others?
- How would your proposal, if implemented, promote, or impede achievement of the SDGs mentioned?

3. Implementation:

Describe your plans to achieve your intended result. Some questions to consider:

- How long will it take to implement your solution? How long will it stay in effect?
- What resources (financial, human, technological, physicals, other) does it require?
- Would your proposal require or benefit from partnership with any companies, nonprofits, governments, or other organizations?
- What will be the main obstacles, and have you thought about how to overcome them?
- How will progress be monitored and evaluated?

Fact Sheet Formatting

Front Matter:

This information must be included in a 'header' located in a banner above the main fact sheet content:

- Project name
- Name (or names, in the case of submission by a team) and one email contact
- Key SDGs promoted or impacted by your solution
-

References and Acknowledgements:

This information must be included at the end (bottom) of the fact sheet

- List up to five relevant articles, academic studies, or other sources of information
- Identify a specialist in a relevant field with whom you discussed your main idea. Provide that person's name, organization and position, and email address
- Acknowledge any additional organizations or individuals who provided significant guidance
- Include UIUC logo

Format Requirements:

- Fact sheet is 1-3 pages in length
- Paper size: Standard 8.5 in. × 11 in
- Maximum file size: 10 MB
- Filename must be your team number, e.g. "team_4.pdf" if your team number is 4.
- Please check your team number using the table available on the website
- Submit as a pdf document

Your proposal will be evaluated in terms of its novelty, feasibility, replicability, clarity, whether you make a compelling case for it, and its likely effectiveness in promoting the SDGs.

Good Luck! We look forward with great enthusiasm to learning about the new ideas you will be proposing.