View results

Respondent
12 Nikolin Deli

07:03
Time to complete

Instructions

Please adhere to the session word counts. Project leads must present their project at a SSC Working Group meeting prior to the submitting their application. The Working Group meeting schedule can be found on the SSC website.

NOTE: This document will be shared publicly on our SSC Illinois Climate Action Plan (iCAP) portal so that others can learn from your project.

If you have any questions about Working Groups and/or the SSC application process, please contact the SSC at Sustainability-Committee@illinois.edu.

1

Has someone from the project's team presented their Step 2 project at an SSC Working Group meeting? *

- (●) YES
- ( ) NO

2

Select the Working Group meeting you attended. *

- (●) Energy + Transportation & Infrastructure Working Group Meeting
- ( ) Food & Waste + Land, Air, & Water Working Group Meeting
- ( ) Education & Justice Working Group Meeting

3

Date of the Working Group meeting you attended. *

9/17/2024

4

Project's Name *

Illini Solar Car - 4th Generation Solar-Electric Vehicle

5

Amount of funding requested from the SSC for this project *

$100,425.58

6

Project Category *

- ○ Education & Justice
- ○ Energy
- ○ Food & Waste
- ○ Land, Air & Water
- ◉ Transportation & Infrastructure

7

Project Abstract *

In less than 100 words, briefly describe the project.

Founded in 2014, Illini Solar Car is a multidisciplinary student organization with more than 300 active students across over 20 majors, where we design, build, test, and race solar-electric vehicles in international competitions. Harnessing the talents of students from both engineering and non-engineering fields, we seek to create the world's best solar-electric vehicle while engaging with hands-on experiences and sparking a lifetime interest in sustainable thinking and design. Currently, we are designing our fourth-generation vehicle, code-named "Project D," for the American Solar Challenge in July 2026.

8

What key changes are reflected in your Step 2 application compared to your Step 1 application, if any, and why? *

For the Step 2 application, we added additional information for some questions, such as the timeline and milestones. Additionally, we expanded upon the budget sheet and finalized some details. We also elaborated more about the tasks we plan to do throughout the project. We did this because it is crucial to provide more details concerning what we are currently planning and working on when it comes to projects of this magnitude.

Project Lead

9

Project Lead's Full Name *

Brooke Mickey

10

Project Lead's Department/Campus Affiliation *

Mechanical Engineering

11

Project Lead's University Email Address *

bmickey2@illinois.edu

12

All student-led projects require a faculty/staff advisor. Is this proposed project a student-led project? *

NOTE: Only currently enrolled Illinois students are eligible to be a Project Lead.

- ◉ YES (by selecting YES, you affirm that the Project Lead is a currently enrolled Illinois student)
- ○ NO

Faculty/Staff Advisor

A Faculty/Staff Advisor is required for all student-led projects.

13

Faculty/Staff Advisor's Full Name *

Arijit Banerjee

14

Faculty/Staff Advisor's Department *

Electrical & Computer Engineering

15

Faculty/Staff Advisor's University Email Address *

arijit@illinois.edu

Project's Financial Contact

The project's Financial Contact must be a full-time Illinois employee who has the authority to manage the project's financials and generate financial reports on behalf of the project.

16

Financial Contact's Full Name *

Arijit Banerjee

17

Financial Contact's Department *

Electrical & Computer Engineering

18

Financial Contact's University Email Address *

arijit@illinois.edu

19

Are there additional members of your project team? *

- (●) YES
- ( ) NO

Additional Team Member

20

Team Member's Full Name:

Ryan Kanoski

21

Team Member's Department/Campus Affiliation:

Industrial Engineering

22

Team Member's University Email Address:

rkano2@illinois.edu

23

Do you have additional team members? *

- (●) YES
- ( ) NO

Additional Team Member

24

Team Member's Full Name *

Grayson Pacourek

25

Team Member's Department/Campus Affiliation *

Mechanical Engineering

26

Team Member's University Email Address *

gp20@illinois.edu

27

Do you have additional team members? *

- (●) YES
- ( ) NO

Additional Team Member

28

Team Member's Full Name: *

Mia Mikolajczak

29

Team Member's Department/Campus Affiliation: *

Materials Science & Engineering

30

Team Member's University Email Address: *

miamm2@illinois.edu

Project Questionnaire

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List your proposed project's timeline and major milestones. *

NOTE: SSC funding agreements remain active for two years. Thus, your timeline should reflect your activities over a two year period or less.

Illini Solar Car's 4th Generation Vehicle, Project D, is underway! We are currently conducting meetings with team leads and members to discuss the design of our next solar car and have begun manufacturing the mold for our shell. We estimate that the molds will be completed by January 2025, and the layups for our composite parts should be complete by early February. Additionally, the battery box and remaining vehicle components will be assembled in February. Afterward, for the next few weeks, during which we will apply the vinyl wrap, including the livery, and stickers of the logos of our sponsors to the car. Finally, the electrical system will be integrated into the car by April 2025. Mechanical integration and prototype testing will also take place during this time period. We will take a break from manufacturing Project D to race Calypso in the 2024 Formula Sun Grand Prix. Starting in August 2025, after the race, we will resume work on electrical and mechanical integration and continue troubleshooting various internal electrical and mechanical systems. We are currently targeting January 2026 to have all systems fully operational, allowing the team to test the vehicle extensively and make all necessary changes to improve operational reliability. Project D should be fully operational before Spring Break 2026, allowing the team plenty of time to undertake in-depth test drives to enable new drivers to become accustomed to the new vehicle and reduce downtime while competing in the Bridgestone World Solar Challenge 2026.

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Describe your project in detail. *

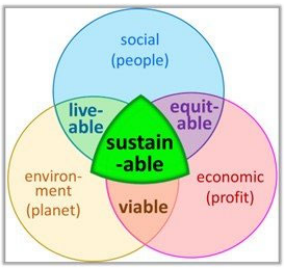
Be sure to address the following:
-What are your project's goals and how do you intend to accomplish them?
-What are your project's deliverables?

Illini Solar Car is a multidisciplinary student-led team that designs and builds road-legal solar-electric vehicles for the Bridgestone World Solar Challenge and American Solar Challenge. The team's goal, in a larger sense, is to build the world's best solar-electric vehicle as an example of future engineering innovation while simultaneously promoting sustainable technology. In our team's history, we have successfully developed and raced three vehicles: Argo, Brizo, and Calypso. After traveling over 1,500 miles, our most recent vehicle, Calypso, placed 4th overall with the 3rd most miles driven in the 2024 American Solar Challenge. After this spectacular success, our current goal is to design and manufacture a new, fourth-generation vehicle to race in the 2026 American Solar Challenge and the 2027 Bridgestone World Solar Challenge. These races are at the forefront of sustainable innovation, and the fierce competition demands teams to put their best foot forward.
Through the designing and manufacturing of the car, students learn to hone their engineering and manufacturing skills on a tangible product. The interdisciplinary learning across our four different subgroups, electrical, mechanical, strategy & telemetry, and business & marketing, gives students a glimpse into how these workforces operate in their respective fields in the real world.
Calypso will race for the final time this summer in the 2025 Formula Sun Grand Prix and will then be retired after the competition. However, the vehicle will continue to be used for outreach, raising awareness, and inspiring sustainable innovation for many years. As we build our new car in the future, "Project D," we will continue to promote innovative engineering & entrepreneurial education, push the boundaries of sustainable energy, and teach others in the community the extent of what renewable technologies are capable of.

33

Authentic sustainability consists of the overlapping area of 3 spheres: Environment, Society, and Economy.

Describe how your project addresses sustainability. *



Illini Solar Car addresses sustainability in several ways. The most important area sphere for the team is the environmental factor, which we constantly take into consideration. Our project thrives on the idea that we can build a vehicle that travels thousands of miles without the use of fossil fuels and natural gasses. At the heart of our team, we care deeply about the environment and are doing our part to create a cleaner, green future. Socially, we promote sustainability through our operations and events. We not only provide our members with various opportunities to nurture a lifelong interest in sustainability and engineering, but we further advance these principles by presenting at outreach events, including local schools, such as Edison Middle School, and University events, such as Sustainapalooza and Engineering Open House. We also have a significant fan base through external sources, including social media platforms. Finally, economically, we take steps to ensure we are financially viable; throughout our build cycle, we contract various companies and ask for unused materials, such as carbon fiber, for us to recycle within our vehicles, ensuring a steady flow of construction materials.

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How does your project promote and increase environmental stewardship at UIUC? *

If applicable, also address what the carbon, water, waste, and/or energy savings is associated with your project.

Illini Solar Car promotes and increases environmental stewardship at UIUC in various ways. We inspire our members to work with environmentally sustainable technologies and provide them with experiences that will be useful in their future endeavors. We also promote sustainability through outreach events, especially those connected with the University, such as Quad Day, Engineering Open House, and the Homecoming Parade. Additionally, by competing in competitions and allowing the University to be actively involved in the process, we allow for a much larger audience to be involved and educated. In terms of carbon savings, the team relies on a completely solar-powered design, eliminating all carbon emissions and greatly benefiting the environment.

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Does your project aim to advance one or more of the Illinois Climate Action Plan's (iCAP) objectives? If so, how?

A full list can be found here:
https://icap.sustainability.illinois.edu/objectives

Illini Solar Car embodies many of the central iCAP themes and objectives throughout our operations, as listed below:
2.3 Clean Energy Sources: The publicity of our team's cross-country races, paired with the emphasis on solar power, promotes the idea of a realistic future of clean energy.
3.3 Electric Vehicle Task Force: A fundamental aspect of Illini Solar Car is building an electric vehicle. Our team focuses on championing a future of electric, extraordinarily efficient vehicles.
6.1 Broaden Sustainability Education: One of the goals of Illini Solar Car is to emphasize innovations in sustainability and forward-thinking. The team helps to educate over 300 students from across the university on matters such as designing and building sustainable technologies. The project is also part of several sustainable outreach efforts, interacting with young students from local middle schools, the general public, and the campus community through events such as Engineering Open House and Green Quad Day. We also attended the Chicago Auto Show earlier this year, attracting thousands of visitors and educating them about the technology used in our vehicles. Through these events, we seek to promote and utilize sustainable energy and inform the public about the potential impacts of solar energy on our environment.
6.2 Sustainability Course Catalog: Beyond providing our members with experience, Illini Solar Car administers the ECE 217 course, which, through our advisor, explores the methods of building and driving a solar vehicle and includes sustainability-focused topics such as solar panels, power system optimization, aerodynamic efficiency, and battery usage.

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How many students will be directly impacted by this project? *

Over 300 students on the team will be impacted by this project, as they will be exposed to both the engineering and the non-engineering aspects of a team that designs, builds, tests, and races solar-powered vehicles.

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How many students will be indirectly impacted by this project? *

Our project will indirectly impact any students attending our outreach events (Green Quad Day, Sustainapalooza, Engineering Open House). Even though they are not a part of the team, they will learn about the work we do through one-on-one discussions. Those who follow our social media, such as Instagram, will also see the continued advancements of solar-powered technology from year to year, as the cars at Formula Sun Grand Prix, American Solar Challenge, and Bridgestone World Solar Challenge continue to get faster and travel farther.

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What is the intended student impact? *

Be sure to address the following:
-How will this project benefit students?
-How will students be involved with this project?
-What educational components are in your project?

Illini Solar Car provides unparalleled experiences for our students. Members of the team solve real-world problems and apply their education to hands-on projects by working with advanced, industry-standard hardware and software. We provide our members with the opportunity to develop their skills and prepare for future careers. As a team, we are committed to engaging students across disciplines with the same passion for sustainable thinking and innovation, regardless of major, experience level, or technical ability. We are enthusiastic about teaching everything our members need to know to be successful team members in our comprehensive onboarding process. This fall, we attracted more than 800 students to our information sessions, and a large portion completed onboarding. Our team is proud to be fully student-led and managed across all disciplines, including in races.
The races we participate in are unique opportunities for our members to prove their skills. Our events typically include a controlled track portion and a long road event where our team must work to keep our cars running for over 2000 miles using just solar energy. Since our first race in 2017, our team has established ourselves as a top competitor. We most recently raced in the 2024 Formula Sun Grand Prix (FSGP) and 2024 American Solar Challenge (ASC) against the best teams in the nation. We drove over 1,500 miles, the third most miles driven in the competition, and placed 4th overall. Race team members develop their problem-solving skills under high-pressure situations and grow their interpersonal skills by working closely with others for an extended period of time.
Working on our vehicles gives our members an incredible advantage in regard to projects and hands-on experiences. Recent team alumni have found jobs at Ford Motor Company, John Deere, Apple, NASA, Northrup-Grumman, SpaceX, Texas Instruments, Tesla, and many other prestigious companies.
This project also benefits students at the university but not on the team by moving solar energy forward. We innovate on engineering technology associated with solar energy and put it to the test when we drive for thousands of miles across the country on nothing but solar power, proving that a more sustainable and environmental future is already here.

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Have you spoken with anyone in UIUC's Facilities & Services (F&S) department regarding the feasibility of your project? *

- ○ YES
- ◉ NO

Project Finances

40

Has your project team or department previously been awarded funding from the SSC for the same or a similar project? *

- ◉ YES
- ○ NO

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What is the total amount of SSC funding received to date for the same or a similar project by the project team/department submitting this project ? *

The Student Sustainability Committee has funded Illini Solar Car for many build cycles throughout the years. We first received SSC funding in Spring 2015 for $3,295, then Fall 2015 for $4,913, Spring 2016 was $41,275, Fall 2019 was $35,500, Fall 2020 was $3,500, Fall 2021 was $15,000, and Fall 2023 was $62,000.

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If you receive SSC funding, will your project require additional sources of funding to achieve your project's overall goals? *

NOTE: SSC cannot guarantee financial support beyond that provided in an approved funding agreement.

- (●) YES
- ( ) NO

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Do you have a plan in place for obtaining additional funding from other sources? *

- (●) YES
- ( ) NOT YET
- ( ) N/A

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OPTIONAL: Attach any letters of commitment or support here along with any supplemental media that will support your application (presentations, photos, etc.).

EOH_Nikolin Deli.png

chicagoautoshow_Nikolin Deli.png

race_Nikolin Deli.png

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Download, complete, and submit the **SSC-Budget-Timeline-NEW APPLICATION-template** file linked below. Please be very detailed so that the SSC can fully evaluate the merit of your funding request.

https://studentengagement.illinois.edu/sites/default/files/2024-09/SSC-Budget-Timeline-NEW-APPLICATION-template.xlsx *

Fall 2024 SSC Budget Timeline Step 2_Nikolin Deli.xlsx