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Promoting educational excellence and engineering creativity, the American Solar Challenge (ASC) and Formula Sun Grand Prix (FSGP) are collegiate student design competitions. Teams from the US, Canada, and around the world design and build solar-powered vehicles within a set of regulations. Once at the event, these vehicles are put through a series of inspections, a process known as scrutineering. Teams that successfully pass scrutineering and qualify during the track event will then take on the 1500+ mile route to see America by National Historic Trail.





Scrutineering, where teams undergo rigorous inspections to ensure their vehicles meet all safety and design standards, begins at NCM Motorsports Park in Bowling Green, KY. Scrutineering includes checks on electrical systems, battery protection, mechanical integrity, and overall regulation compliance.

CHECK OUT THE ROUTE MAP >>>

JULY 16-18 ELECTREK FORMULA SUN GRAND PRIX

Electrek Formula Sun Grand Prix (FSGP) is a three-day track event at NCM Motorsports Park. Teams will compete to complete as many laps as possible within 24 hours of driving time. Each day features 8 hours of racing, with teams utilizing solar power to achieve maximum efficiency and speed. The FSGP serves as a qualifying event for the ASC, testing the roadworthiness and performance of each solar vehicle.

JULY 19TH BRIDGESTONE DISPLAY DAY

The Bridgestone Display Day and practicality judging at the Adventure Science Center in Nashville, TN is open to the public and allows spectators to view the innovative solar cars up close, meet the teams, and learn about the technology behind these cutting-edge vehicles.

JULY 20-27 ELECTREK AMERICAN SOLAR CHALLENGE

The main event, the Electrek American Solar Challenge, will take teams through Tennessee, Kentucky, Illinois, Missouri, Kansas, Nebraska, and Wyoming. The journey is designed to test the endurance and efficiency of the solar cars. Check out the American Solar Challenge Route Map for the full list of stops to catch the cars in your city.



The Formula Sun Grand Prix is not in any way associated or affiliated with the Formula 1 companies, FORMULA 1 racing, or the FIA Formula One World Championship.

US Collegiate
Solar Car



Representing a variety of universities and colleges, these teams have taken on the nominal 2-year project of designing, building, and testing a solar powered vehicle to prepare for competition. The teams are split into two classes for the events.



2 CLASSES

SINGLE-OCCUPANT VEHICLES (SOV)

- Smaller allowable solar array size
- Batteries are limited by weight
- No recharging via external sources (penalty would be incurred)
- any penalties incurred. (Ties are determined by the lowest overall elapsed time.)
- Seats 2 or more people



- Recharging via external sourcesis allowed and energy is metered
- Scoring is a combination of an energy efficiency score (peopledistance, time, and external recharging) and a practicality score
- Targeting an average speed of at least 35mph (ASC) and 30mph (FSGP)

PURDUE UNIVERSITY PURDUE SOLAR RACING



#1 - LUX

L x W x H: 5.00m x 1.00m x 1.20m

Weiaht: 170ka **Array:** 957.44W

Batteries: 5.2635kWh Lithium Ion (20kg) Motor: 1 Mitsuba DC brushless motor

in-wheel DD

Wheels: 3 GH Craft Carbon Fiber 16" Chassis: Moncoque Carbon Fiber

UNIVERSITY OF MICHIGAN UNIVERSITY OF MICHIGAN SOLAR CAR



#2 - ASTRUM

L x W x H: 5.00m x 1.20mm x 1.00mm Weight: 162.5kg

Array: 1000W

Batteries: 7.573kWh Lithium Ion Polymer

Motor: 1 Mitsuba BLDC Wheels: 3 S&S Die Aluminum 16"

Chassis: Moncoque Carbon

UNIVERSITY OF KENTUCKY



#3 - GATO DEL SOL VII

L x W x H: 3.75m x 1.90m x 1.24m Weight: 250kg

Array: 1012W

Batteries: 5kWh Lithium Ion (20kg) Motor: 2 Mitsuba 2096D3

Chassis: Right Hand Drive

Catamaran Aluminum Fiberglass Honeycomb



Wheels: 4 CWMA Aluminum 16"

Sandwhich Composite

MASSACHUSETTS INSTITUTE **OF TECHNOLOGY** MIT SOLAR ELECTRIC VEHICLE TEAM



#4 - GEMINI

L x W x H: 4.00m x 1.50m x 1.00m Weight: 440kg

Array: 1265W

Batteries: 13.662 kWh Lithium Ion (55.5kg) Motor: 2 Mitsuba 2096 D3

Wheels: 4 Nomura Aluminum 16" Chassis: Moncoque Carbon Fiber / Aluminum Honeycomb Composite

UNIVERSITY OF FLORIDA SOLAR GATORS



#5 - SUNRIDER

L x W x H: 5.00m x 1.00m x 1.50m Weight: 225kg

Batteries: 5kWh Lithium Ion (20kg) Motor: 1 Mitsuba

Wheels: 4 Custom Aluminum 16" Chassis: Space Frame 4130 Steel

UNIVERSITY OF CALIFORNIA BERKELEY CALSOL



#6 - EXCALIBUR

L x W x H: 4.82m x 1.60m x 1.31m

Weight: 223kg **Array: 1010W**

Batteries: 5.9kWh Lithium Ion (19.99kg) Motor: 2 Mitsuba M1096D-IIÌ

Wheels: 4 Custom Tubeless 16" Chassis: Composite Moncoque Carbon Main Chassis is Carbon Fiber

Sandwich Panels

DALHOUSIE UNIVERSITY DALHOUSIE SOLAR CAR TEAM (DAL SOLAR CAR)



#7 - NOVA

L x W x H: 5.00m x 1.50m x 1.10m

Weight: 250kg Array: 600W

Batteries: 5.29kWh Lithium Ion (19.3kg)

Motor: 1 Mitsuba BLDC Wheels: 4 Custom Aluminum 14"

Chassis: Monocoque Foam Core Laminate Carbon

THE UNIVERSITY OF TEXAS AT AUSTIN

LONGHORN RACING SOLAR



#8 - DAYBREAK

L x W x H: 4.49m x 1.48m x 1.25m

Weight: 310kg Array: 900W

Batteries: 5.241kWh Lithium Ion (19.64kg)

Motor: 1 Mitsuba Brushless AC Motor Wheels: 4 Shinko Aluminum 16' Chassis: 4130 Chromoly Steel

IOWA STATE UNIVERSITY



MULTI-OCCUPANT

VEHICLES (MOV)

#9 - ELIANA

x W x H: 4.97m x 2.10m x 1.12m

Weight: 476kg Array: 1187W

Batteries: 17.54kWh Lithium Ion (75kg)

Motor: 2 Mitsuba BLDC In-Hub Wheels: 4 Custom Aluminum 16" Chassis: Semi-monocoque Carbon Fiber

TEXAS A&M UNIVERSITY TEXAS A&M SOLAR CAR RACING TEAM



#12 - DUODECIM

L x W x H: 4.50m x 1.80m x 1.05m

Weight: 304kg **Array: 1000W**

Batteries: 5kWh Lithium Ion (19.95kg) Motor: 1 Mitsuba 2096 DC brushless

Honeycomb Core

Wheels: 4 Xometry 7075-T6 Chassis: Composite Kevlar

MICHIGAN STATE UNIVERSITY MSU SOLAR RACING TEAM



#13 - CYNISCA

L x W x H: 4.34m x 2.00m x 1.25m

Weight: 760kg Array: 930W

Batteries: 4.92kWh LION (19kg) Motor: 2 Marand Hub Motor Wheels: 4 MikeXS Aluminum 16" Chassis: Spaceframe Chassis 4130

Chromoly Steel

STANFORD UNIVERSITY STANFORD SOLAR CAR PROJECT



#16 - AZIMUTH

L x W x H: 4.97m x 1.20m x 0.95m

Weight: 1250kg

Batteries: 5.022kWh Lithium Ion (19.58kg) Motor: 1 Mitsuba DC brushless motor

Wheels: 4 Bridgestone Machined 6061

Chassis: Composite Panels, Carbon



OR START YOUR OWN!

The field of universities with solar car teams continues to grow. The solar car project provides a great multi-disciplined experience for today's students that will become tomorrow's leaders. FSGP/ASC events are open to university/college teams from around the world. Join these universities and more at the next event!

Stay connected with the Electrek American Solar Challenge through our live standings and checkpoint updates! As teams travel from Tennessee to Wyoming, you can track their progress at each checkpoint, see the current standings, and get the latest updates on their performance. Keep up with the teams and check in on key moments as we provide up to date information on the competition's dynamics and each team's journey. Follow your favorite teams and witness the advancements in solar-powered vehicle technology as they unfold. For more details and live updates, visit AmericanSolarChallenge.org or scan the QR code.



ILLINOIS STATE UNIVERSITY ISU SOLAR CAR TEAM



#17 - MERCURY 6

L x W x H: 4.5m x 1.40m x 1.10m

Weiaht: 220ka **Array:** 800W

Batteries: 5.2kWh Lithium Ion (19.68kg)

Motor: 1 Mitsuba Hub Wheels: 4 Keisuke Nomura Carbon

Chassis: Moncoque Carbon Fiber

VIRGINIA TECH SOLARCAR AT VIRGINIA TECH



#21 - SUN GOBBLER

L x W x H: 4.50m x 1.85m x 1.23m

Weiaht: 323ka

Array: 960W Batteries: 5.165kWh Lithium Ion (19.89kg) Motor: 1 Aegean Dynamics 3-Phase

Wheels: 4 Custom Aluminum 16"

Chassis: Space Frame 4130

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN ILLINI SOLAR CAR



#22 - CALYPSO

L x W x H: 5.00m x 1.20m x 1.06m

Weiaht: 180ka **Array:** 1071W

Batteries: 5kWh Lithium Polymer (19.40kg) Motor: 1 Mitsuba DC Hub Motor

Wheels: 3 GH Craft / Nomura Carbon Fiber / Aluminum 16'

Chassis: Moncoque Carbon Fiber Sandwich Panel

UNIVERSITY OF MINNESOTA UNIVERSITY OF MINNESOTA SOLAR **VEHICLE PROJECT**



#35 - GAIA

L x W x H: 4.95m x 1.92m x 1.19m

Weight: 500kg **Array:** 1220W

Batteries: 23.3kWh Lithium Ion (80kg) Motor: 2 Custom BLDC

Permanent Magnet
Wheels: 4 UMNSVP and Panther

Chassis: Moncoque Composite

MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY MISSOURI S&T SOLAR CAR DESIGN



#42 - INDEPENDENCE

L x W x H: 4.32m x 1.35m x 1.14m

Weiaht: 189ka Array: 595W

Batteries: 5.206Wh Lithium Ion (19.95kg)

Motor: 1 Mitsuba Wheel Motor Wheels: 4 Custom 7075-T6 Aluminum 16" Chassis: Car Carbon Fiber

GEORGIA INSTITUTE OF TECHNOLOGY GEORGIA TECH SOLAR RACING



#49 - SR-4 AURORA

L x W x H: 4.98m x 2.16m x 1.25m Weiaht: 592ka

Array: 1233W

Batteries: 14.3kWh Lithium Ion (80kg)

Motor: 2 GEM In-Hub Radial Flux Wheels: 4 EVOD Aluminum 16" Chassis: Semi-Moncoque Carbon Fiber

UNIVERSITY OF WATERLOO MIDNIGHT SUN SOLAR CAR TEAM



#24 - MSXV

L x W x H: 4.95m x 1.85m x 1.10m Weight: 220kg

Array: 920W

Batteries: 5.2kWh Lithium Ion (20kg) Motor: 1 Mitsuba M2096-III Wheels: 4 Custom Stema Punch & Die

Inc. 6061 Aluminum 16" Chassis: Space Frame 4130 Steel

UNIVERSITY OF BRITISH COLUMBIA UBC SOLAR



#26 - BRIGHTSIDE

L x W x H: 4.98m x 1.34m x 1.27m

Weight: 250kg **Array:** 482.56W

Batteries: 5.2635 kWh Lithium Ion (20kg) Motor: 12kW Mitsuba M2096-D3

(Brushless DC) Wheels: 4 Nova Machine Works LTD 7075-T6 16"

Chassis: Tubular Frame 4130 Steel

PRINCIPIA COLLEGE PRINCIPIA SOLAR CAR



#32 - RA XI

L x W x H: 3.90m x 1.80m x 1.07m Weight: 200kg **Array:** 800W

Batteries: 4.5kWh Lithium Polymer (20kg) Motor: 2 Mitsuba BDLC Hub Motor Wheels: 4 GH Craft Carbon Fiber 16" Chassis: Space Frame Chromoly Steel

POLYTECHNIQUE MONTRÉAL **ESTEBAN**



#55 - ESTEBAN 11

L x W x H: 4.92m x 1.81m x 1.04m

Weight: 330kg **Array: 1218W**

Batteries: 9.216kWh Lithium Ion (47kg) Motor: 2 M2096D-III Mitsuba

Hub Motors

Wheels: 4 Nomura Carbon Fiber Rims 16" Chassis: Moncoque Carbon Fiber

FLORIDA POLYTECHNIC UNIVERSITY

FLORIDA POLY PHOENIX RACING



#79 - SPARK MK1

L x W x H: 4.80m x 1.70m x 1.40m

Weight: 250kg Array: 900W

Batteries: 4.611kWh Lithium Ion (18.90kg) Motor: 1 Mitsuba M2096-III Hub Motor

3 Volkswagen Steel front, Wheels: Nomura Aluminum rear 16"

Chassis: Tubular Frame 4130 Chromoly Steel

UNIVERSITY OF VIRGINIA SOLAR CAR AT UVA



#87- RIVANNA 2S

L x W x H: 4.95m x 1.27m x 1.08m Weight: 320kg

Array: 600-800W

Batteries: 5.016kWh Lithium Ion (20kg) Motor: 1 Mitsuba Brushless Motor

Wheels: 4 Bridgestone Rubber 14" Chassis: Steel Space Frame 1" 1020

Steel Tubes



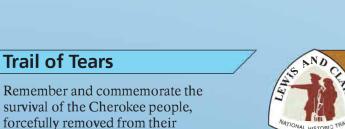
National historic trails paint a colorful picture of our nation's diversity and history. The trails follow historic routes used for exploration, migration, struggle, trade, and military action.

Along the way you will visit historic sites, walk trails, float waterways, visit parks, and see America.

The Electrek American Solar Challenge 2024 follows portions of seven national historic trails and Route 66 from Nashville, Tennessee, to Casper, Wyoming.



Scan for more information including host locations, event schedules, and national historic trails sites to visit along the route. Or visit: go.nps.gov/SolarChallenge





Travel in the footsteps of trail hands who hitched their oxen to freight wagons carrying cargo between western Missouri and Santa Fe, New Mexico. www.nps.gov/SAFE

homelands in 1838-1839.



Lewis and Clark

Follow the trail to find the people, places, and stories that make up the complex legacy of the 1803 - 1806 expedition.

www.nps.gov/LECL



Mormon Pioneer

Explore the 1,300-mile route traveled by Mormons who fled Nauvoo, Illinois, to the Great Salt Lake Valley in 1846-1847.

www.nps.gov/MOPI



Pony Express

Casper, WY July 27

Finish

Gering, NE

July 26 & 27

Ride along with the young men who carried mail from Missouri to California in just 10 days in this practical means of east-west communication.

Kearney, NE

Beatrice, NE

July 24

July 25

www.nps.gov/POEX



Oregon

Retrace 2,000 miles of overland travel, viewing trail ruts and other reminders of the sacrifices, struggles, and triumphs of western expansion.

www.nps.gov/OREG



Independence, MO

July 23

St. Joseph, MO July 23 & 24

Jefferson City, MO

California

Edwardsville, IL

Paducah, KY

Nashville, TN

July 19 & 20

Start

July 20

July 21 & 22

Catch "gold fever" and see what drew 250,000 emigrants to the gold fields and rich farmlands of California during the 1840s and 1850s.

www.nps.gov/CALI



Route 66

Discover the Mother Road through historic places and reminders of the influence of the autombile on our lives and nation today.

www.nps.gov/subjects/travelroute66







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Visit us online at **Electrek.co**.





HOW DO SOLAR CARS WORK?

Solar cars use photovoltaic cells to convert sunlight into energy. This energy powers an electric motor to make the car go or can be used to charge batteries to store energy for those not-so-sunny days.

IS THE FIRST TEAM ACROSS THE LINE THE WINNER?

Not necessarily. The winner of the single occupant vehicle class is determined based on the official mileage completed across all stages of the event, including optional loops and reduced for any penalties incurred. For the multi-occupant vehicle class, additional considerations of energy efficiency and practicality factor into the overall score.

HOW FAST CAN THE SOLAR CARS GO?

Teams must obey posted speed limits, and regulations limit the cars to 65 mph for the event. During testing, some solar cars have reportedly reached speeds of

WHAT ABOUT CLOUDY DAYS?

Solar cars carry batteries that can be charged using the solar cells on the car. When facing clouds or needing extra power, the car uses this stored energy. Hence, the solar cars can continue to drive in the clouds and rain, although likely at a slower speed to conserve energy.

THANK These events would not be possible without the time and dedication of our incredible volunteers. From event staff and observers to jury members and MOV judges, their

MEET THE TEAMS

ÉCOLE DE TECHNOLOGIE **SUPÉRIEURE** ÉCLIPSE



#92 - ÉCLIPSE XI

L x W x H: 4.50m x 1.50m x 1.10m Weiaht: 200ka

Array: 1000W Batteries: 5kWh Lithium Ion (20kg) Motor: 1 Marand Electric Machines Axial

Wheels: 4 GH Craft Carbon Fiber 16" Chassis: Moncoque Carbon Fiber

UNIVERSITY OF WESTERN ONTARIO SUNSTANG



#96 - ICARUS

L x W x H: 4.95m x 1.27m x 1.08m Weiaht: 320ka

Array: 600-800W Batteries: 4.9kWh Lithium Ion (30kg) Motor: 1 Mitsuba Brushless Motor Wheels: 4 Bridgestone Rubber 14" Chassis: Steel Space Frame 1" 1020 Steel Tubes

MCMASTER UNIVERSITY MCMASTER SOLAR RACING



#116 - ORIGIN

L x W x H: 4.11m x 1.96m x 1.17m **Weight:** 475.74ka **Array:** 991.2W

Batteries: 18.29kWh Lithium Ion (95kg) Motor: 2 Mitsuba 3-phase motor Wheels: 4 MMRI 7075 Aluminum 16" Chassis: Tube Frame 4130N Steel

THE OHIO STATE UNIVERSITY **BUCKEYE SOLAR RACING**



#614 - FARASII II POWER BY **INFRA METALS**

L x W x H: 4.47m x 1.72m x 1.30m

Weiaht: 347.91ka Array: 979.77W

Batteries: 5.153kWh Lithium Ion (19.85kg) Motor: 1 Mitsuba DC Brushless

Wheels: 4 Western Michigan University Chassis: Steel Tube-Frame Design 4130

UNIVERSITY OF THE PACIFIC **FIGRES DEL SOL**



#777 - MILAGRO

L x W x H: 3.81m x 1.40m x 1.52m

Weiaht: 185ka **Array:** 972.95W

Batteries: 4.824kWh Lithium Ion (20kg)

Motor: 1 QS Motors 3 phase Hub Motor Wheels: 3 Custom Aluminum with Carbon Fiber 14"

Chassis: MIG Welded Plain Carbon Steel

WESTERN MICHIGAN UNIVERSITY

contributions before, during, and after the event are invaluable to the solar car community. We

Email ascinfo@americansolarcarchallenge.org to join our team and make a difference!

are deeply grateful for their unwavering support. Interested in volunteering for the ASC or FSGP?

SUNSEEKER SOLAR CAR PROJECT



#786 - SUNSEEKER 23

L x W x H: 4.90m x 1.35m x 1.12m Weiaht: 180ka

Array: 1000W

Batteries: 4.914kWh Lithium Ion (19.95kg) Motor: 2 Marand Integrated Hub

Wheels: 3 GH Craft Carbon Fiber 16" Chassis: Moncoque Carbon Fiber

MONTANA STATE UNIVERSITY BRIDGER SOLAR TEAM



#406 - LUMINOUS LEMON

L x W x H: 4.87m x 1.68m x 1.40m Weight: 230kg

Chassis: Welded 6061 Aluminum

Array: 800W

Batteries: 5.19kWh Lipo (20kg) Motor: 1 Mitsuba Brushless AC 3-Phase Wheels: 4 Shinko Aluminium 16'

KENNESAW STATE UNIVERSITY **SOLAR VEHICLE TEAM (SVT)**



#505 - KENNESAW SOLAR RACER (KSR)

L x W x H: 5.00m x 1600m x 1.40m Weight: 275kg **Arrav: 892**W

Batteries: 4.942kWh Lithium Ion (19.97kg) **Motor:** 1 Motenergy PMAC Wheels: 3 Kawasaki Casted Aluminum &

Chassis: Space Frame 4130 Steel

Steel 17

UNIVERSITY OF WISCONSIN-MADISON **BADGER SOLAR RACING**



#608 - HELIOS

L x W x H: 4.95m x 1.35m x 1.28m Weight: 245kg **Array:** 970W

Batteries: 4.9kWh LiPo4 (35.5kg) Motor: 1 Mitsuba DC Brushless in-wheel DD

Wheels: 4 Nomura Aluminum 16" Chassis: Sandwich Panel Carbon Fiber

APPALACHIAN STATE UNIVERSITY **TEAM SUNERGY**



#828 - ROSE

L x W x H: 4.74m x 2.10m x 1.24m Weight: 500kg

Array: 1212W

Batteries: 22.5kWh Lithium Ion (122.4kg) Motor: 2 Mitsuba M2096-D3 Wheels: 4 Costum 7075 Aluminum 16"

Chassis: Honeycomb Sandwich Panel Carbon/Kevlar

Win \$10,000 in the Altair Challenge



Registered Teams will have the opportunity to compete in the Altair Challenge during Scrutineering and FSGP for a chance to win \$10,000 or other prizes! Find out more at the American Solar Challenge website.



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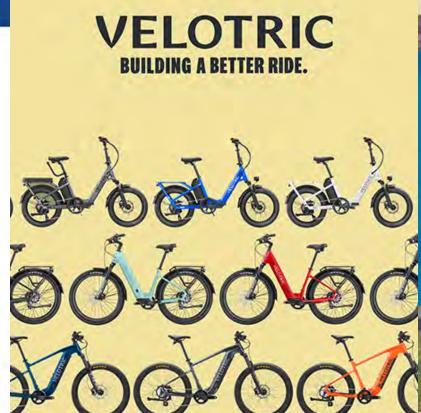
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#1 Purdue University

#2 University of Michigan

#3 University of Kentucky

#4 Massachusetts Institute of Technology

#5 University of Florida

#6 University of California, Berkeley

#7 Dalhousie University

#8 The University of Texas Austin

#9 Iowa State University

#12 Texas A&M University

#13 Michigan State University

#16 Stanford University

#17 Illinois State University

#21 Virginia Tech

#22 University of Illinois Urbana-Champaign

#24 University of Waterloo

#26 University of British Columbia

#32 Principia College

#35 University of Minnesota

#42 Missouri University of Science and Technology

#49 Georgia Institute of Technology

#55 Polytechnique Montréal

#79 Florida Polytechnic University #87 University of Virginia

#92 École de Technologie Supérieure #96 University of Western Ontario

#116 McMaster University

#406 Montana State University

#505 Kennesaw State University

#608 University of Wisconsin-Madison

#614 The Ohio State University

#777 University of the Pacific

#786 Western Michigan University

#828 Appalachian State University



ABOUT THE ORGANIZERS

Innovators Educational Foundation (IEF) is a 501c3 nonprofit that organizes the US collegiate solar car events. IEF is made up of a core group of dedicated volunteers, mostly former competitors, that know first-hand the value of a hands-on, multidisciplinary, innovative project to the educational experience.

In addition to experiential learning, these solar car events promote energy efficiency and raise public awareness of the capabilities of





