

Sustain SoCal & ENGIE Climate Change Design Challenge

Climate change introduction

(from [NEED.org](https://www.need.org/))

“Scientists all over the world are studying the effects of increased levels of greenhouse gases in the Earth’s atmosphere. The overwhelming majority of scientists agree the greenhouse gases are trapping more heat in the atmosphere as levels increase. They have collected data to show that the average temperature of the Earth is beginning to rise. This phenomenon is called global warming.

Scientists at NASA, the National Aeronautics and Space Administration, have found that the average temperature of the Earth has risen by more than 1°C (1.8°F) since 1880. They assert this increase in global temperature is the major cause of a 21-24 centimeter rise in the sea level over the same period of time.

Climate change experts predict that if the temperature of the Earth rises just a few degrees Fahrenheit, it will cause major changes in the world’s climate. They predict there will be more floods in some places and more droughts in others. They believe the level of the oceans will rise as the ice at the North and South Poles melts. They think there might be stronger storms and hurricanes. Some of these effects are already visible today.

Climate experts are urging countries all over the world to act now to lower the amount of carbon dioxide that is emitted into the atmosphere. Scientists and politicians agree that we should reduce the amount of fossil fuels that we burn. The solutions being implemented include reducing CO2 emissions from transportation and electricity by switching to less carbon intensive fuels. Experts around the world are trying to find ways to lower greenhouse gas emissions without causing major impacts on the economy.”

Watch This video for a quick overview:

<https://ed.ted.com/lessons/climate-change-earth-s-giant-game-of-tetris-joss-fong>

Background Reading

For more detailed and scientific information about climate changes, its causes, and its impacts, please read this [document from NEED.org](#).

Design Challenge Brief

In this inaugural challenge, your team will research climate change, its causes, and its impacts. You will decide whether you want to work on a project that **mitigates** the climate change or **adapts** to it.

Climate Mitigation involves reducing the severity or seriousness of the problem of climate change. Potential climate change mitigation could include creating more fuel-efficient vehicles or using renewable energy to reduce greenhouse gas emissions and reduce or slow the increase in global temperatures. **Climate Adaptation** is taking action to allow us to continue our way of life in as the

impacts of climate change reach us. Adapting to climate change in an urban area might be upgrading sewer systems to manage increased loads due to severe rainfall or seawater intrusion. [Watch this video](#) to better understand the differences between mitigation and adaptation.

Whichever path your team chooses- mitigation or adaptation- your design will need to be relevant and useful to your community- Orange County, your city, neighborhood, or even your high school campus. You will write a Recommendation Report that will explain your innovation and how it will impact your community and present your findings to your peers and members and other stakeholders of [Sustain SoCal and the Sustain OC Foundation](#).

Resources

Your team will need to conduct research specific to your project, but we have gathered some general climate change resources about causes and impacts of climate change to help you begin and possibly decide what your project might be.

[Additional Resources](#)

Who is eligible to participate

- Students from each High School District/Private High School in Orange County can submit one team to participate in the challenge.
- Team size can be up to eight students.
- All students on the team must be enrolled in an Orange County High School between August 2023 and June 2024.

Benefits and resources for participating students

All participants:

- All teams and students who complete the Preliminary Presentation will receive a digital certificate of participation and proposal completion.
- Opportunity to interact with participating students across the county.
- Opportunity to meet and speak with OC Clean and Green Tech leaders.

Finalists:

- All of the above, plus:
- Project coordinator from a Sustain SoCal member organization.
- \$500.00 to produce a prototype or model of your solution.
- Digital certificate of Finalist status in the Challenge.
- Chance to interact with other OC students interested in climate change throughout the process.
- Meet and network with leading Clean and Green Industry leaders in OC.

Winning Team:

- All of the above, plus:
- Recognition Plaque for the School of the Winning Team(s).
- \$3,000.00 Team Scholarship.

- Summer internship with one of the Sustain SoCal member organizations.

Timeline & Process

| Stage of Challenge | Deliverables | Due Date |
|-------------------------------|--|------------------------------------|
| Initial Communication | | |
| | Initial outreach letter from Sustain SoCal and ENGIE to Districts and Schools | July - September 2023 |
| Proposals | | |
| | Complete the linked interest form to register for the Challenge | December 15, 2023 |
| Initial Presentation | | |
| | Submit written report | February 1, 2024 |
| | In person live networking and presentations by participating teams at UCI Beall Applied Innovation | February 9, 2024 5:00 – 7:00 pm |
| Finalists Announced | | February 15, 2024 |
| Final Presentation | | |
| | Submit written report and PPT | May 8, 2024 |
| | In person live presentations by finalist teams. Location to be announced | May 13, 2024 |
| Winning Team Announced | | May 22, 2024 |

About Us

Why are we doing this?

Sustain SoCal, ENGIE and other strategically aligned organizations are looking to create a strong pipeline of innovators, engineers, and entrepreneurs to lend their skills and strengths to the multitude of Clean and Green employers in the region. We are hoping to inspire youth to address the various causes and impacts of climate change here in Southern California that will have impacts world-wide.

[Sustain Southern California \(Sustain SoCal\)](#) accelerates cleantech economic growth and sustainability initiatives through innovation, collaboration, and education. Our organization has a long history of exploring and implementing pragmatic, real-world solutions to the challenges created by growth, change and inefficiency that face Southern California and beyond. www.sustainsocal.org

[ENGIE North America](#) We're on a mission to shape a sustainable future built on clean, affordable, resilient energy and the infrastructure that supports it. Our team of 6,500 employees are leaders in advancing the transition to a carbon-neutral North America. Along the way, we are creating jobs, economic opportunities and trusted community and customer partnerships. www.engie-na.com.