

***December 3, 2019 – For immediate release***

**MIT technology powers new, accessible climate solutions simulator**

*Online interface simulates 100 years of energy, land and climate data in less than one second to identify solutions to limit warming to within 2 degrees Celsius by 2100*

**Cambridge, MA**, **December 3, 2019** —The [**Sustainability Initiative**](https://mitsloan.mit.edu/sustainability/) at the [**MIT Sloan School of Management**](https://mitsloan.mit.edu/) and [**Climate Interactive**](https://www.climateinteractive.org/) today launched a free, user-friendly version of their [**En-ROADS climate solutions simulator**](https://climateinteractive.org/tools/en-roads/), which enables users to explore the impact of policies that will help limit global warming to no more than 2 degrees Celsius through 2100 with the goal of avoiding irreversible damage to the environment, global economy, and public health. The new software allows people with all levels of technical skills to simulate the interactions among energy, land, and climate through the end of the century in less than one second.

While such tools have previously been developed for climate modelers and analysts, En-ROADS, a system dynamics model, is designed for policy makers, leaders in business and civil society, educators, and those interested in identifying high-leverage climate solutions.

“Research shows that showing people research doesn’t work” says [**John Sterman**](https://mitsloan.mit.edu/faculty/directory/john-d-sterman), professor of [**System Dynamics**](https://mitsloan.mit.edu/faculty/academic-groups/system-dynamics/about-us) at MIT and faculty director of the MIT Sloan Sustainability Initiative. “En-ROADS allows people to learn for themselves by exploring how the policies they choose affect the energy system and climate. Users get instant results, allowing them to experiment with a wide range of assumptions and policies that can help limit global warming and build a healthy, prosperous future in which all people can thrive.”

Through an intuitive interface, users move sliders to simulate the implementation of policies to reduce global greenhouse gas emissions. Options include policies affecting global energy demand from transportation and industrial, residential and commercial buildings; energy production from coal, oil, gas, biomass, renewables, and nuclear; emissions from deforestation, agriculture and land use; deploying technologies to remove carbon dioxide from the atmosphere; and even future economic growth. Graphs show the results immediately, including global warming, greenhouse gas emissions, energy demand, production, and prices, along with many other outcomes.

An advanced mode allows users to set policies more precisely, such as the price of carbon, subsidies for efficiency or new technologies, and potential technical breakthroughs. All climate scenarios are sharable through social media and email.

Users can also vary a wide range of assumptions about the climate, economy and energy system, to see for themselves how sensitive their results are to uncertainty. In the background, En-ROADS simulates a system of non-linear differential equations representing the climate-energy-economic system.

The model complements, and is calibrated and tested against, other larger and more disaggregated energy and climate models such as those in the [**Energy Modeling Forum at Stanford**](https://emf.stanford.edu/about) **University**, and those creating the [**Shared Socioeconomic Pathways**](https://www.sciencedirect.com/science/article/pii/S0959378016300681), which are designed for use by researchers doing detailed analysis. Behind the simulator is an extensive study of the literature of important factors such as delay times, [**experience curves**](https://www.tutor2u.net/business/reference/the-experience-curve), price sensitivities, historic growth of energy sources, and energy efficiency potential.

“Powerful simulators have fueled climate wonks for decades. This one works for users ranging from corporate CEOs and policy makers to smart eighth graders,” says [**Andrew Jones**](https://www.climateinteractive.org/about/staff/#Drew), co-founder and co-director of Climate Interactive.

Jones says that a number of business leaders and politicians from both political parties have had the opportunity to review En-ROADS in its beta phase and reported interest in more in-depth exploration. Simulation results from earlier versions of En-ROADS, he says, have counseled Heads of State, bipartisan U.S. Congress members, and companies such as [**Total**](https://www.total.com/en)**,** [**Equinor**](https://www.equinor.com/en.html)**,** and [**HSBC**](https://www.us.hsbc.com/), among others.

“This is a tool for grounded hope,’ says Jones. “While there is no magic bullet to reverse climate change, we can still avoid its worst effects. En-ROADS allows people to build pathways to do so and discover new ways of framing the conversation.”

Sterman compares En-ROADS to simulators used in other settings. “Pilots learn to fly a new jet in simulators before going up in the real thing,” he says. “Surgical teams learn to work together in medical simulations. Power plant operators learn to handle potential emergencies in simulators. In these settings, and for climate change, failure is not an option. The En-ROADS simulator enables people to learn for themselves what it will take to avoid the worst consequences of global warming before it’s too late.”

Prof. Sterman, Jones and the team at Climate Interactive designed and lead the Climate Action Simulation, a group role playing activity where participants take on the roles of leaders in business, civil society, and government. Teams represent different groups who convene to negotiate agreements and policies to limit global warming. Participants propose and negotiate over different policies such as carbon prices, subsidies for low-carbon energy, energy efficiency standards, and investments in R&D, among others. Their proposals are then tested in En-ROADS, providing participants with science-based feedback on their policy and investment proposals.

A [**suite of materials**](https://www.climateinteractive.org/tools/en-roads/) can be downloaded for free to support people interested in using En-ROADS and running the role play in academic, business, and policy settings. An extensive reference guide to understanding the underlying equations is available as well to help users better understand the model.

The Climate Action Simulation builds on the successful [**World Climate International negotiation game**](https://www.climateinteractive.org/tools/world-climate-simulation/) developed by the MIT Sloan Sustainability Initiative and Climate Interactive, where participants play the role of delegates to the annual UN climate negotiations. Since 2015, more than 62,000 people in 93 nations around the world have participated in role-playing in the World Climate game, with [**research**](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0202877)showing that this approach leads to significant gains in people’s knowledge of climate change, their belief that action is urgently needed, and their desire to take action in the real world.

Take part in[**live webinars**](https://attendee.gotowebinar.com/rt/4323038230869528333)**,** which will offer demonstrations of En-ROADS throughout the day on December 3, 2019. To register for additional webinar demonstration dates, please visit: [**https://www.climateinteractive.org/get-involved/webinars/**](https://www.climateinteractive.org/get-involved/webinars/)

**FOR REPORTERS**

* To explore En-ROADS please visit: [**https://en-roads.climateinteractive.org**](https://en-roads.climateinteractive.org)
* Live webinars demonstrating En-ROADS will be available throughout the day on December 3: [**https://attendee.gotowebinar.com/rt/4323038230869528333**](https://attendee.gotowebinar.com/rt/4323038230869528333)

* To register for additional webinar dates, please visit: [**https://www.climateinteractive.org/get-involved/webinars/**](https://www.climateinteractive.org/get-involved/webinars/)
* For a three minute video demonstrating many features of En-ROADS, visit: [**https://vimeo.com/325417845**](https://vimeo.com/325417845)

**INTERVIEW OPPORTUNITIES:**

* The Climate Interactive team will hold a press conference at the [**2019 United Nations Climate Change Summit COP25**](https://www.un.org/en/climatechange/) in Madrid at 12:30 CEST, December 3, UN, Room “MOCHA” in Hall 4. More information is available at: [**https://unfccc.int/cop25**](https://unfccc.int/cop25)
* **Andrew Jones**, co-founder and co-director of Climate Interactive, and **Ellie Johnston**, climate and energy lead, will be available for interviews in person or by phone in Madrid at the UN Climate Change Summit from December 3 through 12, 2019. Please call +1-828-231-4576 or email **apjones@climateinteractive.org** to set up.
* **MIT Sloan Prof. John Sterman,** co-creator of En-ROADS, is available for interviews. He can also take reporters through an En-ROADS climate simulator demonstration upon request through [**GoToMeeting**](https://www.gotomeeting.com/). Please contact MIT Sloan Media Relations to set up an interview (see contact information below).

The mission of the [**Sustainability Initiative at MIT Sloan School of Management**](https://mitsloan.mit.edu/sustainability/) is to deliver the best education, apply academic rigor to real world challenges, and empower leaders everywhere to take action, professionally, and personally, so that humans and nature can thrive for generations to come.

[**Climate Interactive**](https://www.climateinteractive.org/)is a think tank that creates tools and resources to help people explore what it takes to address climate change. Climate Interactive provides unique tools and analysis that distill complex science and data into forms accessible to a wide range of audiences with computer modeling, systems thinking, organizational learning, and cutting-edge facilitation practices.

*The MIT Sloan School of Management is where smart, independent leaders come together to solve problems, create new organizations, and improve the world. Learn more at* **mitsloan.mit.edu**

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