

Confronting the Challenges of our Time

Sustainability, Energy, and  
Environment Complex



# A new approach toward achieving a sustainable future

Our most critical challenge during this 21<sup>st</sup> century is to develop and maintain sustainable societies—to enable future generations to build upon the advancements of those who have come before. Unfortunately, there are no simple solutions to the challenges sustainability presents for us. Overcoming them will require scholars and researchers from many different fields working together across traditional academic boundaries.

The Sustainability, Energy, and Environment Complex (SEEC), to be situated on the East Campus at the University of Colorado Boulder, is designed to bring under one roof more than a dozen diverse programs and partners, drawing on top talent from CU-Boulder and neighboring federal laboratories. When completed, it will be a catalyst for learning, research, and innovation, ultimately establishing a national hub of resources and tools that will make a difference in the lives of people everywhere.



# Our long-term viability, at a crossroads

**We are at a critical point in time.** Everything we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Yet our global supply of natural resources and ecosystem services is declining, as demand for these resources is escalating. Currently, nearly all the world's farmable land and more than half of the available freshwater is being used. Energy consumption is at an all-time high.

What does the future hold? Multidisciplinary research and collaboration will be required to find new scientific and technological innovations, and to envision and create adaptive solutions.

## **These solutions will require comprehensive awareness and study of issues such as:**

- The interplay between industrialization and global population growth
- The increased demand for reliable supplies of freshwater, food, and other essentials
- Renewable energy, “smart” materials, and effective knowledge systems
- The human dimensions that influence sustainable programs and practices
- Policy and governance that supports sustainable programs and behaviors
- Conservation of biodiversity and habitats
- The challenge of providing for global growth and equity in living standards without endangering the Earth's natural systems

Discoveries in these areas will help us make the decisions necessary to meet the needs of today and tomorrow's citizens will be met. **Now is the time to get ahead of the future.**



*“We are in a state of unsustainability, in terms of the size of global population and our per-capita use of resources. I’ve yet to meet anyone who doesn’t think everyone’s life should be better. But where will we get the food, water, energy, and other needs that will allow everyone to have the kind of life we enjoy? That, in a nutshell, is the challenge of sustainability.”*

**James White**, Professor of Geological Sciences, CU-Boulder Director, Institute of Arctic and Alpine Research (INSTAAR)

# An eye toward interaction and collaboration

Slated for 2015 completion, SEEC will bring online **430,000 square feet of research labs, offices, and teaching space**. Nearly one-third of this space will be newly built wet labs, featuring a new generation of analytical instruments and synthesis capabilities not currently available elsewhere on CU's campus. The remaining space, refurbished from an existing building, will be for teaching, programs, conferences, and community connections, as well as additional research labs.

SEEC will be designed with an eye toward interaction and collaboration, fostering **chance encounters that can generate sparks of discovery**—over coffee, or in the lobby after a public forum. It will be a flagship for CU's environmental cluster that accommodates a wide swath of populations—from undergraduate to graduate students, faculty educators to government researchers, industry analysts to citizens. It will bring together researchers and programs now scattered among 17 CU buildings—many of whose outdated features and declining conditions render them increasingly unsuitable for cutting-edge teaching and research.

Rare for a building on a university campus, SEEC will expand beyond traditional academic boundaries and host federal energy and environment researchers leveraging their immediate proximity to CU's world-class investigators. Their presence in the complex will help CU-Boulder researchers obtain federal grants and connect better with national innovation priorities.

## SEEC partners include:

### University of Colorado:

- Renewable & Sustainable Energy Institute (RASEI)
- Institute of Arctic and Alpine Research (INSTAAR)
- Environmental Studies Program (ENVS)
- Environmental Engineering (CEAE)
- Cooperative Institute in Research in Environmental Sciences (CIRES)
- Department of Atmospheric and Oceanic Sciences (ATOC)
- Center for the American West

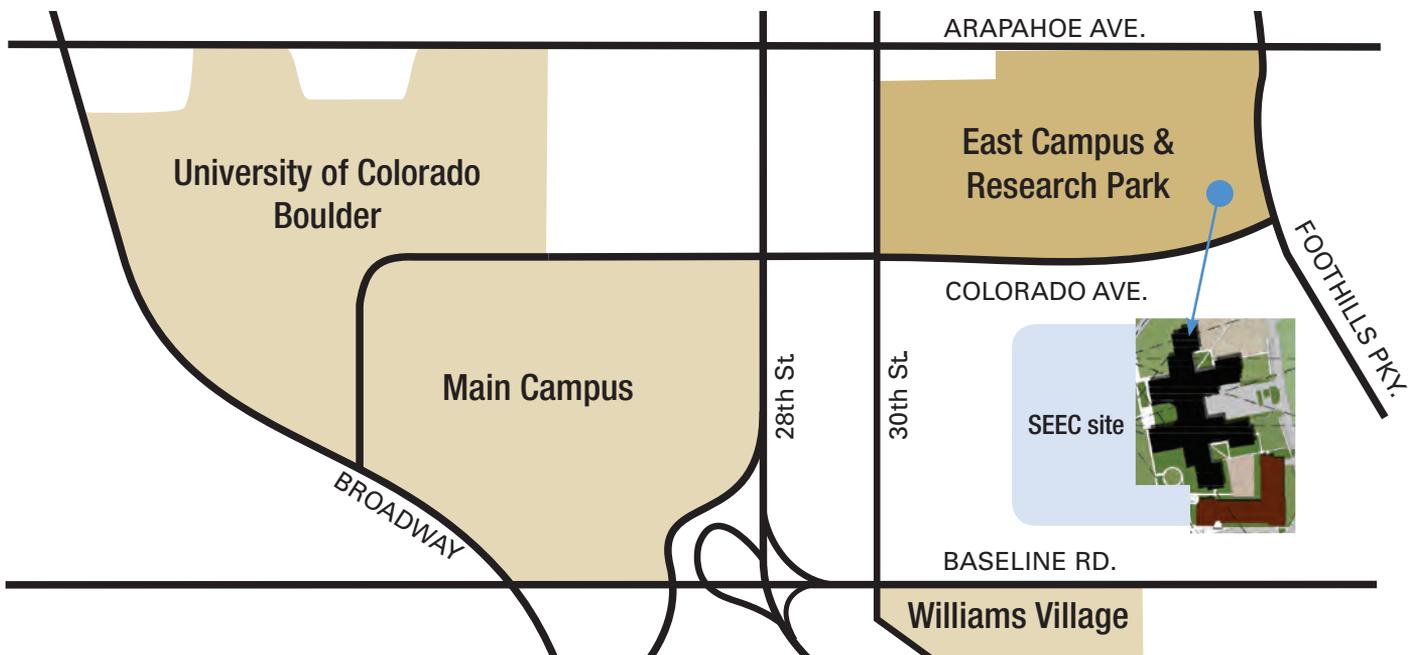
### Federal:

- National Renewable Energy Laboratory (NREL)

### Affiliated Federal Agencies:

- National Oceanic and Atmospheric Administration (NOAA)
- U.S. Geological Survey (USGS)

Situated at the corner of Foothills Parkway and Colorado Avenue, SEEC will join the communities of CU-Boulder expertise in biotechnology, space sciences, and other high-tech disciplines to establish a critical mass on CU-Boulder's East Campus. This project will help CU-Boulder recruit, retain, and educate the highest-caliber scholars and practitioners—since despite the university's exceptional programs, we risk losing our most accomplished and promising students and faculty to peer institutions with newer facilities. And it will help CU-Boulder better serve the fast-growing Front Range region and accommodate increased demand for highly educated workers and relevant research.



*“CU ranks in the top five in the earth sciences, ocean sciences, and atmospheric sciences. We are very successful, but it is important that we have facilities that do not cripple our success in winning funding from outside sources. We will lose our competitive ability if we delay building new facilities.”*

**Bob Sievers**, CU-Boulder Professor of Chemistry and co-founder, Aktiv-Dry



## A natural fit

Boulder has long represented great achievement and greater promise in the realms of environmental, energy, and sustainability. It is home to Colorado’s flagship public university, several major federal laboratories, and an active lifestyle that revolves around the outdoors.

CU-Boulder provides a broad range of intellectual resources. The university’s environmental legacy spans more than six decades, since the development of Conservation Education, its first environmental major, in 1951. Faculty members in related disciplines include a MacArthur fellow; a member of the National Academy of Engineering; several fellows of national science organizations; a NSF Career Award winner; and two NSF Young Investigator award-winners.

### **CU-Boulder accolades and assets include:**

- Faculty affiliated with CU’s National Snow and Ice Data Center shared the **2007 Nobel Peace Prize** for efforts on the Intergovernmental Panel on Climate Change
- CU-Boulder ranks **No. 1 worldwide in environmental publications** and citations
- Environmental sciences and environmental law programs earn **top-10 national rankings** by *U.S. News and World Report*, with earth sciences and environmental engineering programs ranking in the top 25
- **A remarkably engaged student body** that drives the CU Environmental Center, the nation’s largest and most accomplished student-run center of its kind
- The **Renewable and Sustainable Energy Institute (RASEI)**, a research institute created by CU-Boulder leaders in partnership with the federal National Renewable Energy Laboratory



## From Labs to Classroom to Real Life

Laboratories and classrooms are merely starting points for discovery. To unlock the true value of CU-Boulder discoveries, the public needs to benefit from new products, policies, philosophies, and processes.

Energy and environment are linchpins to our region's economy, and SEEC will improve our ability to partner with traditional and new energy companies on scalable, marketable innovations. Spinoff companies and patents are likely to increase as more companies such as **Clean Urban Energy**—co-founded by RASEI fellow Gregor Henze and based on technology developed at CU—emerge. This will attract venture capital, jobs, economic vitality, and household cost savings that will be reaped throughout the Front Range and beyond.



How much of the water in our local watershed originates in the Pacific Ocean, rather than the Gulf of Mexico or other sources? The **Climate Processes Research Group** at CU-Boulder is trying to find out. Members of the group have reached out to local schools and deployed students as water-spotters, gathering rainwater from diverse locations. The chemistry of the water is then analyzed isotopically—engaging students in hands-on environmental research at an early age, and yielding insights on how water moves through our local landscapes. This effort was the basis for the awarding of the Presidential Early Career Award for Scientists and Engineers to CIRES Fellow David Noone, who heads the research group.



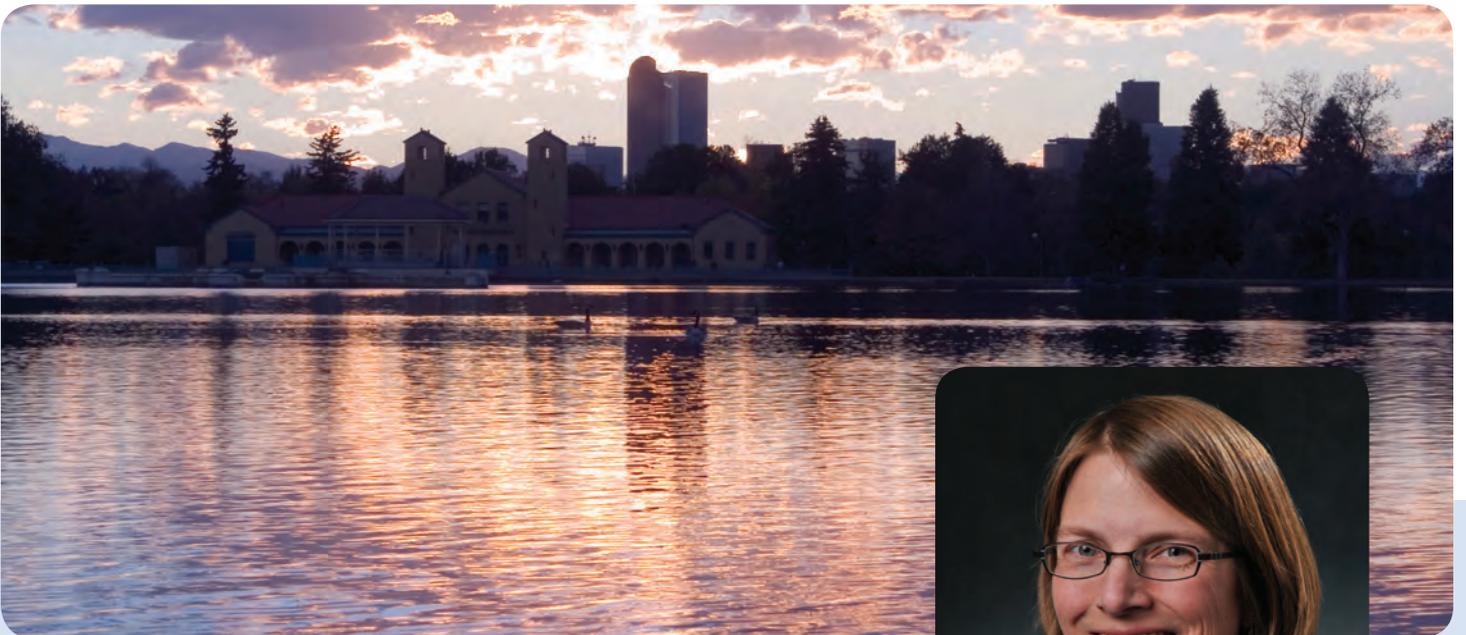
# Your Support Will Fuel Our Success

**Private support is a key component to helping fund the completion of the complex.**

Now is the time to address the challenges of sustainability, energy, and the environment by educating the leaders of tomorrow, and by maximizing the potential of the talented individuals currently working toward solutions. The complex will ensure the University of Colorado Boulder's position as a leader in this arena.

You can help build SEEC. Numerous naming opportunities are available, ranging from classrooms to labs to the complex as a whole. We are happy to work with you to match your passions with our priorities.

Throughout the Rocky Mountain West, we see evidence of what we're fighting for. Fresh water and beautiful vistas. People navigating our streets and trails by bike or by car; on skis, ATVs, or foot. If we appreciate what we have, we must preserve and enhance it. By supporting the Sustainability, Energy, and Environment Complex, you can help us sustain the future at CU and beyond.



We must make our urban water infrastructure more resilient, to help city water systems better respond both to short-term drought and to long-term climate change. The **Interactions of the Drought and Climate Adaptation project (IDCA)**, a federally funded collaboration between CU and NOAA, incorporates researchers from the natural hazards, climate adaption, climate data, and water resource and policy communities. By working with a broad array of stakeholders across many disciplines, we ensure that our work—the kind of work SEEC will enhance—stays relevant in a rapidly changing context.



**Lisa Dilling**, assistant professor, environmental studies; IDCA project co-lead



*“CU is very much poised to be the world leader in the area of energy, environment, and sustainability. We’ve always been on the cusp, but the amplifying effect of this building will be substantial. Donors will be able to see the impact of an ability to get the very best students and faculty here, in no small part because of a new interdisciplinary complex. This is going to be a gem.”*

**Alan Townsend**

Professor of Ecology and Evolutionary Biology  
INSTAAR Fellow

To learn more about how you can make an impact on the Sustainability, Energy, and Environment Complex (SEEC), contact:

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