



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

# Urban Integrated Field Laboratories (Urban IFLs) Program Updates

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# SC's Statement of Commitment

**SC Statement of Commitment** outlines DOE's expectation for professional behaviors and our commitment to a safe, diverse, and inclusive environment. All participants are expected to read and agree to as part of their participation in the meeting.

**The DOE Office of Science (SC) is fully and unconditionally committed to fostering safe, diverse, equitable, and inclusive work, research, and funding environments that value mutual respect and personal integrity...**

...SC's effective stewardship and promotion of diverse and inclusive workplaces that value and celebrate a diversity of people, ideas, cultures, and educational backgrounds is foundational to delivering on our mission. Harnessing a diverse range of views, expertise, and experiences drives scientific and technological innovation and enables the SC community to push the frontiers of scientific knowledge for the betterment of America's prosperity and security.

Discrimination and harassment undermine SC's ability to achieve its mission by reducing productivity, discouraging or inhibiting talent retention and career advancement, and weakening the integrity of the SC enterprise overall. SC does not tolerate discrimination or harassment of any kind, including sexual or non-sexual harassment, bullying, intimidation, violence, threats of violence, retaliation, or other disruptive behavior in the federal workplace, including DOE field site offices, or at national laboratories, scientific user facilities, academic institutions, other institutions receiving SC funding, or other locations where activities funded by SC are carried out...

**...SC expects the scientific community, particularly those engaging in SC-sponsored activities, to always conduct themselves in a manner that is respectful, ethical, and professional.** This renewed commitment is part of SC's continuing effort to identify opportunities to improve its policies, practices, and communications in furtherance of its core values and its mission.

For the full SC Statement: <https://science.osti.gov/SW-DEI/SC-Statement-of-Commitment>



# What are Urban IFLs?

- ▶ Budget Initiative Launched in FY22
- ▶ Large multi-disciplinary, multi-institutional projects that emphasize the basic sciences of climate, environmental, ecological, and urban change affecting heterogeneous urban regions, with a view towards informing sustainable, resilient, and equitable solutions.
- ▶ Integrate research across three focus areas: spatial variabilities leading to microclimates and micro-environments, atmospheric composition and biogeochemical cycling, and quantifying equitable climate solutions
- ▶ Research combines new observations with high resolution and highly detailed urban modeling, where data generated by observations and models are used for scientific analysis.
- ▶ Provides opportunities to inspire, train, and support leading scientists from a variety of institutions, including minority-serving institutions, who have an appreciation for the global climate and energy challenges of the 21st century.

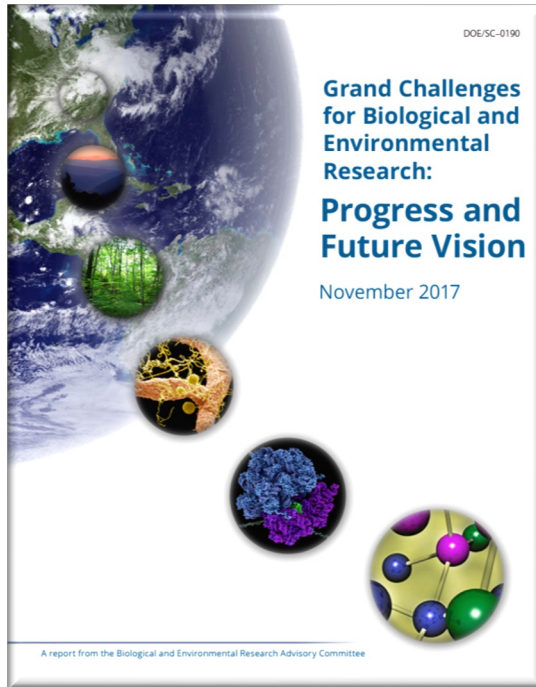


**Urban Landscapes.** Urban integrated field laboratories focus on climate-sensitive and highly heterogeneous locations having uneven distribution of physical landforms and vegetation, environmental processes, the built environment and infrastructure, population density, and socioeconomic clustering in the urban landscape, particularly when that heterogeneity relates to impacts on disadvantaged communities.





# Developing the Urban IFL Concept

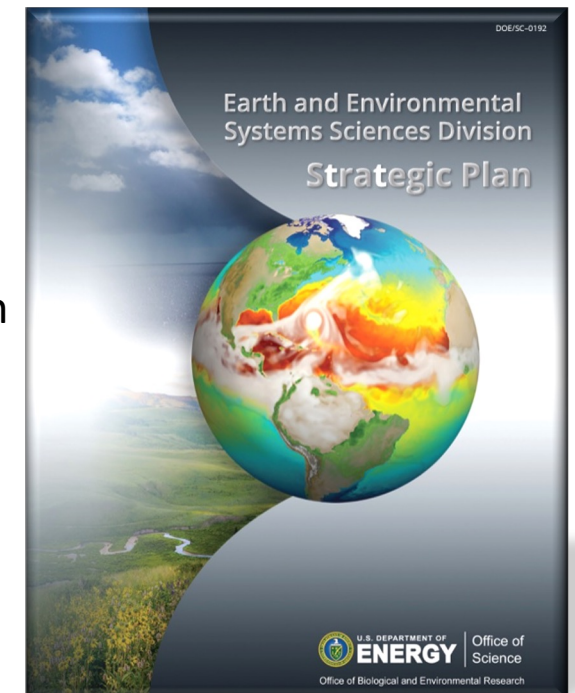


“Create **new integrated field laboratories** that target biogeochemical, energy, and water flows between urban areas and surrounding ecosystems.” (EESS Action Item, p. 6)

Research Need and Knowledge Gap: **Improve Human-Earth System Modeling Capabilities:** “human-Earth interactions at fine scales such as processes in urban population centers ...are not well represented in the current generation of models” (p.42)

“the intellectual home for fundamental research [on] the **interactions** and **interdependencies** of the atmospheric, terrestrial, subsurface, cryospheric, oceanic, and human-energy components of the Earth system.” (exec summary, p.iv)

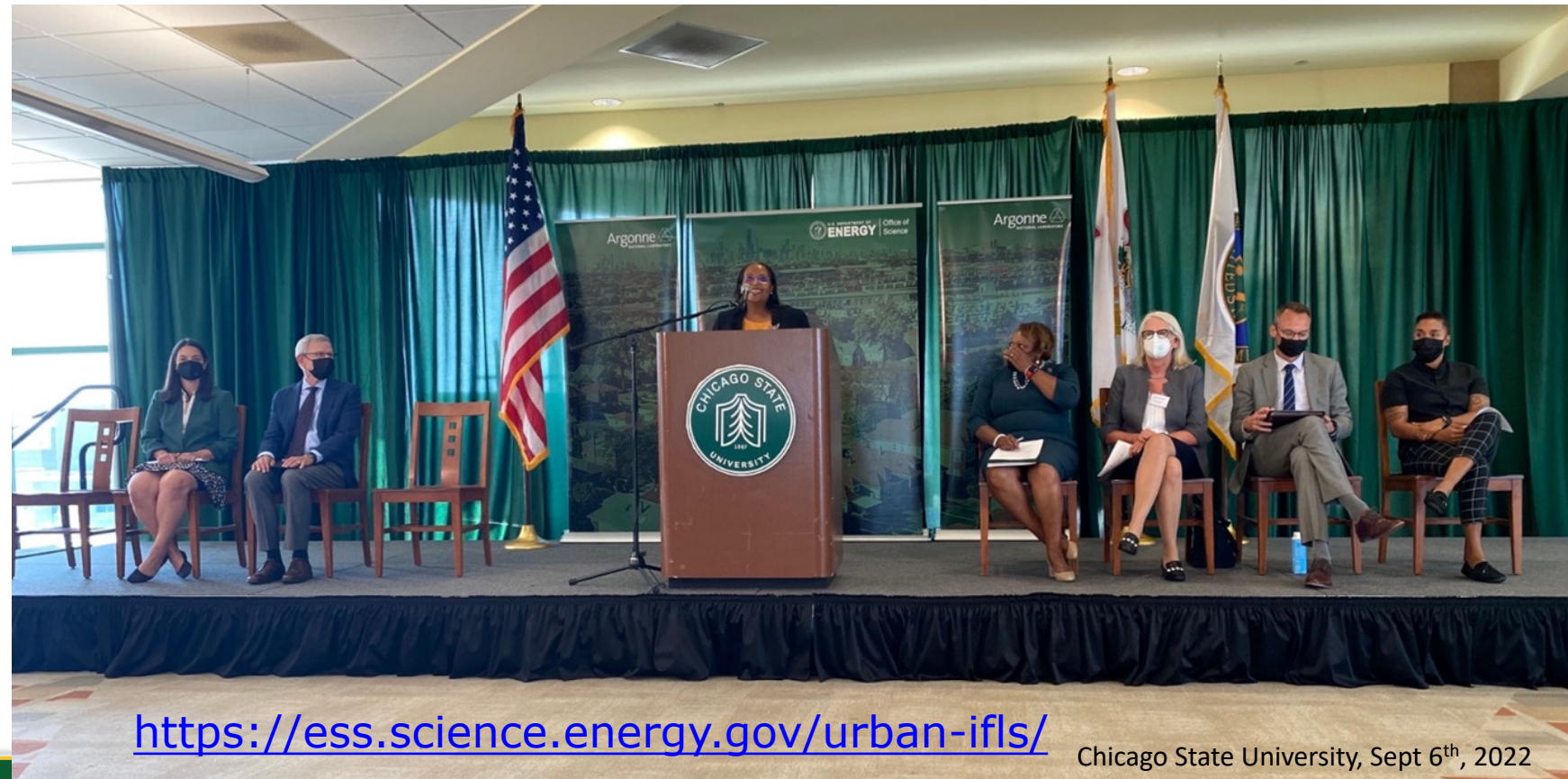
*\*References and links to these (and other) reports available in the FOA text*



# EESSD Division-Wide Solicitation: DE-FOA-0002581

To improve our understanding of climate and environmental predictability across complex and variable U.S. urban regions in highly heterogeneous, climate-sensitive locations with significant disadvantaged populations/neighborhoods (Justice40 communities)

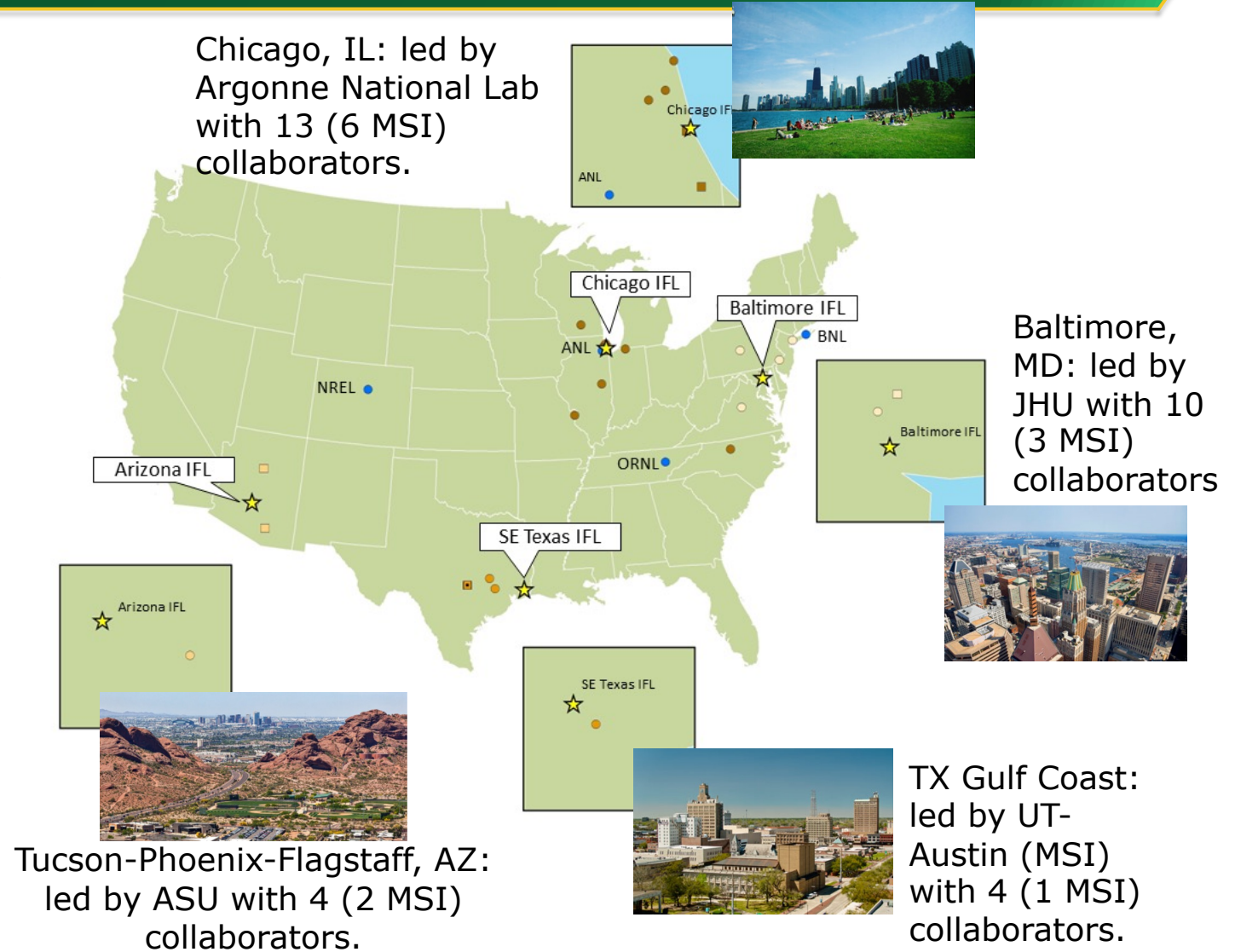
- Released March 23, 2022
- Closed June 16, 2022
- FY22 selections announced Sept. 6, 2022
- FY23 selection announced Nov. 7, 2022





# The Urban IFLs

- ▶ Three FY22 selections and one FY23 selection – totaling \$94M in awards over the projects' lifetimes (5 years), with 25 funded institutions across the four projects.
- ▶ Projects encompass interdependent environmental, ecological, infrastructure, and human components of their selected urban region.
- ▶ Each Urban IFL represents different aspects of understanding urban systems, including diverse demographic characteristics, differing climate-induced pressures on people and infrastructures, and unique geographic and climatic settings.
- ▶ Each project will develop specific innovations in observing and modeling urban systems and will leverage DOE capabilities as well as those from other agencies.
- ▶ Each project is strongly connected to their city through local and Minority Serving Institutions, community organizations, and previous history working with the communities involved.



# Communication, Collaboration, and Outreach

- ▶ **PI Meetings:**
  - ▶ Urban IFL Virtual Kickoff Meeting – Nov 2022
  - ▶ Breakout session at ESS PI Meeting – May 2023
  - ▶ Urban IFL PI Meeting – Sep 2023
- ▶ **Community Town Halls:**
  - ▶ AGU Town Hall – Dec 2022
  - ▶ AMS Town Hall – Jan 2024
- ▶ **Interagency Coordination**
  - ▶ IFL presentations to ACRS
  - ▶ IFL Presentations to USGCRP Working Groups
  - ▶ New USGCRP Urban Interagency Working Group

▶ BER website: <https://ess.science.energy.gov/urban-ifls/>



## Urban Integrated Field Laboratories

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Advancing the science underpinning understanding of the predictability of urban systems and their two-way interactions with the climate system, in order to provide the knowledge and information necessary to inform equitable climate and energy solutions that can strengthen community scale resilience across urban landscapes.



BSEC Baltimore



CROCUS Chicago



SETx SE Texas



SW-IFL Arizona

### News

- November 7, 2022 - DOE Announces Fourth Urban Integrated Field Laboratory
- September 6, 2022 - DOE Awards \$66 Million to Research the Impact of Climate Change on America's Urban Communities
- March 23, 2022 - Funding Opportunity: DE-FOA-0002581 – DOE BER Urban Integrated Field Laboratories

# Climate Resilience Centers (CRCs)

**VISION:** A network of climate resilience centers at HBCUs, MSIs, and Emerging Research Institutions (ERIs) for two-way translation of basic climate science towards equitable solutions



## ▶ **MISSION AND SCOPE:**

- ▶ Engage basic research from across the DOE complex to focus on local climate impacts, resilience, and equitable energy solutions.
- ▶ Resource and representation for local-level climate research.
- ▶ Leverages ongoing foundational investments in BER research.
- ▶ Identify basic science needs to inform future research priorities.
- ▶ Provides outreach, community engagement, training, and collaboration opportunities among participants and community level stakeholders.



# National Virtual Climate Laboratory (NVCL)



The screenshot shows the NVCL web portal homepage. At the top, there is a navigation bar with the NVCL logo on the left and the U.S. Department of Energy Office of Science logo on the right. Below the navigation bar, there are four menu items: HOME, RESEARCH, OPPORTUNITIES, and USER FACILITIES. The main content area features a large banner image with a collage of nature, a city skyline, and server racks. Below the banner, the NVCL logo and name are displayed, followed by a brief description of the portal's purpose. The page is divided into three columns under the heading "NVCL OBJECTIVES".

**1 CENTRALIZE ACCESS TO DOE CLIMATE RESEARCH**  
Offer a well-curated, easily accessible, plain-language inventory of DOE Biological and Environmental Research (BER) projects related to climate research and user facilities with continuously updated portal content.  
[VIEW RESEARCH »](#)

**2 LIST CLIMATE TRAINING OPPORTUNITIES**  
Provide students, faculty, and early career scientists access to lab-based education and training opportunities at the national laboratories, including coaching and mentoring opportunities in the skills they need to ensure success in their careers.

**3 ENCOURAGE COLLABORATIONS**  
Facilitate robust, self-sustaining collaborations between national laboratories and interested organizations, including colleges and universities that serve underrepresented students.

DOE's new portal (launched May 2023) will catalyze engagement with BER climate science, SC Scientific User Facilities, and DOE National Laboratory resources to train the next generation of climate scientists and professionals.

[NVCL.energy.gov](https://nvcl.energy.gov)

# Urban IFL PI Meeting Goals

- ▶ Update DOE management on IFL progress
- ▶ Share scientific and technical information and best practices between the IFL projects
- ▶ Foster and sustain collaboration among the IFL projects
- ▶ Identify potential collaborations with interagency efforts



# Meeting Logistics

- ▶ Meeting is hybrid – many virtual attendees & presenters; **use microphones** for questions & discussion
  - ▶ Using same Zoom link throughout meeting
  - ▶ Slack channels are available for discussion of posters/sessions
  - ▶ Any Zoom/Slack issues during meeting: [ORISE-EESSD@orau.org](mailto:ORISE-EESSD@orau.org)
- ▶ **Plenary sessions**
  - ▶ Wed am - Overview of IFL projects
  - ▶ Wed pm - Panel discussion on community engagement & co-design
  - ▶ Thurs pm - Breakout reporting & synthesis
- ▶ **Remainder of meeting is poster sessions & breakouts**
  - ▶ Encourage discussion & areas of coordination/collaboration among projects
- ▶ Presentations/posters will be posted on BER IFL website after the meeting to enable information sharing with broader community





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