The Illinois Sustainable Technology Center contributes solutions for a sustainable future through basic and applied research, extensive expertise, and a wealth of objective data to benefit the people, economy, and environment of Illinois. ISTC is a division of the Prairie Research Institute at the University of Illinois.
DOE awards $25 million to PRI for design of innovative power plant
by Trish Barker, Prairie Research Institute

The U.S. Department of Energy (DOE) has awarded $25 million to a three-year project led by the Prairie Research Institute that will design a next-generation power plant in Springfield, Illinois. The innovative plant design combines multiple techniques to both reduce emissions and capture and re-use carbon dioxide.

The project (Front-End Engineering Design Study for Hybrid Gas Turbine and USC Coal Boiler (HGCC) Concept Plant with Post Combustion Carbon Capture and Energy Storage System at City, Water, Light and Power Plant) is part of DOE’s Coal FIRST (Flexible, Innovative, Resilient, Small, Transformative) initiative, which aims to spur innovation in coal-fired plants.

Caseyville WWTP saves energy, money with ISTC assessments
The Caseyville Township Water Reclamation Facility recently received a free facility assessment through Illinois EPA's Wastewater Treatment Plant Energy Assessment Program. The program is a partnership between Illinois EPA, ISTC, and the University of Illinois’ Smart Energy Design Assistance Center (SEDAC).

ISTC conducted the assessment in July 2019 and identified several ways to reduce energy use, including upgrading to LED lighting and installing variable frequency drives on blower motors. The plant used Ameren Illinois Energy Efficiency Program incentives to help fund the upgrades.

Altogether, the lighting and motor upgrades will reduce the township’s energy use by more than 2.3 million kilowatt-hours every year and deliver six-figure savings in annual energy costs.

Read the full Ameren Illinois case study detailing the upgrades.

EPA awards nearly $1M to ISTC to research prevention of algal blooms

The U.S. Environmental Protection Agency (EPA) has announced $999,377 in funding to ISTC to research how to control and prevent harmful algal blooms (HABs). The research will address subsurface drainage systems that can deliver large quantities of nutrients from agricultural fields to receiving watersheds, potentially leading to HABs.

The project, “Development of a Novel Bioreactor and Biochar-Sorption-Channel (B2) Treatment System to Capture and Recover Nutrients from Tile Drainage,” will produce and scale up an innovative treatment system to effectively capture excess nutrients from subsurface drainage in agricultural fields, recycle the nutrient-captured biochar as a slow-release fertilizer, and keep nutrients in the closed agricultural loop. The project is expected to offer an innovative, feasible, and cost-effective practice to mitigate the loading of excess nutrients.
nutrients into watersheds from agricultural fields, improve water quality, and thereby diminish the occurrence of HABs.

Read more about the project on the ISTC Blog.

New plan links north Chicago communities with walking and biking trail
by Lisa Sheppard, Prairie Research Institute

A multi-institution team has released a plan to build a 109-mile walking and biking trail connecting five communities along the lakeshore in northern Illinois to promote safer, healthier, and friendlier neighborhoods and allow better access to Lake Michigan beaches and parks.

The Northern Lakeshore Trail Connectivity Plan recommends the investment of $100 million to reduce the number of vehicle crashes that involve pedestrians or bicyclists, increase physical activity, eliminate sidewalk gaps within a one-quarter mile of schools and parks, and lower transportation costs for residents, among other goals.

UIUC releases Sustainable Materials Management Plan developed with ISTC

The University of Illinois at Chicago (UIC) recently released a Sustainable Materials Management Plan, a concrete step in the university’s goal to become a Zero Waste Campus.

UIUC partnered with ISTC’s Technical Assistance Program to conduct the waste audit, engage stakeholders, and spearhead plan development. The plan identifies nearly 100 strategies for waste reduction and diversion and was informed by the results of a November 2019 waste audit, along with input from students, faculty, staff, and community members.
Other stories

- Sierra Club of Illinois hosts panel discussion on PFAS with Rob Bilott, John Scott, other water advocates

Services spotlight

ISTC’s Technical Assistance Program (TAP) has been awarded over $400,000 in EPA grants to assist manufacturers with improving their bottom line by greening their operations. Assistance under these grants is provided at no cost to participating companies.

The funds cover work with manufacturers and their supporting industries across many sectors including:

- Food & beverage
- Chemical
- Automotive
- Aerospace
- Metal manufacturing & fabrication

TAP scientists work collaboratively to identify and promote sustainable manufacturing at the product, process, and system level, resulting in less waste, more efficient use of energy and other resources, fewer environmental impacts, and increased profitability.

For additional information, please contact Irene Zlevor (email izlevor@illinois.edu or call 217.300.8617).

ISTC in the news

- Ag leaders, nonprofits address food insecurity in Illinois
- Rural-urban collaboration yields alternative solutions to improve state water quality

Notable reports & publications

- Solar Photovoltaic (PV) Recycling and Reuse Program
- UIC Sustainable Materials Management Plan

ISTC events

Submit an abstract & register for the ECEC21 virtual conference
Register today for the 2021 Emerging Contaminants in the Environment Conference. The virtual event will be held April 27-28 with 15-minute presentations and 5-minute lightning talks. Want to present? Submit your abstract before February 1.
Visit the PRI website to see current job opportunities at ISTC.