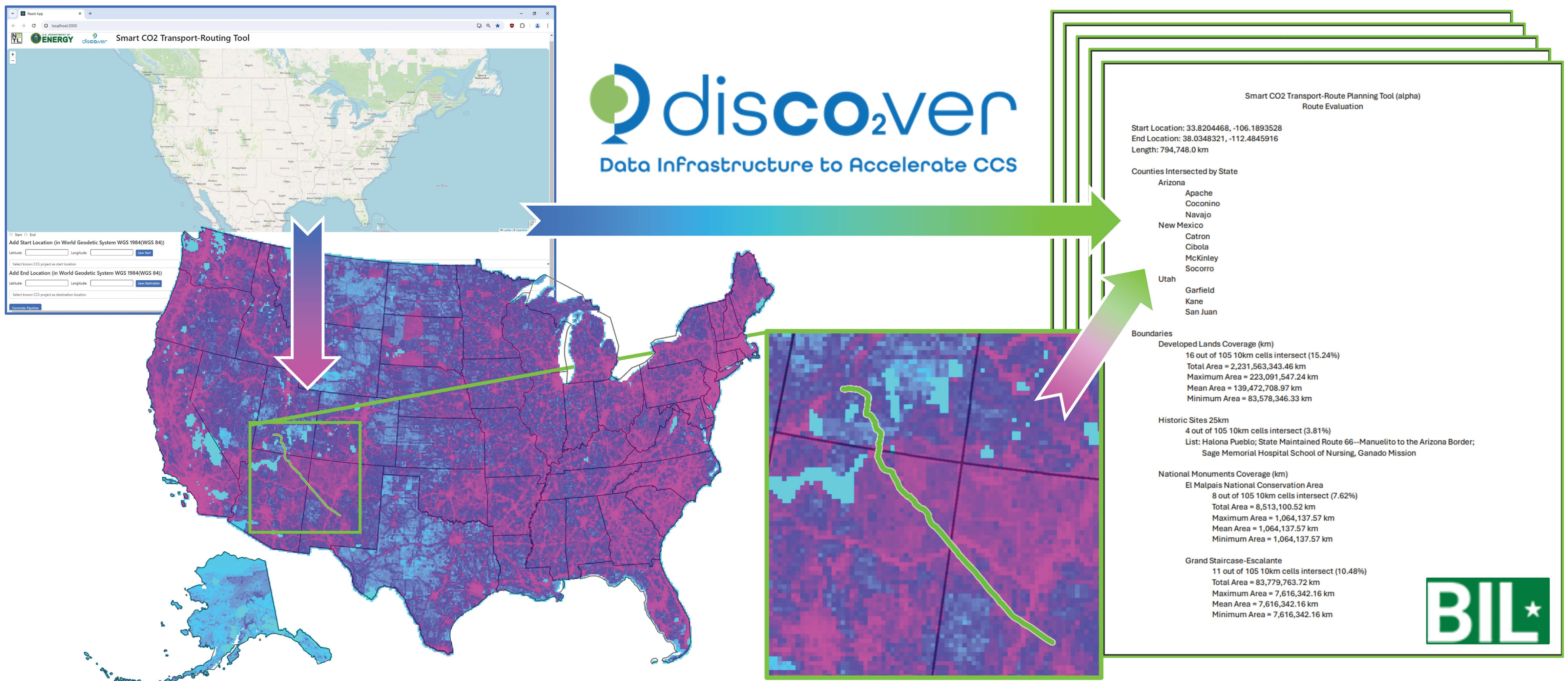# Smart CO$_2$ Transport-Route Planning Tool and Database Support Decarbonization and Social Justice

Combined machine learning and geospatial resources support data-driven path planning and evaluations for low-carbon safe and just CO$_2$ transport.

Tool user interface, summarized spatial data, and output report example.

Goal: Accelerate carbon management capabilities to meet net zero emissions by 2050 through the development of intuitive and applicable technology to inform safe and reliable domestic CO$_2$ transport planning with environmental, energy, and social justice considerations.

Outcome: NETL has published a stand-alone, open-source tool and geospatial database to inform CO$_2$ transport planning by identifying potential routes and evaluating existing corridors informed by an underlying geodatabase representative of the critical environmental, energy, and social justice factors, evolving regulations, existing public and energy infrastructure, and best construction practices. Both the tool and database are publicly available on EDX.

- Applies a reinforcement machine learning algorithm to optimize potential routes across the country.

- Evaluates paths against 50+ critical factors and provides a detailed report summarizing which factors overlap said path.

- Tool and database are interoperable with other government and commercial capabilities.

DOE PROGRAM
Carbon Transport and Storage
NETL PARTNER

U.S. Department of **ENERGY**™

NETL NATIONAL ENERGY TECHNOLOGY LABORATORY

25 *Years* Powering Energy Innovation

SAMi SCIENCE-BASED AI/ML INSTITUTE