



EASTERN UTAH OPERATIONS

Utah State University Research Foundation's Energy Dynamics Laboratory (EDL) formed Eastern Utah Operations to help transform the way we use energy by developing innovative energy systems that provide practical solutions for challenging energy and environmental issues. Through research, development, and commercial deployment of innovative technological systems, EDL is working in collaboration with national and international partners in academia, industry, and government to bring about efficient and environmentally-friendly energy solutions for the future.

THE OBJECTIVES OF THE EASTERN UTAH OPERATIONS PROGRAM ARE TO:

- Increase the domestic liquid fuel supply in the United States by supporting unconventional fuels development (gas, heavy oils, oil shale, and oil sands)
- Provide capabilities and facilities to demonstrate and deploy energy technologies
- Help solve air and water environmental issues associated with energy development

With the continuing advancement of technology, there is vast potential to increase the domestic production of on-shore unconventional fuels resources. This potential can be achieved if technological, economic, and environmental challenges related to their production can be further minimized or eliminated. In cooperation with industry and other partners, we are validating existing technologies and developing new ideas that will effectively address these challenges.



BINGHAM ENTREPRENEURSHIP & ENERGY RESEARCH CENTER

The overall goal of the Eastern Utah Operations program at the Bingham Research Center is to select projects that:

- Emphasize end-to-end solutions of fossil energy production, utilization, and environmental stewardship
- Include integration of advanced modeling and simulation with measurement and monitoring technologies
- Transfer fundamental research and technology to pilot-scale and demonstration-scale projects





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The Bingham Research Center will accommodate a variety of field laboratory projects based on industry needs and external funding. Projects will likely, but not necessarily, be specific to unconventional gas, oil shale, oil sands, or coal, and they will include multiple technologies around a common theme. For example, specific field laboratory projects might demonstrate technologies such as:

- Increased oil production from low permeability reservoirs
- Microbial treatment of produced water for purification and cleanup
- Optimization of fracking technology to improve unconventional oil and gas production
- Oil sands processing and utilization
- Oil shale production from in-situ or ex-situ retorts

KEY PROGRAM AREAS

ENVIRONMENTAL CHARACTERIZATION, MONITORING & MODELING CENTER

EDL, with other partners, is establishing an environmental center with the means to perform environmental monitoring and computational modeling to support environmental issues associated with energy production. The center will permit clients, both governmental and industrial, to address and solve environmental problems using integrated monitoring and modeling tools. The Bingham Research Center also owns a mobile environmental trailer capable of extensive monitoring that can be used throughout Eastern Utah, as well as an analytical laboratory with considerable analysis capabilities.

One of our ongoing projects is a comprehensive regional air quality study for the Uintah Basin. This study involves researchers from EDL and Utah State University as well as the Utah Department of Air Quality, National Oceanic and Atmospheric Administration, Environmental Protection Agency, University of Colorado, and the Bureau of Land Management. This air quality study is focused on ozone formation in the Uintah Basin during the winter months and the results of the study will provide the scientific basis for the development of innovative technology for environmental mitigation strategies.

UNCONVENTIONAL FUELS INSTITUTE

Eastern Utah contains an abundance of world class resources for unconventional fuels. To take advantage of these vast resources, EDL is collaborating with Utah universities and industrial energy companies to develop new technologies that will increase liquid fuels production in the Uintah Basin. As part of this collaboration, Eastern Utah Operations is in the process of forming the Unconventional Fuels Institute (UFI), with headquarters in the Bingham Research Center. The institute will provide a multi-disciplinary organization focused on developing technologies for producing unconventional fuels by effectively leveraging the expertise, resources, and funding from various organizations. Partners in the institute will consist of industrial and research organizations. The institute plans to conduct fundamental research that will be transferred to industry by a sequence of laboratory-scale, pilot-scale, and field demonstration projects in the Uintah Basin.

