

# New tech brings resilience to small-town hydropower

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Fall River Electric Cooperative Hydropower Plant on the Teton River near Felt, Idaho. Credit: Idaho National Laboratory

Idaho National Laboratory (INL) has celebrated the ribbon-cutting of its new Microgrid in a Box, which was deployed in partnership with the Fall River Electric Cooperative at its hydropower plant in rural Idaho.

Using newly developed technologies, INL researchers demonstrated that hydropower, coupled with a mobile microgrid, can enable [small communities](#) to maintain critical services during emergencies. During the ribbon-cutting, [power](#) from the Microgrid in a Box was combined with power generated from the hydropower plant to restore electrical supply after a simulated electrical grid blackout in a process called a "blackstart."

The new technologies demonstrate how communities with similar resources can maintain critical services during blackout emergencies.

"There are hundreds of hydropower plants like this one serving small communities across the country," said Thomas Mosier, INL's Energy Systems Group lead. "What we've demonstrated today are new technologies that can enable these communities to use the hydropower resources they already have to restart and maintain stable power to essential services, even during an emergency event."

## **What is the microgrid in a box?**

The Relocatable Resiliency Alternative Power Improvement Distribution [Microgrid in a Box](#), also known as RAPID MIB, is a portable, self-contained grid system developed by INL engineers in collaboration with private industry and government customers.

It enables integration and optimization of multiple energy sources—such as hydropower, [solar panels](#), [wind turbines](#), [diesel generators](#) or even small nuclear reactors—to ensure a reliable and resilient power supply in remote or off-grid locations, or during emergency situations or [power](#)



[outages.](#)

"Restarting a grid isn't as simple as flipping a switch," said Kurt Myers, INL's Energy and Grid Systems Integration Group lead. "It requires a steady power input that many small utilities alone can't provide. Combining the tech built in to the Microgrid in a Box with the existing capabilities of the Fall River plant, we're showing how communities with limited resources can recover and continue to function during an emergency."



Representatives from utilities, government and industry gathered from across the country for the Microgrid in a Box ribbon cutting and blackstart demonstration. Credit: Idaho National laboratory

## What is a blackstart?

Blackstart refers to the process of restarting and energizing power generation units, [transmission lines](#) and distribution systems to restore [electricity supply](#) after a blackout or widespread power disruption.

INL continues to innovate approaches for efficiently recovering the power grid during these critical situations. This includes studying the resiliency and reliability of power systems, designing advanced control and [communication systems](#), and testing new approaches to optimize the blackstart process.

## Supporting rural utilities

Many rural communities have untapped energy resources that can enable them to maintain services, even during emergency events. INL, with support from the Water Power Technologies Office, is proud to partner with utilities like the Fall River Electric Cooperative to demonstrate and test these new technologies.



Representatives from utilities, government and industry gathered from across the country for the Microgrid in a Box ribbon cutting and blackstart demonstration. Credit: Idaho National Laboratory

"Fall River Electric Cooperative is focused on investing in technology that can improve the lives of our owner-members and this partnership with INL is a prime example," said Fall River CEO Bryan Case. "The Microgrid in a Box test demonstrated the ability to provide our members with electricity in case of natural disasters or other local emergencies that could disrupt normal power services."

Provided by Idaho National Laboratory

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