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Initiative Overview

Hydropower and Water Innovation for a Resilient Electricity System

A new research initiative by DOE's Water Power Technologies Office **to understand, enable, and improve hydropower's contributions to reliability, resilience, and integration** in a rapidly evolving electricity system.

Challenges

1. As the electricity system is changing rapidly, there is limited understanding of which services will be needed, as well as limited ability to accurately value those services.

2. Hydropower and PSH capabilities are bounded by the interaction of machines, water, and institutions, and some of these bounds may result from legacy decisions that did not consider evolving grid needs.

3. There are gaps in information regarding how to optimize hydropower and PSH operations and planning in coordination with other resources.

4. Current hydropower and PSH technology may not be designed for flexible operation.

HydroWIRES Research Areas

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Value under Evolving System Conditions

Understand the rapidly changing grid and how these changes create opportunities for hydropower and PSH to provide new value.

Capabilities and Constraints

Investigate hydropower's technical capabilities to provide flexibility, as well as how constraints related to equipment, water, and policy affect these capabilities.

Operations and Planning

Optimize hydropower operations and planning—alongside other resources—to meet increased needs for flexibility in the changing grid.

Technology Innovation

Invest in innovative technologies that improve hydropower flexibility.

Draft multi-year plans

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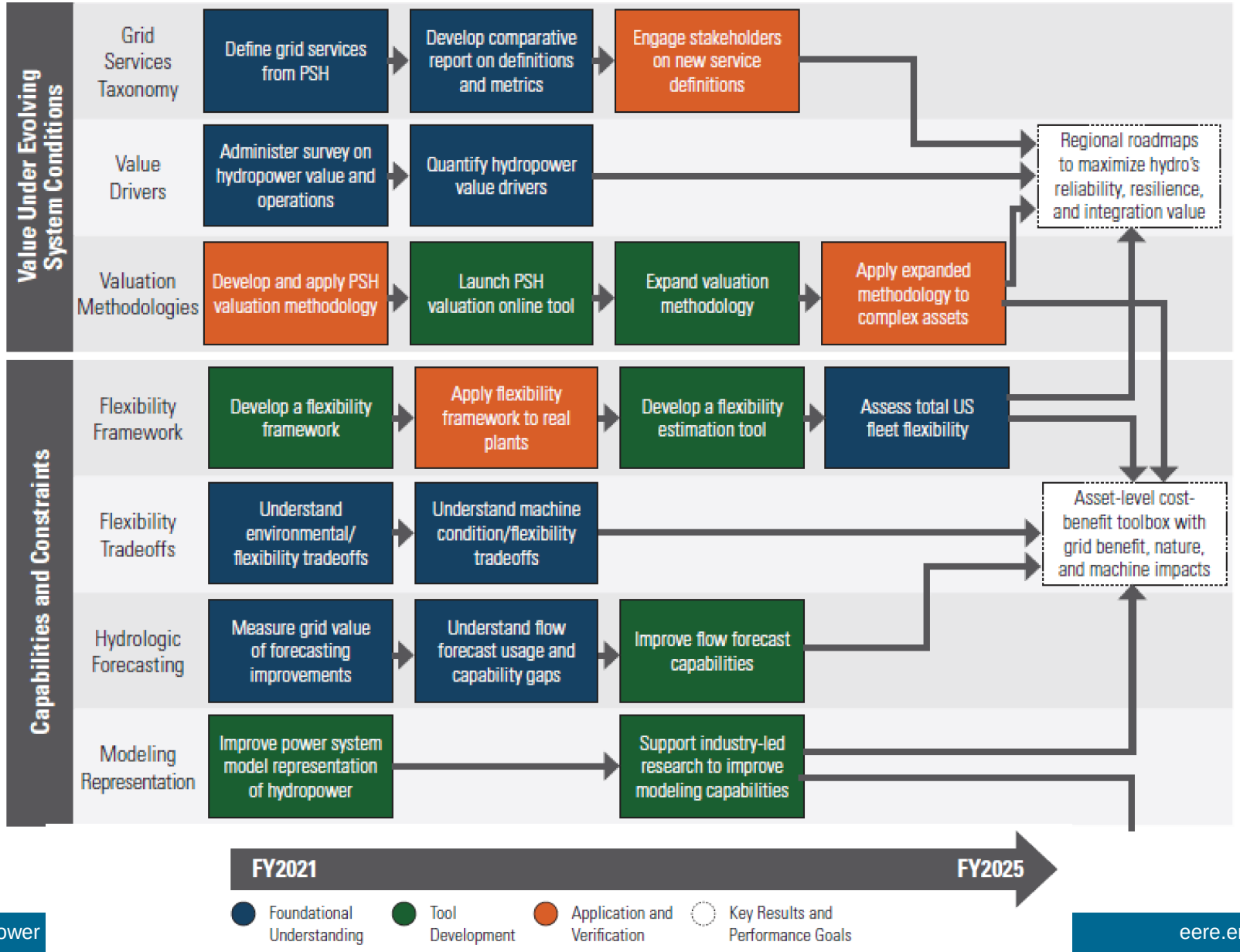
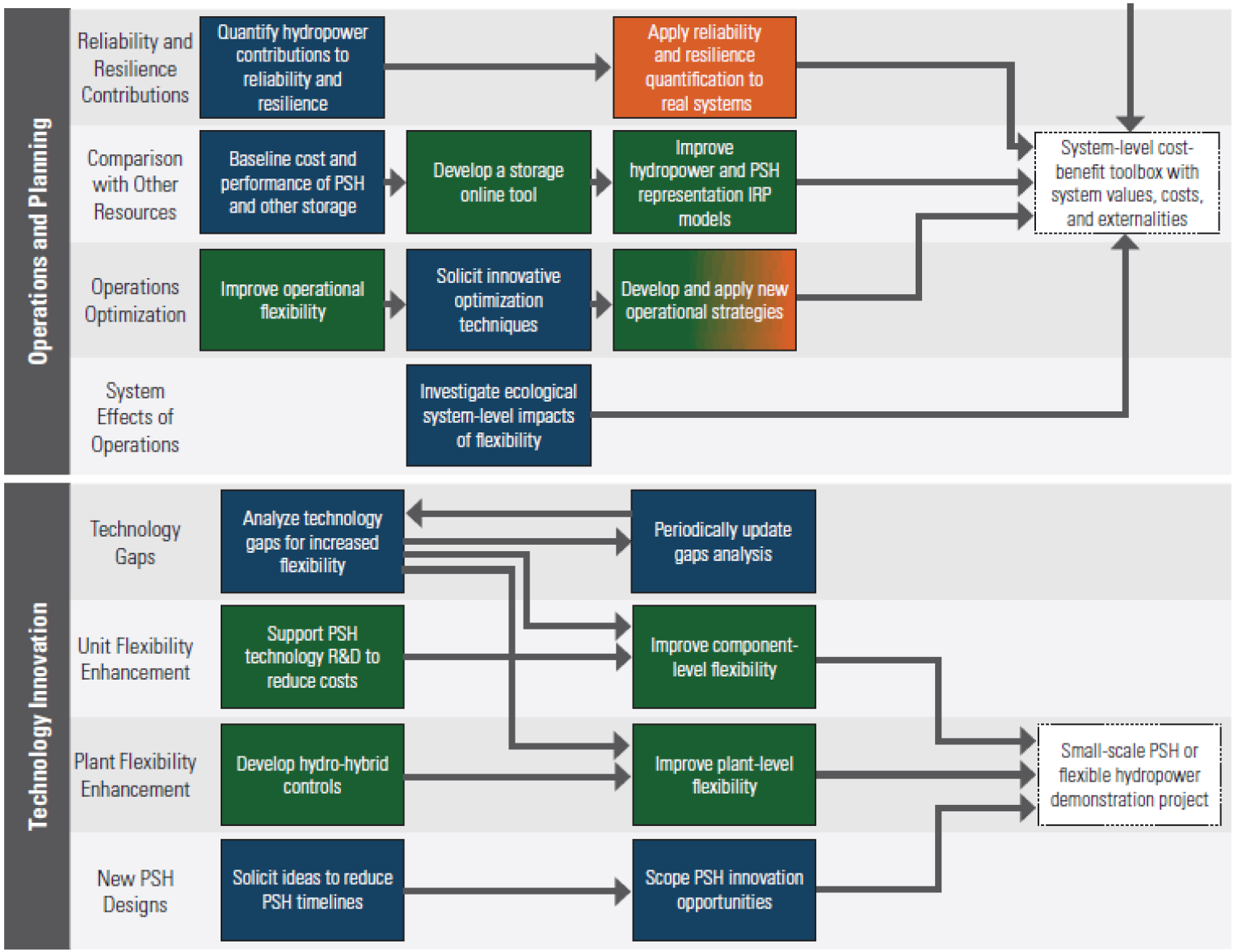


Draft multi-year plans



Thank you!

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Learn more at:

energy.gov/HydroWIRES