Fission Battery Initiative

Recent trends in energy development highlight the benefits of distributed energy generation to provide power off-grid or through microgrids to fulfill remote and expansive self-contained power needs. The development of new and future nuclear reactor technologies could provide simple, secure, reliable, and affordable systems that can readily integrate into a variety of applications. These cutting-edge technologies might be used more like battery systems to provide inexpensive and reliable electricity and heat.

The Fission Battery Initiative will define and coordinate research and development of technologies that can fully achieve battery-like functionality for nuclear energy systems.

Idaho National Laboratory and the National University Consortium invite you to attend and contribute to this thought-provoking virtual workshop series.

The final agenda and list of speakers will be released closer to the workshop dates.

WORKSHOP SERIES *(all times are in Eastern Standard)*

Markets and Economic Requirements for Fission Batteries and Other Nuclear Systems

January 13, 2021 | 10 am to 1 pm
Register **here**

January 27, 2021 | 10 am to 1 pm
Register **here**

Charles W. Forsberg (MIT) & Andrew W. Foss (INL)

Technology Innovations for Fission Batteries

January 20, 2021 | 11 am to 3 pm
Register **here**

February 10, 2021 | 11 am to 3 pm
Register **here**

February 24, 2021 | 11 am to 3 pm
Register **here**

Izabela Gutowska (Oregon State University), Vivek Agarwal (INL), & Cassiano Ricardo (UNM)

Transportation and Siting for Fission Batteries

March 15, 2021 | 12 pm to 5 pm
Register **here**

Abhinav Gupta (NCSU), Elmar Eidelpes (INL), & Abdollah Shafieezadeh (The Ohio State University)

Safeguards and Security of Fission Batteries

April 2, 2021 | 10 am to 5 pm
Register **here**

Gustavo A. Reyes (INL), Carol Smidts (The Ohio State University), & Cassiano Ricardo (UNM)

Safety and Licensing of Fission Batteries

April 16, 2021 | 10 am to 4 pm
Register **here**

Maria Avramova (NCSU), Dean Wang (The Ohio State University), & Jason A. Christensen (INL)

Hosted by:

Vivek Agarwal, Idaho National Laboratory
Charles Forsberg, Massachusetts Institute of Technology
Yousry Azmy, North Carolina State University
Carol Smidts, The Ohio State University
Camille Palmer, Oregon State University
Cassiano de Oliveira, University of New Mexico

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Fission Battery Initiative

The initiative envisions *developing technologies that enable nuclear reactor systems to function as batteries and to be referred as fission batteries.*

To elaborate on this vision, here is an example for context: Imagine the ability to produce fission batteries with standardized designs in factories. These fission batteries could be directly installed for applications at any location with limited (and possibly zero) site development. Use of multiple standardized units would provide unprecedented scalability. These fission batteries would be able to operate without onsite personnel or operators and could provide power reliably and on demand. When they are no longer needed or fully utilized, the fission batteries could be readily replaced or removed, and the used fission batteries could be centrally refurbished or dispositioned.

To formalize the desired functionality, the initiative has adopted the following key attributes to be achieved: economic, standardized, installed, unattended and reliable.

FISSION BATTERY ATTRIBUTES

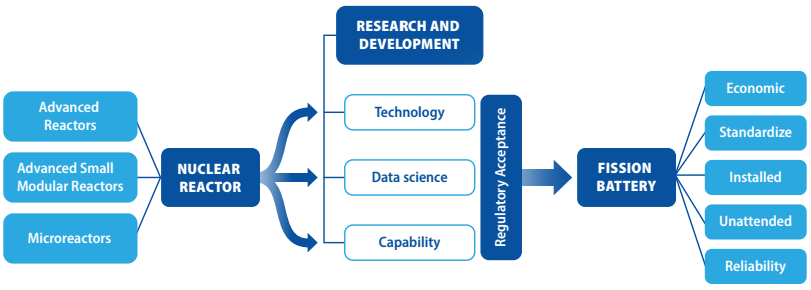
Economic: Cost competitive with other distributed energy sources (electricity and heat) used for a particular application in a particular domain. This will enable distributed energy resources through flexible deployment across many applications and integration with other energy sources.

Standardized: Developed in standardized sizes and power outputs with a manufacturing process that enables universal use and factory production. This will lower costs and produce more reliable systems that achieve faster qualification.

Installed: Readily and easily installed for use and removal after use. After use they can be recycled by recharging with fresh fuel or responsibly dispositioned.

Unattended: Operate securely and safely while unattended to provide demand-driven power.

Reliable: Systems and technologies must have a high level of reliability to provide a long life and enable wide-scale deployment for applications. To support the concept of remote monitoring, they must be robust, resilient, fault tolerant, and durable, and provide advance notification when replacement is needed.



Fission battery initiative research and development approach to deliver technologies that endow nuclear reactors with battery attributes.

*For more information about the workshop series, contact Vivek Agarwal (**vivek.agarwal@inl.gov**) or Dayna Daubaras (**dayna.daubaras@inl.gov**).*

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