

2023 Summit: OE announced \$30M to enable LDSS through the two key ESGC initiatives



ESGC



Driving down LCOS

10 Long Duration Storage Shot Technology Strategy Assessment reports

\$15 million Storage Innovations Technology Liftoff FOA



Validating ES performance

Rapid Operational Validation Initiative (ROVI)

\$15 million Demonstration and Validation FOA

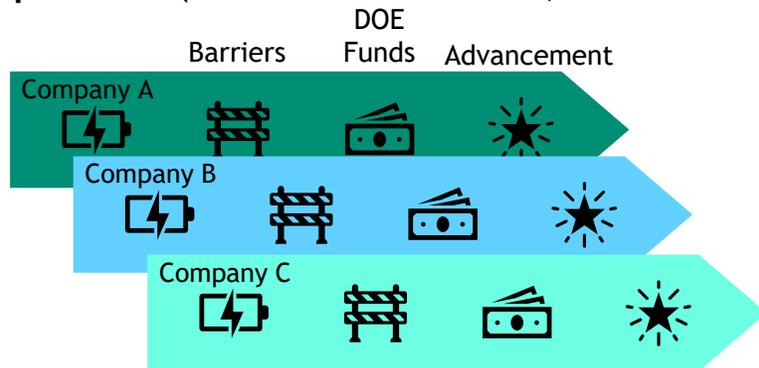
LONG DURATION STORAGE SHOT TARGET



**\$0.05/ kWh Levelized
Cost of Storage**

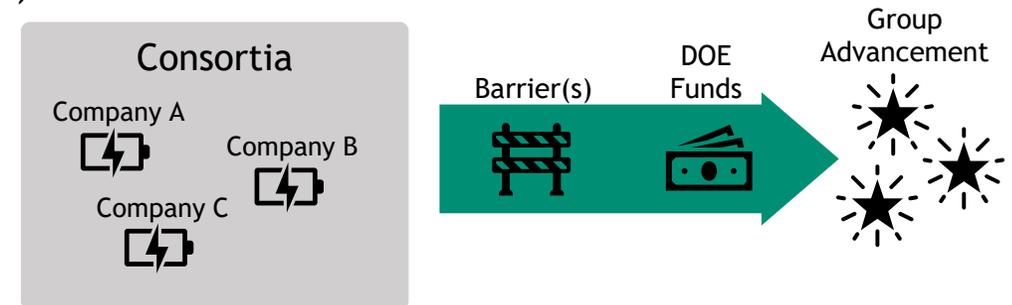
Serial- and consortium-based funding opportunities

Serial Approach (ex. OE FOA 3036; OCED/OE FOA 2867)



- Company-specific (“Serial”) funding:
 - More “tailored”
 - Easier to ringfence IP
 - Often used for near-commercial technologies

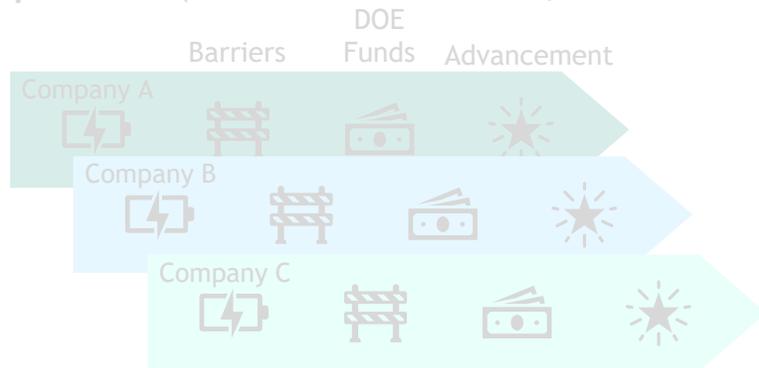
Consortia Approach (ex. OE FOA 3020; SC FOA 2923)



- Multi-partner (“Consortia”) funding
 - Secondary validation of R&D targets
 - Larger beneficiary pool
 - Often used for nascent or fundamental technologies

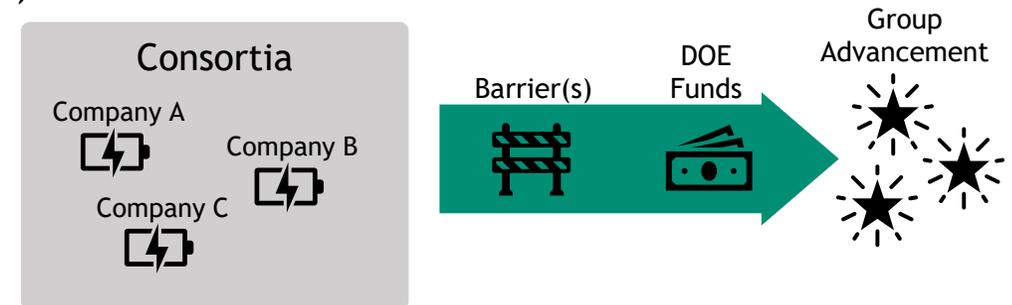
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Achieving the Promise of Low-Cost Long Duration Energy Storage

An Overview of 10 R&D Pathways from the Long Duration
Storage Shot Technology Strategy Assessments

August 2024

SI 2030: Stakeholder Engagement Reporting

- Eleven Technology Strategy Assessments, results of SI 2030, released on July 19th, 2023
- Strategy in reports formed basis for SI Technology Liftoff FOA
- **Synthesis report released on August 6th, 2024**
- Celebrate storage innovations with your photo at the photobooth!

SI 2030: Technology Liftoff Summary

\$15 million Funding Opportunity Announcement (FOA) to tackle pre-competitive technology R&D barriers

SI 2030
Technology
Strategy



Structured
Technology
Partnerships



Pre-
competitive
R&D



\$5 million
awards

Project Selections (Currently Under Negotiation)

- **New Lab, LLC**

- Project Title: *Enabling high-capacity zinc utilization through electrode and electrolyte fundamentals*
- Technology: **Zinc Batteries**

- **Battery Council International**

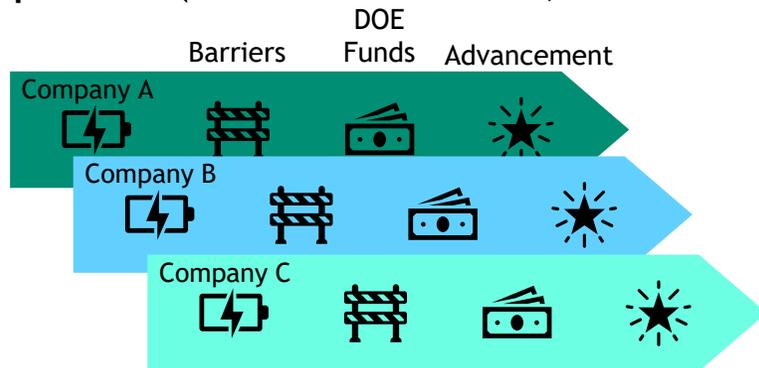
- Project Title: *Consortium for Lead Battery Leadership in LDES*
- Technology: **Lead Batteries**

- **Clean Tech Strategies LLC**

- Project title: *Pre-Competitive Research & Development to Accelerate the Maturation of Flow Battery Technologies into Cost-Effective Long Duration Energy Storage*
- Technology: **Flow Batteries**

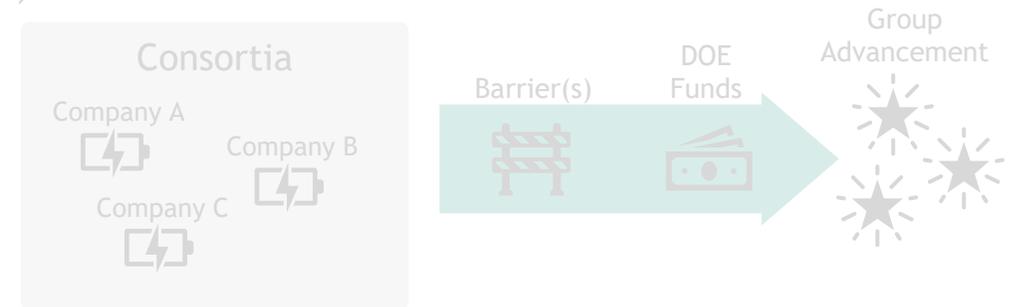
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Approach for ESS Demonstration and Validation OE Projects

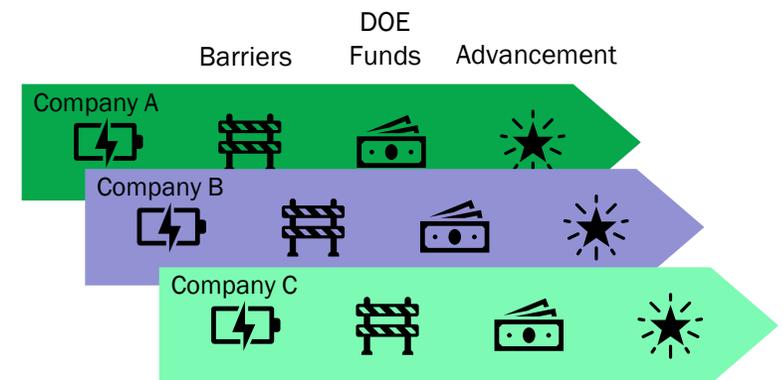
Key Motivation:

- Large number of promising candidate technologies that have undergone significant R&D
- Requires significant capital for a novel field demonstration that can help advance technology
- Customer/Investor perspective: At a stage where there is a ROI might not occur in near term; need operational experience and performance data to validate technology works

FOA Details:

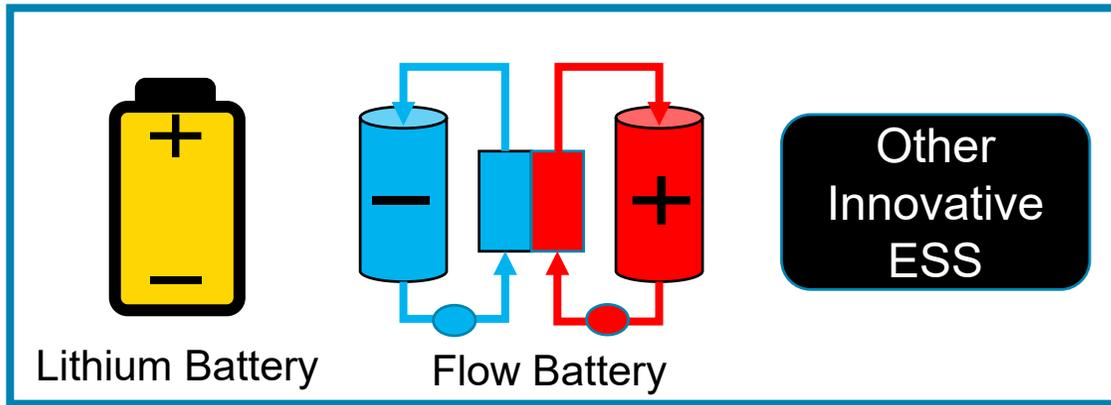
- Objective: Fund Innovative Energy Storage System (ESS) demonstration projects, host “Demo Day”
- Demonstrations will support OE’s Rapid Operational Validation Initiative (ROVI)
- \$15 million FOA with three topic areas, 1 demo and \$5 million per topic area

“Serial” Funding Approach

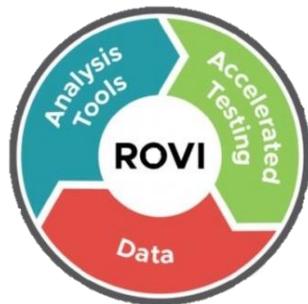
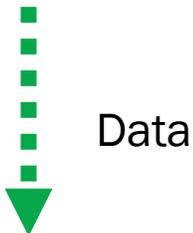
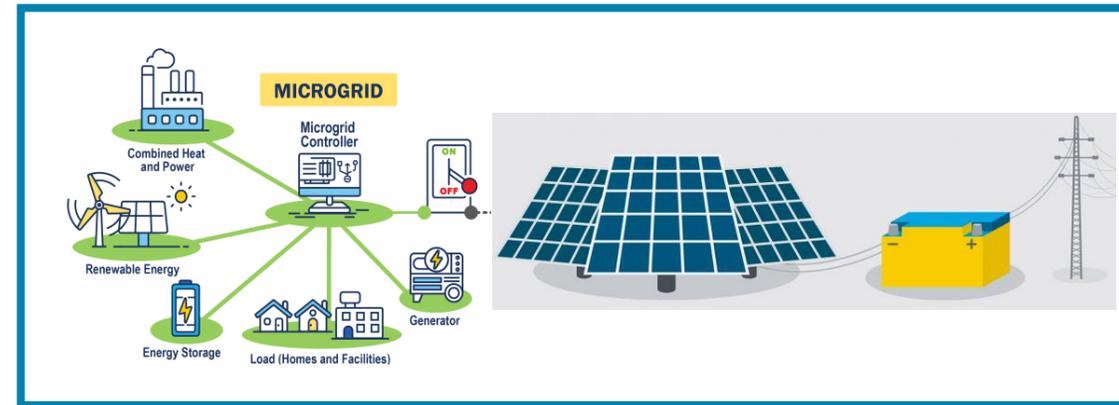


Project Structure

Innovative Technology Provider



Host Site/Off-taker



Will Achieve:

- Overcoming technical/commercialization barriers for a specific technology
- Provide tangible benefits to a host site or off-taker organization
- Demonstrate real world value to wider ecosystem
- Provide operational data to ROVI

Project Selections (Currently Under Negotiation) cont

DTE Electric Co.

Project Title: *Fully Hybrid Li-Ion as LDES and Second Life Batteries Demonstration*

- DTE aims to demonstrate the benefits of LDES storage through adding a lithium-ion phosphate battery to its planned hybrid Pine River Park wind and solar electric generation site.

CapyBara Energy LLC

Project Title: *Empowering Sustainable Community Revival Through Innovative Long Duration Energy Storage and Resource Reclamation (ESTER)*

- CapyBara's project will provide clean electricity to fully power the environmental remediation of mining waste. It will integrate renewable energy sources with an LDES system to support the heavy industrial processes that constitute tailings remediation.

muGrid Analytics

Project title: *Project VITALITY: Vanadium Innovation to Advance Long Duration Energy Storage & Impact Tribal Sovereignty*

- muGrid Analytics is teaming with the Bad River Band of Lake Superior Chippewa tribe on a microgrid project to demonstrate the benefits of Vanadium Redox Flow Batteries (VRFB) at commercial and industrial scale.