

Alternate Value Streams for Advanced Nuclear

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Committee for Advanced Reactors

July 19, 2021

  
www.epri.com

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The Energy Sector in 2050 and beyond

- Net zero carbon
- Reduced number of rotating generators
- High deployment of variable sources of power
- Distributed energy needs

NUCLEAR BEYOND ELECTRICITY:

LANDSCAPE OF OPPORTUNITIES

Released in March 2021



Initial Survey and
Near-Term Actions

Learn more:

EPRI product: [3002020437](#)

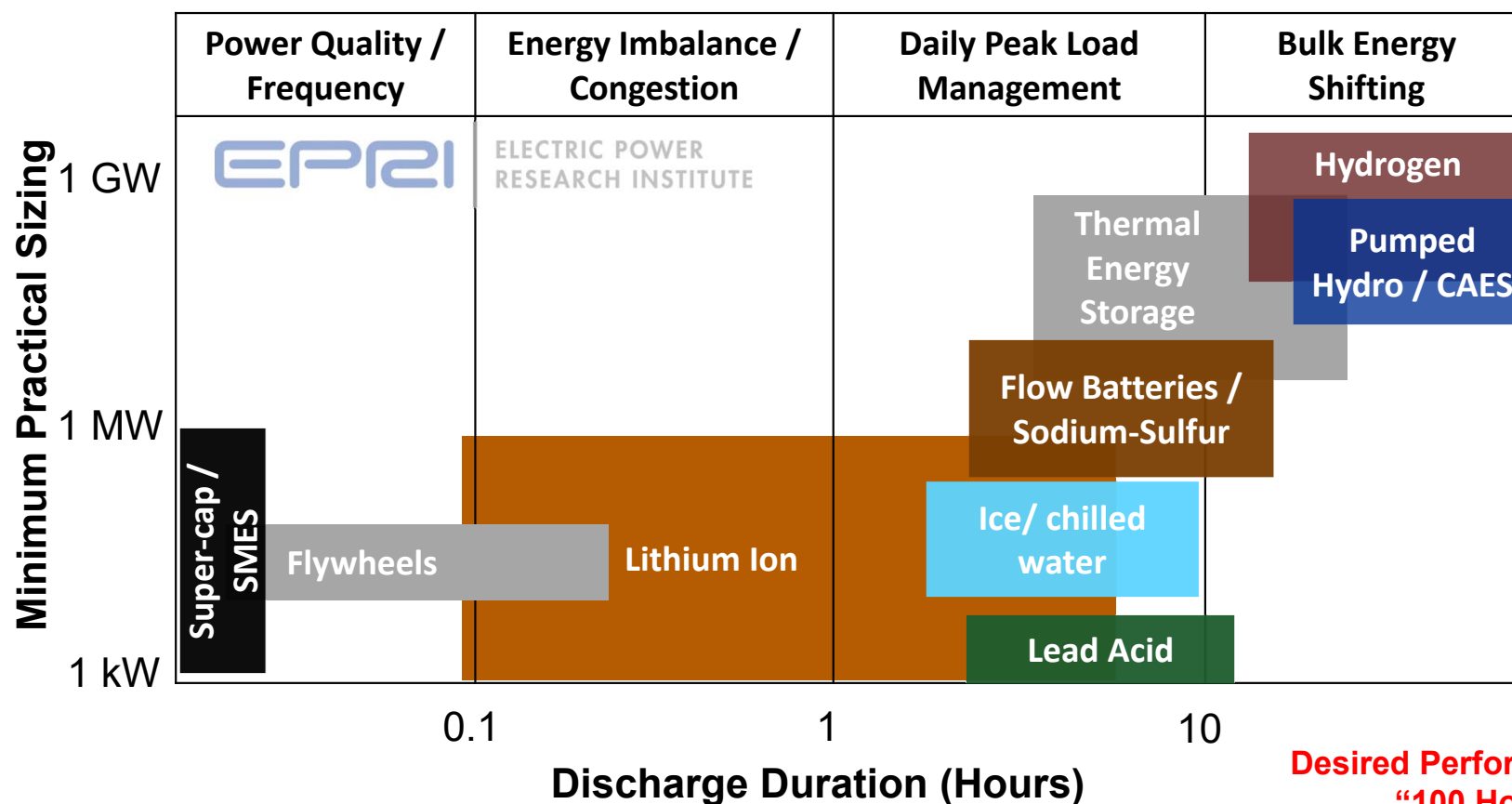
Publicly Available

Load Following

- Operational Flexibility is a Policy in EPRIs Owner's-Operators Requirements Guide (TR 3002015751): Advanced Reactors need to adjust to grid to conditions
- Advance Reactors can replace any current load following plant including simple cycle natural gas turbines

X-energy they described their ramp rates as a Ferrari

Energy Storage Technology Attributes



Approximations For
Illustration Only

Energy Carrier Production

- Hydrogen
 - Capacity factor
 - SMR—not that SMR
 - High temperature electrolysis
 - Thermochemical splitting
- Ammonia
- RNG and other drop in fuels



Ancillary Services



Frequency Control

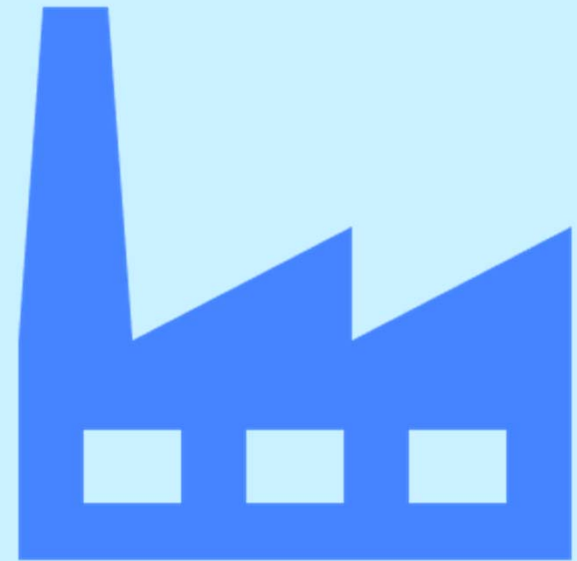
Inertia

Capacity Market

Black Start

Industrial Applications

- Process heat
- Energy parks
- Desalination
- District heat & energy



A blue-tinted photograph of four people standing in a row. From left to right: a man with curly hair and glasses in a lab coat; a man with glasses in a lab coat; a woman wearing a hard hat and a lab coat; and a man with glasses and a beard in a light blue button-down shirt. They are all smiling and looking towards the right. The background is a solid blue gradient.

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