



A-Core Container

Energy Storage Project Primer



Overview

What storage technologies are covered in this primer?

The storage technologies covered in this primer range from well-established and commercialized technologies such as pumped storage hydropower (PSH) and lithium-ion battery energy storage to more novel technologies under research and development (R&D).

What are energy storage specific project requirements?

Project Specific Requirements: Elements for developing energy storage specific project requirements include ownership of the storage asset, energy storage system (ESS) performance, communication and control system requirements, site requirements and availability, local constraints, and safety requirements.

What is fast acting energy storage?

Fast acting energy storage systems may perform dynamic grid services (like frequency regulation) better than conventional alternatives. Due to their inherently low inertia, some inverter based energy storage technologies are able to react quickly to control commands.

Which energy storage technology is best suited?

Some energy storage technologies, like super-capacitors, are best at responding quickly and come in small modular form factors making them ideal for fast, "power" services like frequency response. Other technologies like pumped hydro are only feasible on a large scale, so are best suited for high "energy" services like energy time shifting.

How do electrochemical storage systems work?

Electrochemical storage systems use a series of reversible chemical reactions to store electricity in the form of chemical energy.

Can energy storage be used as peaking capacity?

Peaker plants are only used a fraction of hours per year and energy storage is being considered as peaking capacity in generation planning. Battery storage is already being deployed for this application and as costs decrease they may be cost competitive with combustion turbines in the next decade.

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