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Analytical expressions for Ragone plots (energy-power relations) and discharge efficiency-power relations are derived in the framework of endoreversible thermodynamics for ideal electrical and thermal energy storage systems.

This power and energy nexus is equally relevant for thermal energy storage materials for thermal management applications that require a balance between energy storage capacity and on-demand cooling or heating rates. Here, ...

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Here we show the close link between energy and power density by developing thermal rate capability and Ragone plots, a framework widely used to describe the trade-off between energy and power in electrochemical storage systems (that is, batteries).

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applications that require a balance between energy storage capacity and on-demand cooling or heating rates. Here, thermal energy storage is evaluated for sensible heating and for phase-change materials (PCMs).

This review is not limited to electrochemical energy storage, where the framework is traditionally applied, but also encompasses all other electric energy storage. Here, the Ragone plot can compactly quantify off-design performance and operational flexibility, independent of technology-specific performance indicators.

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energy and power tradeoff of a phase-change thermal storage device. This thermal storage Ragone framework enables a clear comparison method between different thermal storage materials and designs. Rate capability and Ragone plots . Our analysis leverages the extensive research on electrochemical storage by using analogies between

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