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Battery Energy Storage: an Overview

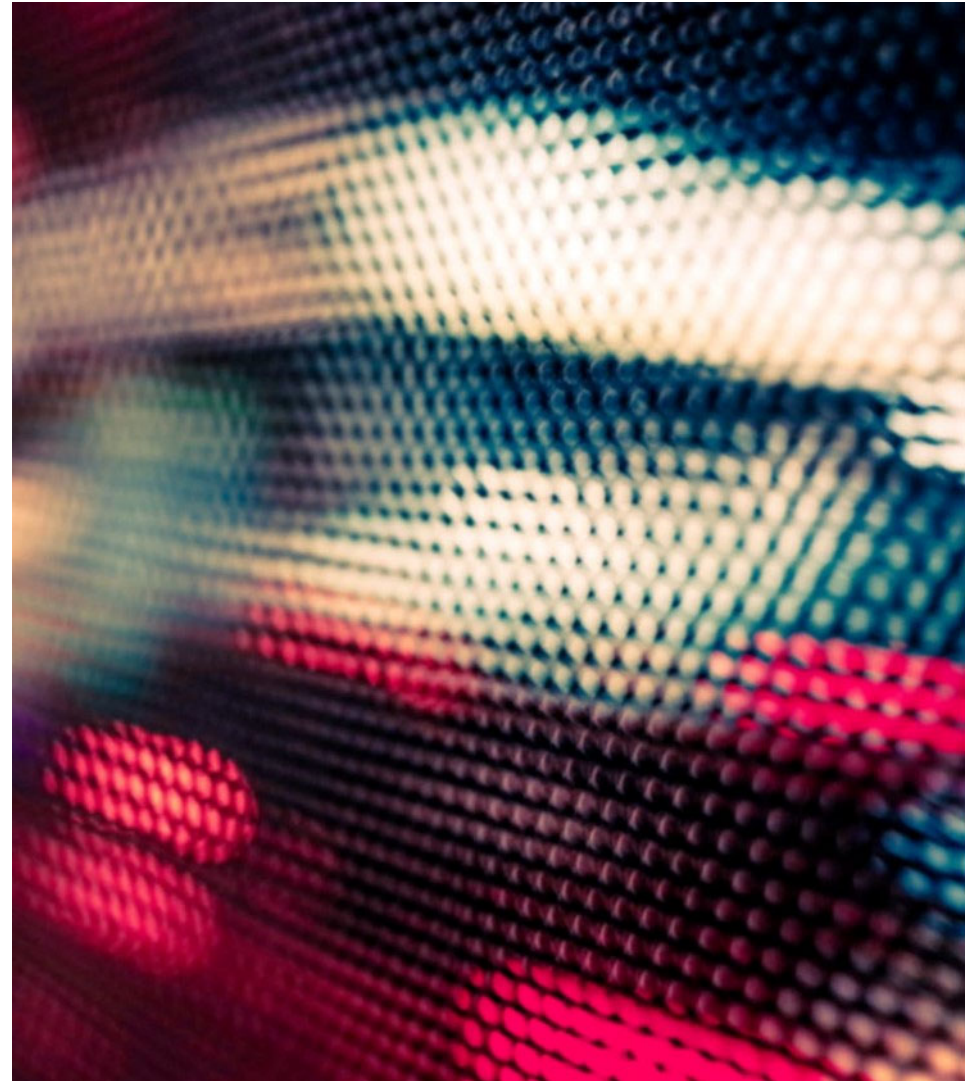
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Energy storage

Electricity demand is forecast to rise with moves towards the electrification of transport and heat expected to place more demands on the grid in the future.

Energy storage is widely seen as essential for the management and stability of future energy systems with greater deployment of variable renewable generation. Falling technology costs, particularly lithium-ion batteries, has led to significant development of short duration battery storage systems.

Deployment is expected to increase globally. Energy storage analysts at IHS Markit are predicting record growth for the global energy storage sector, including a global leap in grid-connected storage capacity to 15.1 GW with an output of 47.8 GW hours by 2025, and global revenues in energy storage to grow from US\$4.2bn in 2020 to US\$9.5bn in 2025.

The business model for storage varies by technology, market and application. Energy storage may be grid connected, providing system services or deferring the cost of electricity network upgrades, or it may be combined with renewable power, displacing fossil fuel generators in off-grid applications.

By installing a battery storage system behind the meter, a business can potentially shift its electricity load out of the expensive times of day, save money, smooth out renewable energy sources and help further reduce its carbon footprint.

Key facts

IHS Markit analysts predict global revenues in energy storage will grow from US\$4.2bn in 2020 to US\$9.5bn in 2025

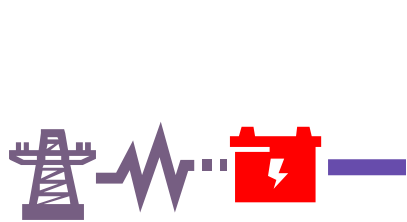
In 2019, 2.9 GW of storage capacity were added to electricity systems globally

A key driver of growth in energy storage has been the co-location of renewable energy production facilities with energy storage assets

Storage solutions can stabilize production and ensure firmer capacity during peak demand periods

Source: IHS Markit and IEA

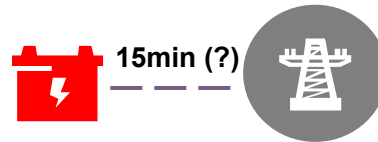
Business cases for energy storage



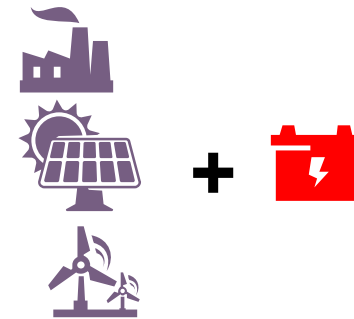
Peak shaving
(behind the meter)



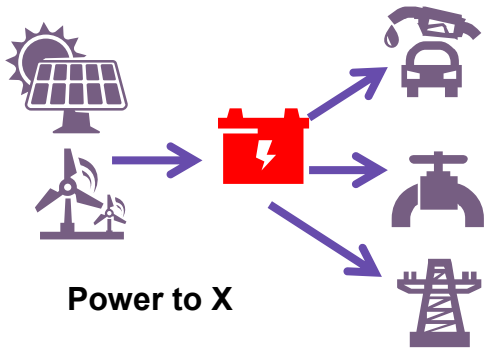
Residential solutions



Grid flexibility and reliability



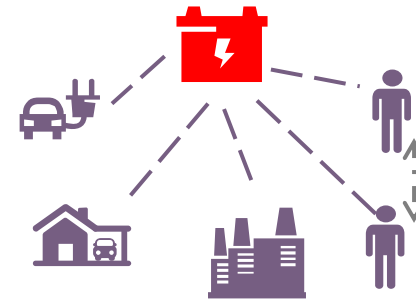
Hybrid power plant and
storage



Power to X



Deferral of network investment



Distributed storage

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