

A Case for Energy Storage as Part of Hawaii's Power Generation Plan
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The movement to expand the use and penetration of renewable energy technologies as options for cleaner energy sources directly involves storage. Without a cogent discussion of energy storage as part of the resource planning, both the end-users and electric utilities are faced with questions about reliability and dispatchability. In simple terms, the variability that is associated with wind and Photovoltaic (PV) energy can mean that electric power is available only when the wind is blowing or the sun is shining.

Energy storage allows renewable generating sources to be dispatchable or available when needed. And, in island systems, large penetration of a variable source such as wind energy could introduce electrical instabilities that must be managed (usually through the use of storage). Currently wind and PV use the grid for their storage medium. However, this approach requires that generators be kept running either in stand-by mode or at reduced loads. Neither is an efficient means to operate an electric grid generator. Both methods increase maintenance, CO₂ emissions, and fuel costs.