

# Storing Energy

Sometimes there are imbalances between the production of energy and the demand for energy. Unfortunately for renewable energy such as solar and wind, there aren't easy ways to store this energy until it is needed. Fortunately, scientists continue to explore new energy storage options.

On the other page there are 6 storage methods each with a description on how energy is produced, stored and released. Please read the description for each method and then in your own opinion, rank the methods from effective (1) to least effective (5).

Once you have completed your ranking, please answer the two questions below.

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What did you rank 1st and why?

What did you rank 5th and why?

## Methods of Storing Energy

Ranking	Storage Method	Description
	Large Batteries	<ul style="list-style-type: none"> <li>● Similar to common small rechargeable batteries, large batteries store electricity until it is needed.</li> <li>● Various forms of batteries such as lithium-ion, flow, lead acid and sodium to meet specific power generation needs.</li> <li>● Some large batteries (lithium-ion) can power entire electrical grids.</li> </ul>
	Thermal	<ul style="list-style-type: none"> <li>● Uses heating and cooling methods to store energy and release it when it is needed.</li> <li>● Molten salt stores heat from the sun which can be released when there is no sunlight.</li> <li>● Storing ice in buildings releases cold air, reducing the need for compressors while providing air conditioning.</li> </ul>
	Flywheels	<ul style="list-style-type: none"> <li>● Flywheels spin using electricity to accelerate.</li> <li>● When energy is needed, the force of the spinning flywheel turns a generator.</li> <li>● Scientist continue to investigate designs for larger rotational speeds that could store more energy</li> </ul>
	Pumped Hydro Power	<ul style="list-style-type: none"> <li>● Water is pumped up an elevated reservoir using electricity during off-peak hours.</li> <li>● When electricity is in high demand, water is released from the reservoir and falls down through turbines to generate electricity.</li> <li>● A large area with a high and low part is required.</li> </ul>
	Compressed Air	<ul style="list-style-type: none"> <li>● Air is compressed (pushed together) to a maximum of 1,000 pounds / square inch.</li> <li>● The compressed air is often stored in underground caverns.</li> <li>● When electricity is needed, the pressurized air is released to generate the electricity.</li> </ul>
	Hydrogen Storage	<ul style="list-style-type: none"> <li>● Electricity is used to convert water into hydrogen and oxygen.</li> <li>● The hydrogen is stored in hydrogen storage tanks.</li> <li>● Hydrogen fuel combines with oxygen from the air through its fuel cell creating water and electricity.</li> </ul>