



Sand Battery

Why in News?

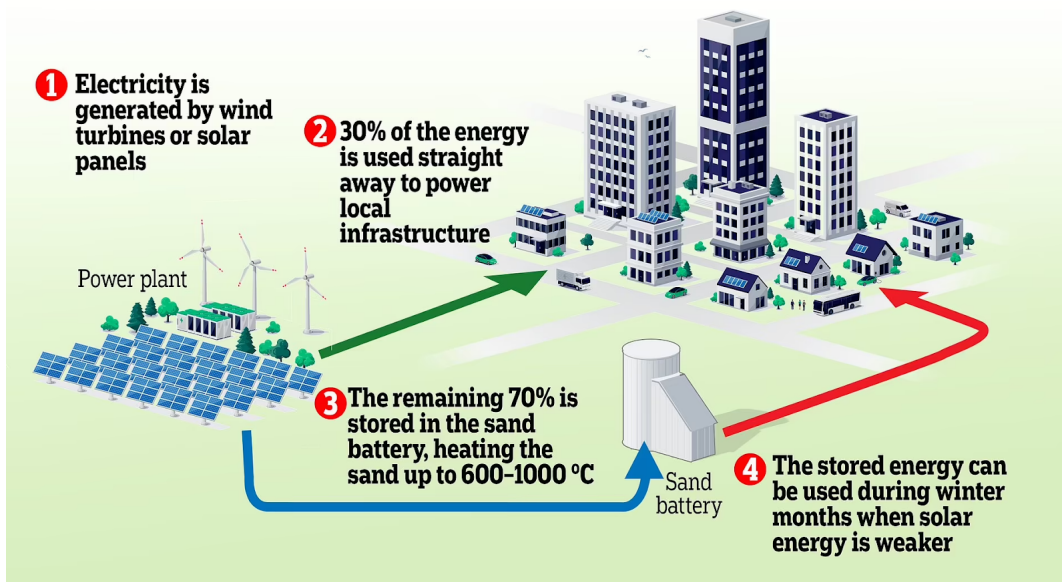
Sand batteries can store a significant extent of thermal energy and can **aid** [Clean Energy Solutions](#).

- **Finland** has installed **the world's first fully working "sand battery"** in its town called **Kankaanpää** capable of storing green power for months at a time. The batteries can also solve the issue of year-round supply.

What is a Sand Battery?

- A "sand battery" is a **high temperature thermal energy storage** that uses sand or sand-like materials as its storage medium. It stores energy in sand as heat.
 - Sand is a very effective medium for retaining heat over a long period, storing power for months at a time.
- Its main purpose is to **work as a high-power and high-capacity reservoir for excess wind and solar energy**. The energy is stored as heat, which can be used to heat homes, or to provide hot steam and high temperature process heat to industries that are often fossil-fuel dependent.
- The sand battery helps to **ambitiously upscale renewables production by ensuring there's always a way to benefit from clean energy**, even if the surplus is massive.

// HOW THE SAND BATTERY WORKS



How can it Address Europe's Energy Crisis?

- Russia — the supplier of 40 % of the [European Union's](#) natural gas supply — has shut **off its pipelines to a large extent**.

- Countries in the Northern Hemisphere rely on a **central heating system in winters, with natural gas as the most common heating fuel**. This is unlike developing countries with a tropical climate.
- The sale of heat pumps, considered a renewable source of internal heating, rose by 35 % in the EU. A rise in the sale of **other controversial alternatives, such as wood pellets, accompanied this simultaneously**.
- The world is **increasingly looking at renewable internal heating sources**.
- Thermal storage will reduce reliance on fossil fuels, provide storage for intermittent [renewable energy](#) and help balance the grid.
 - Thermal energy storage is yet to develop as a field in this sense globally fully.
- In such times, finding alternative energy supplies to fill in the gap can be crucial, these **Sand Batteries can prove to be the right step in the right direction**.
- This patented technology is useful to a country like Finland, one of the countries closest to the North Pole, **where the sun sets at around 3 pm in winter months with temperatures as low as minus 30 degrees Celsius**.
- It is believed that it could solve the problem of **year-round supply, a major issue for green energy**.

Source: DTE

PDF Reference URL: <https://www.drishtias.com/printpdf/sand-battery>

