

Polar night sand battery

Loviisan Lämpö Invests in Polar Night Energy's Sand Battery in Pornainen - ...

,,,??, 1MW/100MWh,,?

Polar Night Energy 2022, 100 kW/8 MWh?,,,?

13 ? 5, 1MW? 100MWh, Loviisan L?mp?,??

,,,??,Polar Night Energy, 13 ?

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Finnish startup Polar Night Energy is developing thermal energy storage system known as "sand batteries" for warming up buildings

Polar Night Energy, a startup in Finland, has developed technology for warming up buildings with solar-generated heat stored in sand. The team uses thermal modeling to optimize the design of their heat storage and distribution systems, which are helping Finnish cities reduce their consumption of nonrenewable heating fuels.

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As we try to objectively study nature, we are often reminded of how natural forces affect us personally. We can sit at a desk and consider heat in its various forms, but we might be distracted if our toes are cold! When we turn up the heat in our homes and workplaces, we must balance our personal need for warmth with the global impact of burning fossil fuels like oil, gas, coal, and biomass. Anthropogenic climate change confronts humanity with a challenge: How can we keep warm now as we try to prevent our world from overheating in the future?

It is a daunting question that a startup called Polar Night Energy, in the small and chilly nation of Finland (Figure 1), is attempting to answer. In a region known for long, dark winter nights, Polar Night Energy is building a system in the city of Tampere that can heat buildings with stored solar energy -- all day, all night, and all winter long. The apparent contradictions do not end there. In an era of complex cleantech solutions, often made from rare and expensive materials, Polar Night Energy's heat storage and distribution system consists of simple ducts, pumps, valves, and sand. The novel system shows potential for tackling global



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problems in a patient, thoughtful, and human-scaled way.

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