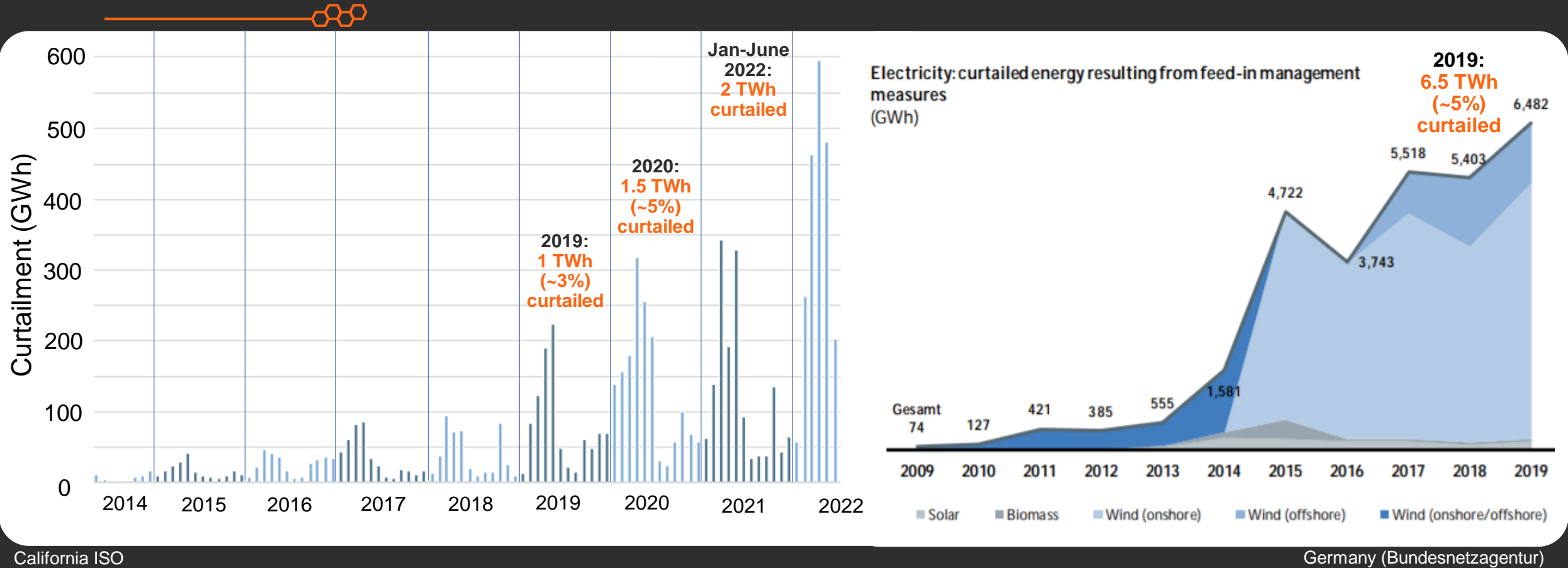




**Replacing fire with renewable heat.**

**Daniel Stack** | *Co-Founder, CEO*  
**Joey Kabel** | *Co-Founder, CTO*

# Problem: Renewable Electricity is Increasingly Wasted



Massive amounts of wind and solar were curtailed in the 4<sup>th</sup> and 5<sup>th</sup> largest economies.

The energy is cheap and available.

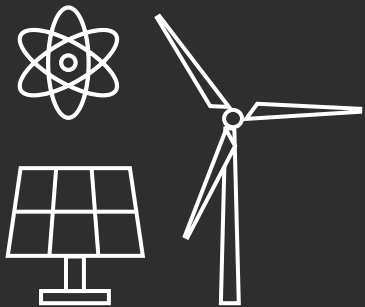
We **need a technology** to affordably turn inconsistent energy into **on-demand energy**.

# The Solution: **Joule Hive** By Electrified Thermal Solutions



WE TURN INTERMITTENT RENEWABLE ENERGY INTO INDUSTRIAL-GRADE HEAT.

- ✓ **1,800+°C** deliverable temperatures
- ✓ **3x cheaper** than green hydrogen
- ✓ **Retrofittable** – plugs into existing processes



Power



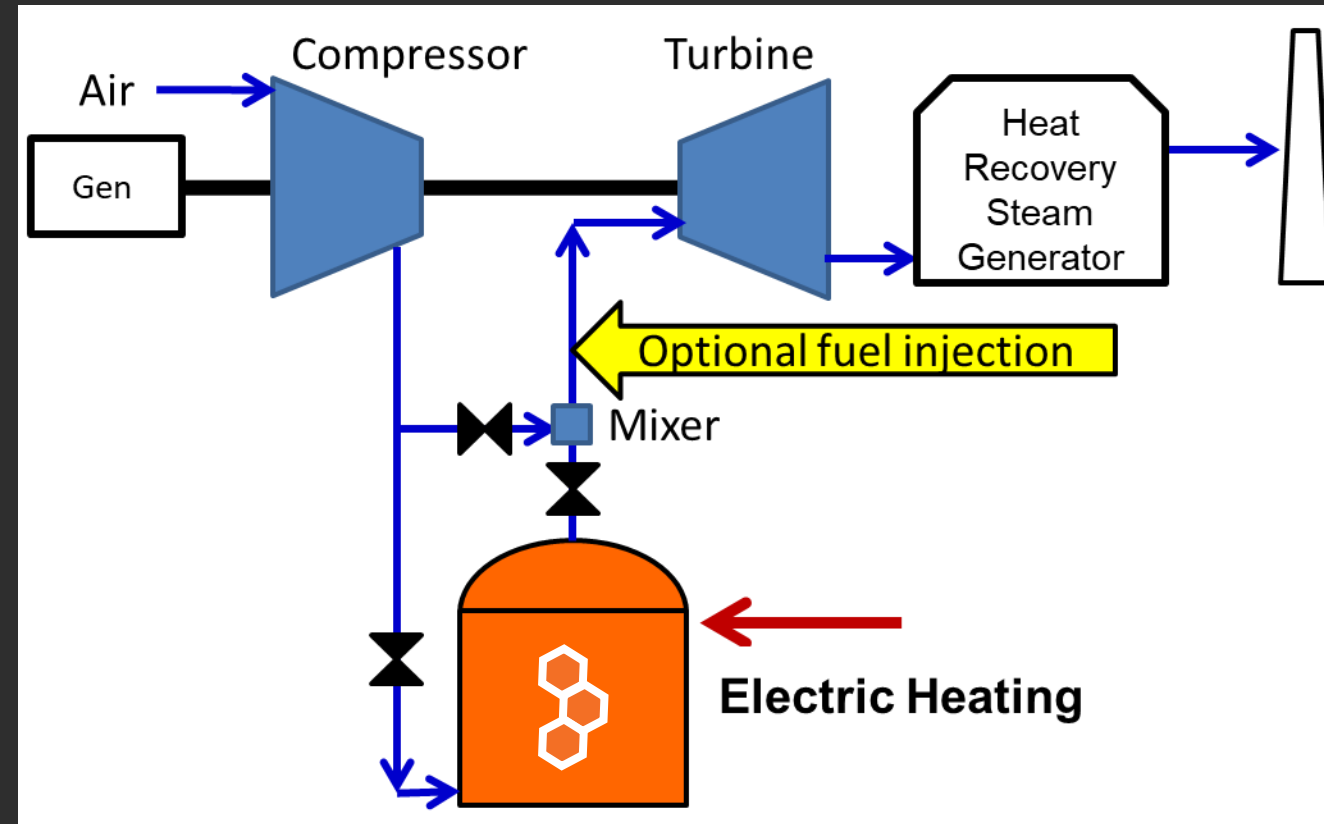
Heat



# Joule Hive can hook up to steam turbines, gas turbines, combined cycles, or sCO<sub>2</sub> cycles to save power plant money



- Joule Hive converts low-value electricity into heat, stores for later use.
- Attached to a combined cycle gas turbine (CCGT) where fuel is normally used.
- **When prices are low:** Charge Joule Hive.
- **When prices are high:** Produce electricity using heat stored in Joule Hive.
- If Joule Hive is empty, use fuel source.



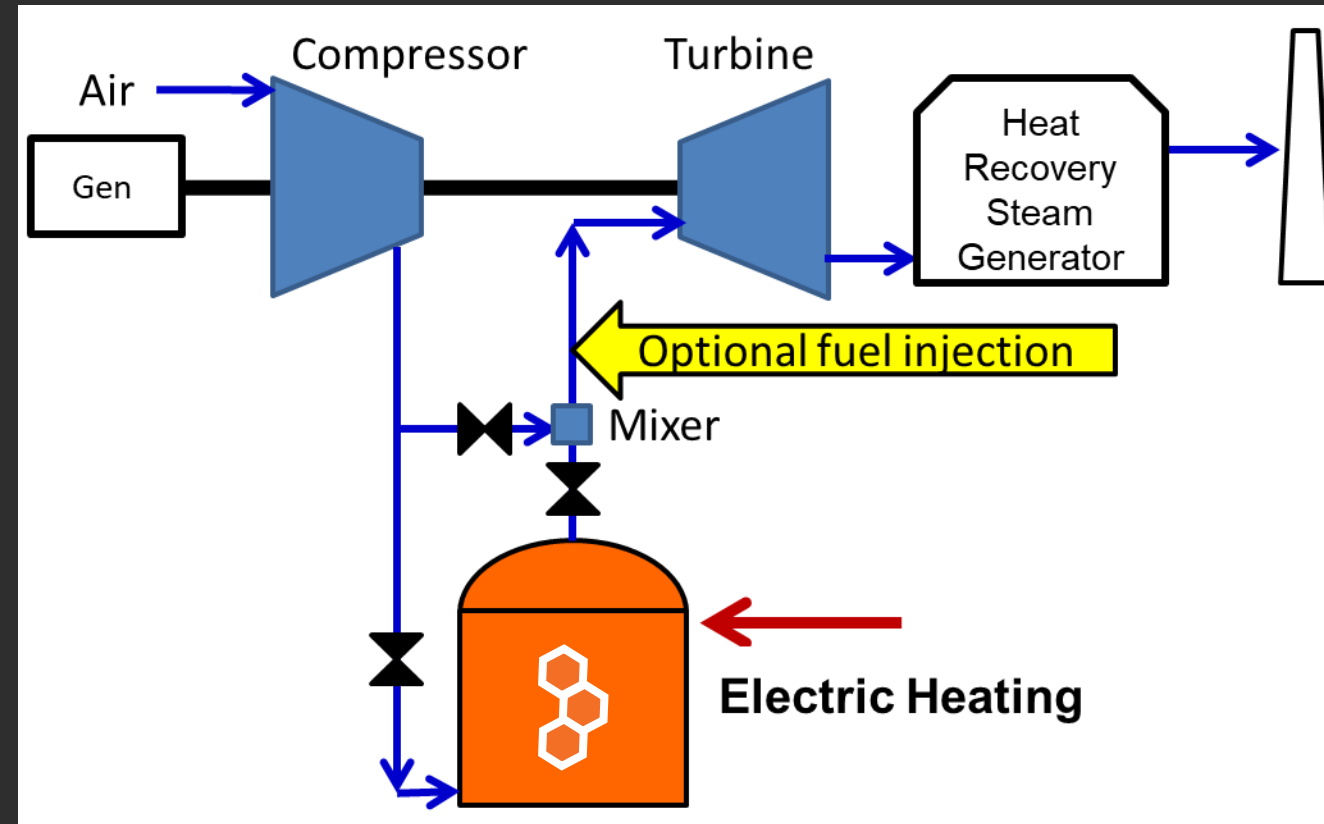
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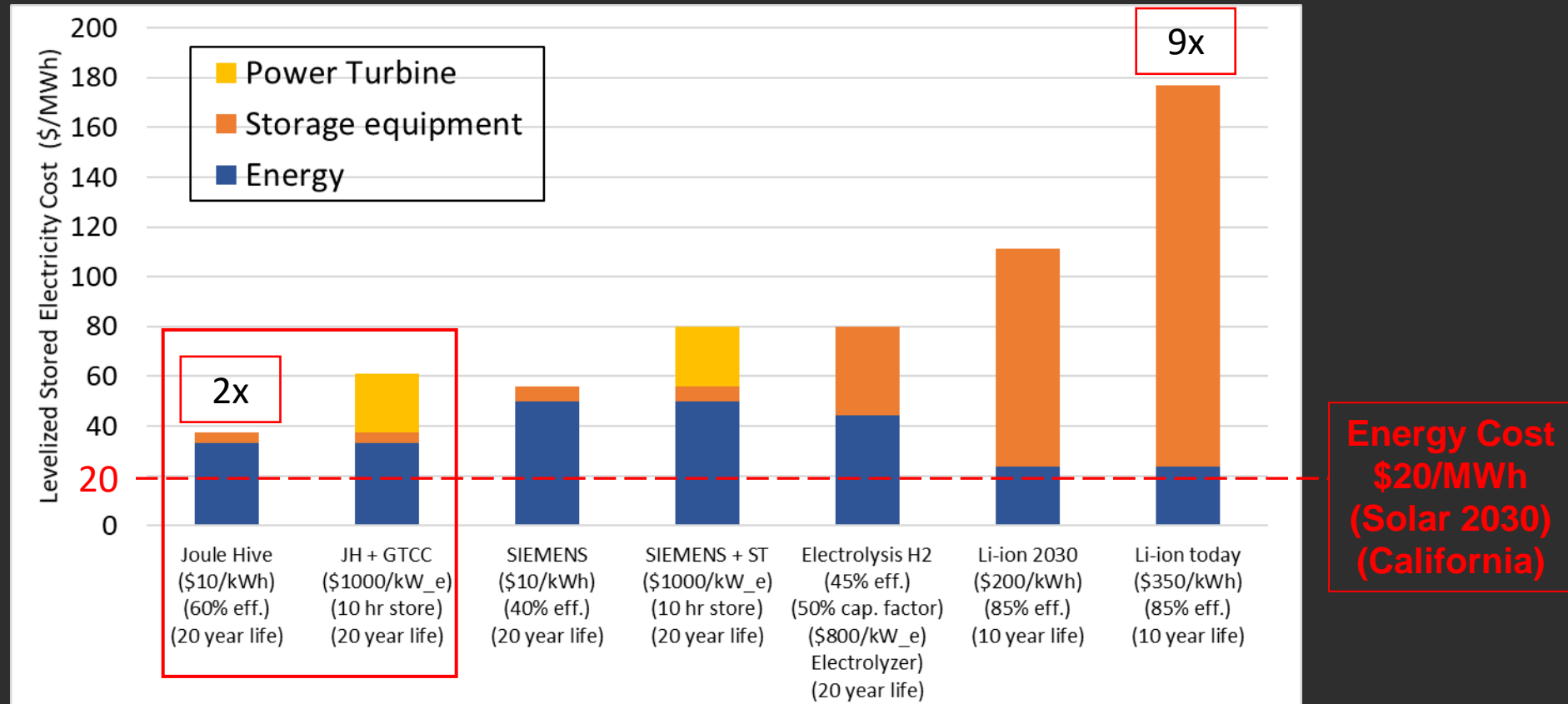
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**From plant perspective:** Joule Hive is a ***fuel option***

**From grid perspective:** CCGT + Joule Hive is a ***battery***



# Joule Hive + CCGT is lowest cost of energy storage: low capital cost, moderate efficiency



- Li-ion storage is **\$200-350/kWh** → Batteries **dominate** cost
- Joule Hive **negligible** cost
- Buying a full power plant is a better value than Li-ion batteries

**LESSON: Efficiency isn't everything. Cost-effectiveness is.**



# The Innovation: Electrically Conductive Brickworks up to the Gigawatt-Scale

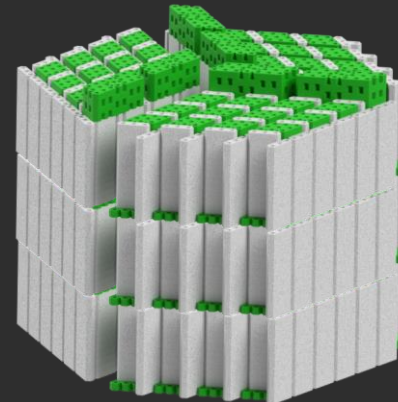
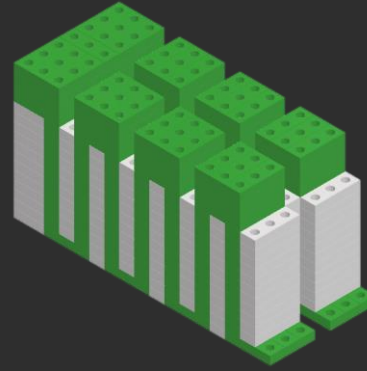
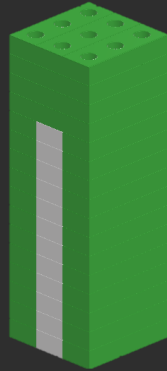
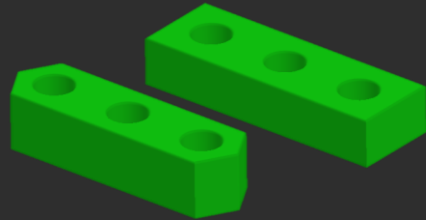


BRICK

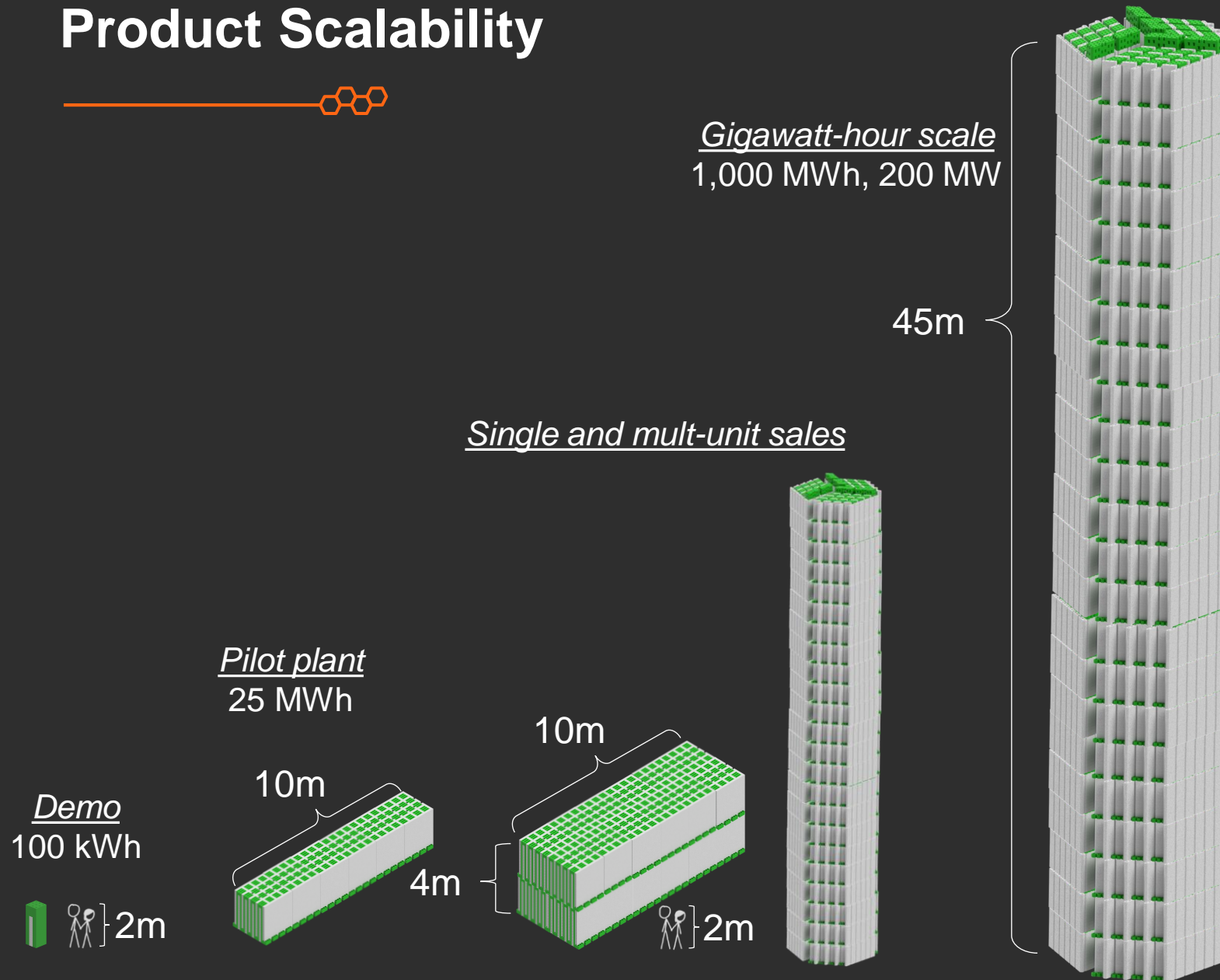
PROTOTYPE

DEMO PLANT

FULL-SCALE PRODUCT



# Product Scalability

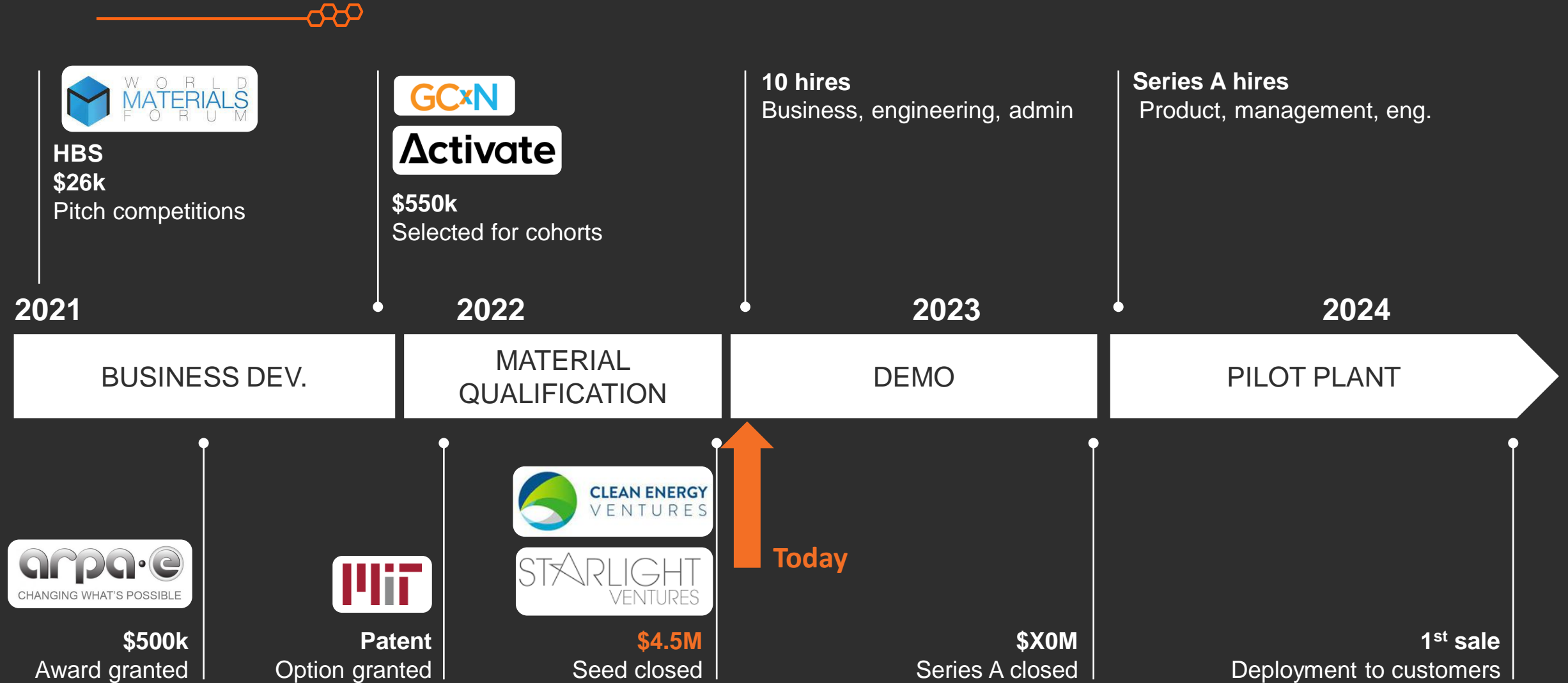


Multi-gigawatt-hour plant  
3,000 MWh, 600 MW

*Joule Hives for larger systems,  
industrial heating, cement, steel,  
glass, chemicals*



# Key Milestones and Company History

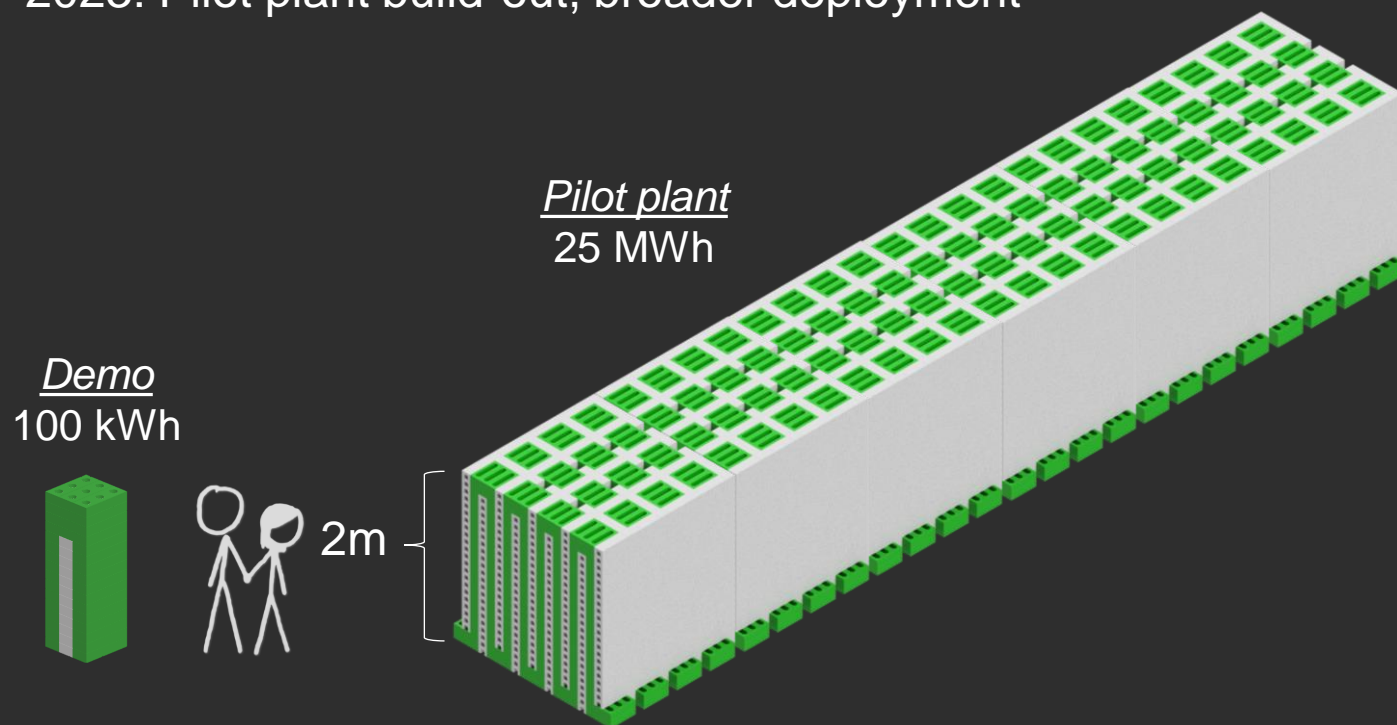


# Immediate steps forward



Electrified Thermal has raised \$4.5M to build the Joule Hive

- 2022: Large lab demo, pilot plant design
- 2023: Pilot plant build-out, broader deployment



X

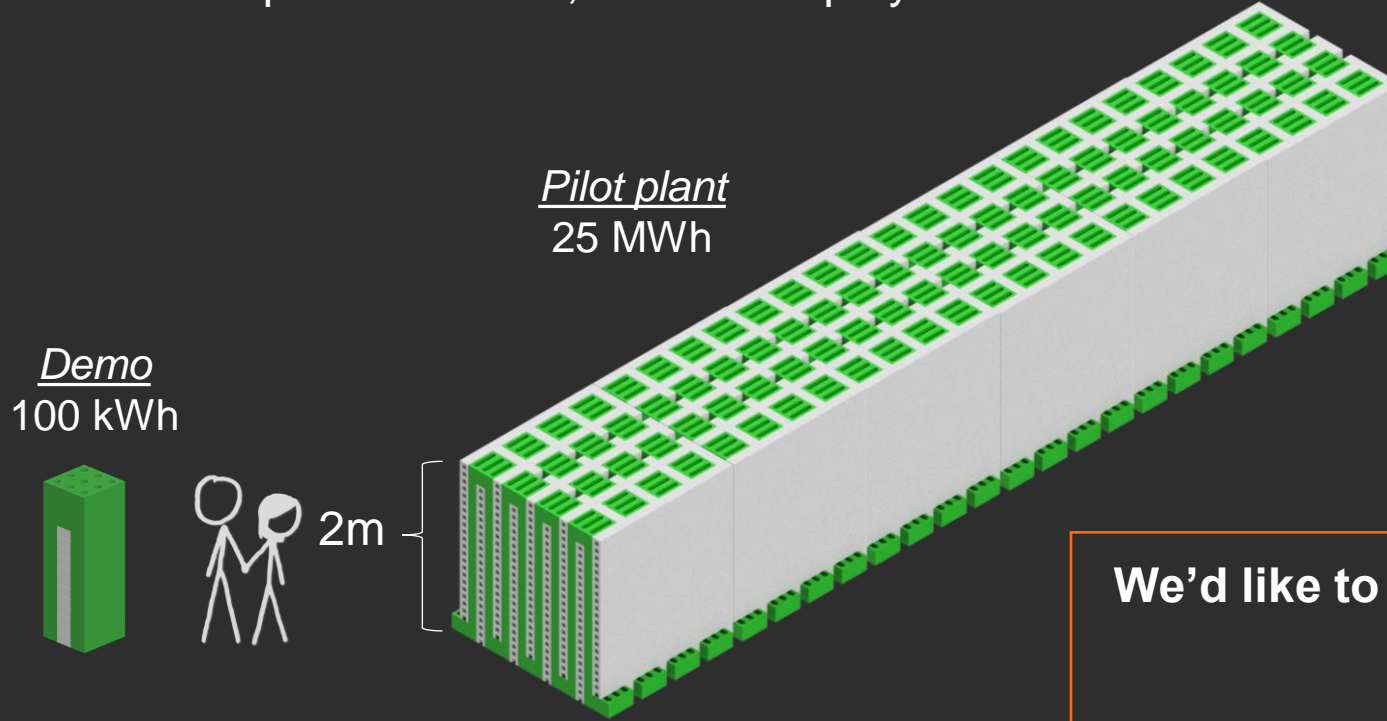


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Electrified Thermal has raised \$4.5M to build the Joule Hive

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X



We'd like to hook up to your turbines and power plants

**Daniel.Stack@**  
**www.electrifiedthermal.com**



*Replacing fire with **renewable heat**.*



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