BREAKTHROUGH LOW-COST, MULTI-DAY ENERGY STORAGE

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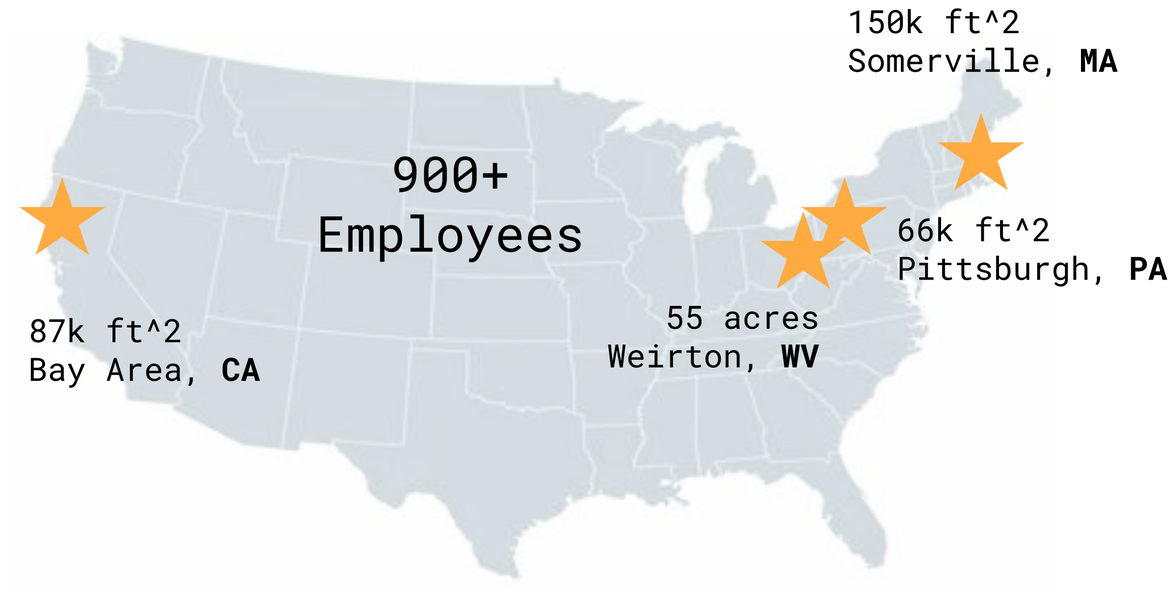
Form energy

Energy Storage
For A Better World

Form Energy Overview



LED BY ENERGY STORAGE VETERANS

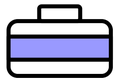
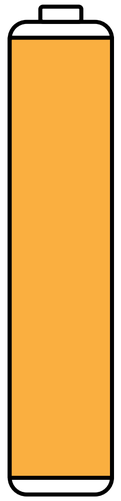
Decades of cumulative experience in energy storage

- 100’s of MW of storage deployed

OUR INVESTORS: LONG-TERM AND IMPACT-FOCUSED

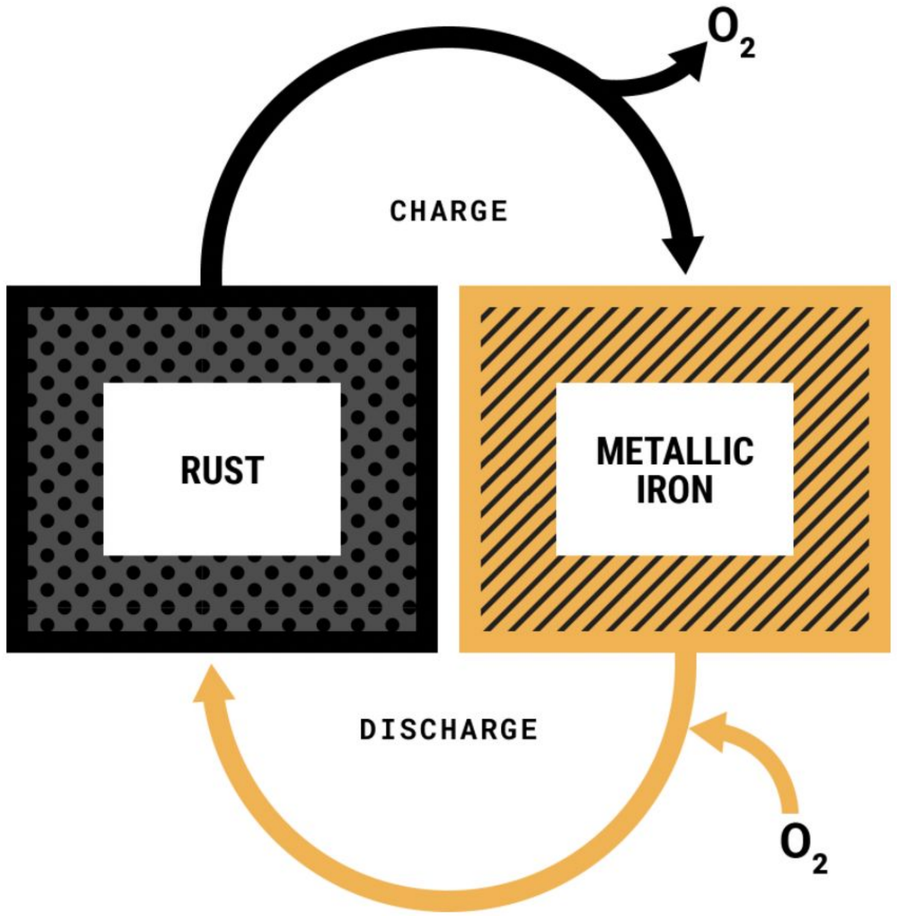
$1B+ in venture capital from top investors including: T. Rowe Price, GE Vernova, Breakthrough Energy Ventures (BEV), TPG’s Climate Rise Fund, Coatue Management, GIC, NGP Energy Technology Partners III, ArcelorMittal, Temasek, Energy Impact Partners, Prelude Ventures, MIT’s The Engine, Capricorn Investment Group, Eni Next, Macquarie Capital, Canada Pension Plan Investment Board, and other long-term, impact oriented investors

Multi-day Storage is a low-cost energy reservoir for the electricity grid

	Short-duration storage *Example: 4 hr Li-ion Battery*	Intra-day LDES *Example: 12 hr Flow Battery*	Multi-day Storage *Example: 100 hr Iron-air Battery*	Comparison
Energy capacity / duration How much energy can the reservoir hold?	1 MW = 4 MWh stored energy = 4 hours of continuous energy supply 	1 MW = 12 MWh stored energy = 12 hours of continuous energy supply 	1 MW = 100 MWh stored energy = 100 hours of continuous energy supply 	Multi-day storage holds **25x more energy** than short-duration storage with the same MW capacity
Cost How much does the reservoir cost, in terms of energy (duration) and capacity (max output)?	~$250 per kWh of energy (reservoir size) ~$1,000 per kW of power (reservoir max output)	~$150 per kWh of energy (reservoir size) ~$2,000 per kW of power (reservoir max output)	~$20 per kWh of energy (reservoir size) ~$2,000 per kW of power (reservoir max output)	Multi-day Storage stores energy at **~1/10th the cost** of a short-duration battery

Rechargeable iron-air technology for multi-day storage

Reversible Rust Battery



COST

Lowest cost rechargeable battery chemistry.
Less than 1/10th the cost of lithium-ion batteries

SAFETY

Non-flammable aqueous electrolyte. No risk of thermal runaway. No heavy metals.

SCALE

Uses materials available at the global scale needed for a zero carbon economy. High recyclability.

RELIABLE

100+ hr duration required to make wind, water and solar reliable year round, anywhere in the world.

Form Factory 1: Commercial-Scale Manufacturing

Transforming Weirton Steel Land for Battery Manufacturing in West Virginia

Production Capacity: 500 MW / 50 GWh annual

Trial Production Start: September 2024

Commercial Production Start: Late 2024

Investment & Jobs

- Total local investment: $760 million
- Jobs: Minimum of 750 full-time jobs

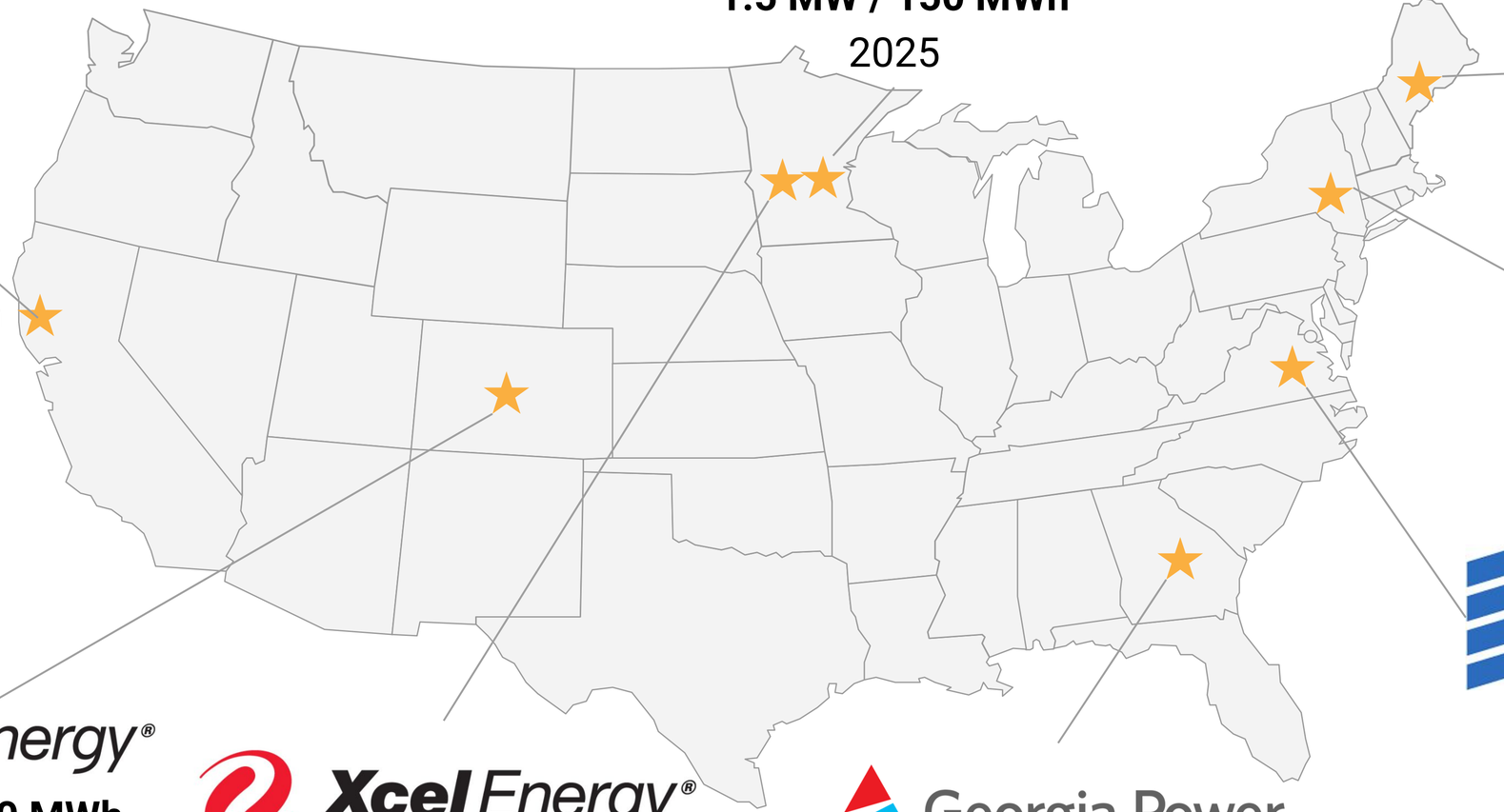
Location Benefits

- Close to our existing pilot manufacturing facility in PA
- Strong natural infrastructure
- Local manufacturing know-how

Factory Function

- Semi-to-fully automated cell, module, & enclosure assembly
- Ability to scale production in modular blocks

Over 14 GWh of Planned Deployments



GREAT RIVER ENERGY™

Broke ground Summer 2024

1.5 MW / 150 MWh

2025

85 MW / 8500 MWh

2027-2028

5 MW / 500 MWh

2026

NEW YORK STATE | NYSERDA

10 MW / 1,000 MWh

2026

CO regulatory approval ✅

Xcel Energy®

10 MW / 1,000 MWh

2026

Dominion Energy®

5 MW / 500 MWh

2025

VA regulatory approval ✅

Xcel Energy®

10 MW / 1,000 MWh

2025

MN regulatory approval ✅

Georgia Power

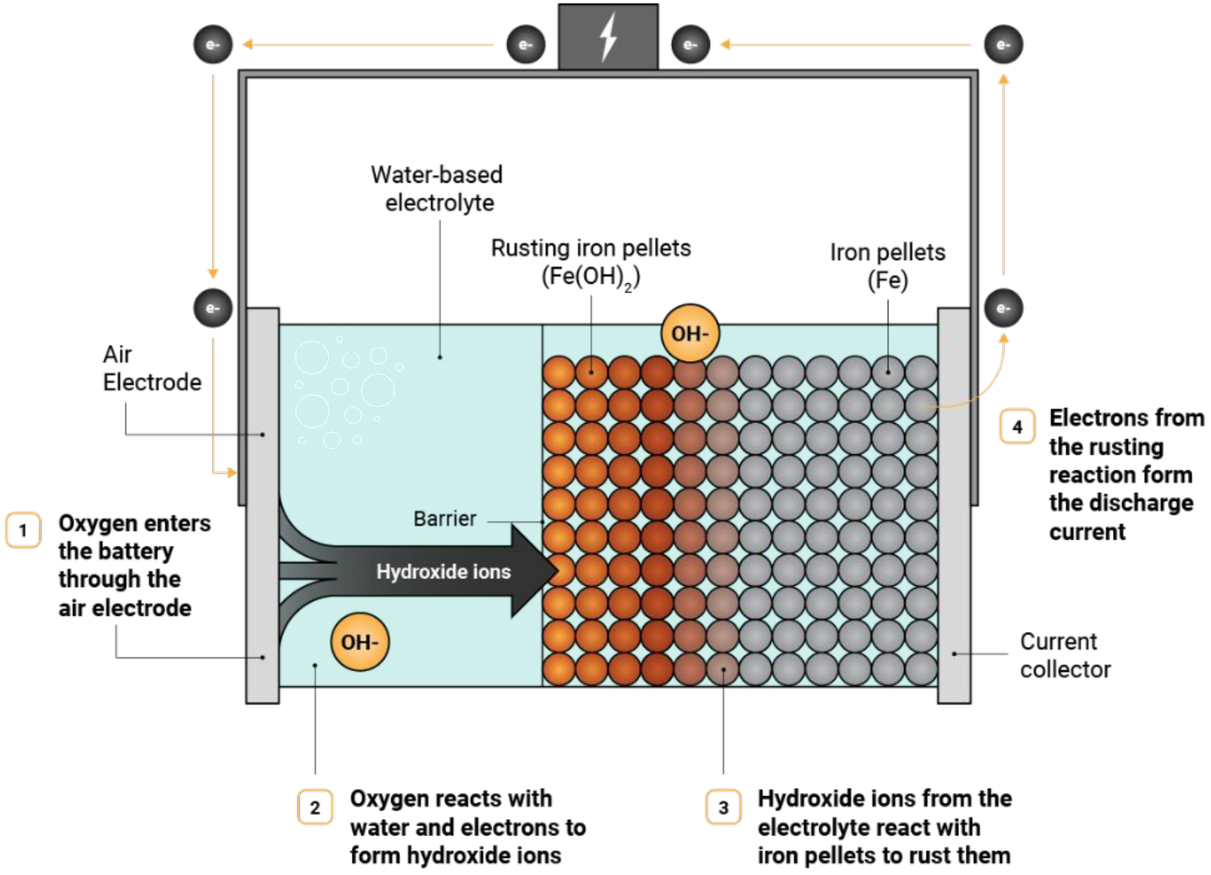
15 MW / 1,500 MWh

2026

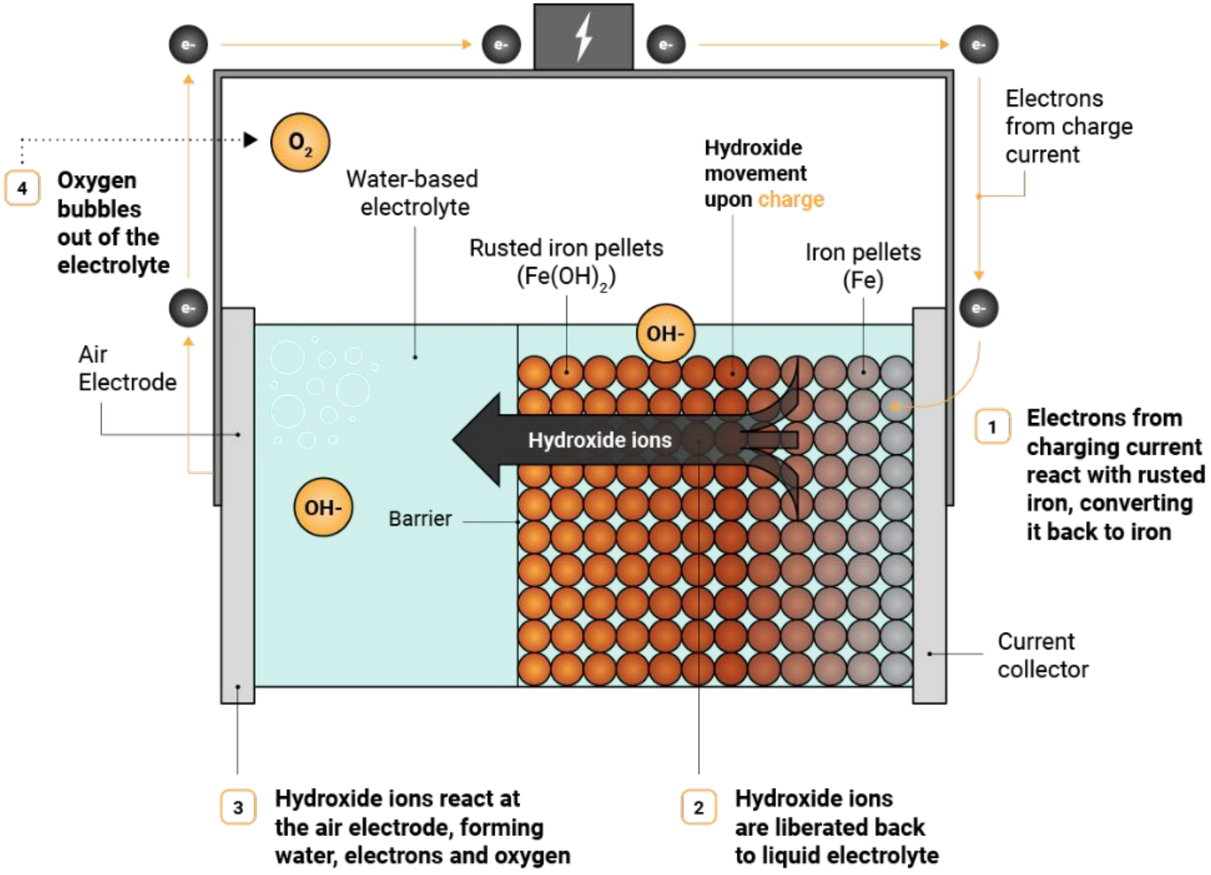
Technology Overview

Iron-Air Principle of Operation: “Reversible Rust”

Discharge

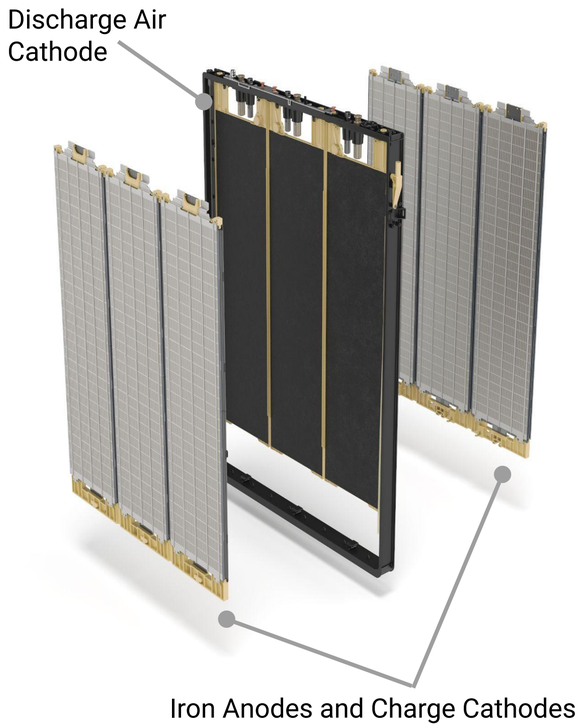


Charge



Form Multi-Day Storage is designed to enable high-quality in-house manufacturing & scaling to GWh systems

Electrodes



Iron Anodes & Discharge Air Cathodes are **Form-Made**

Cell

~0.15 kW / 15 kWh

~1.37m x 0.94m x 70mm

Electrodes + Electrolyte

Smallest Electrochemical Functional Unit

Form Assembled

Battery Module

~4.5 kW / 450 kWh

~1.8m x 1m x 2.5m

30 Cells

Smallest Building Block of DC Power

Form Assembled

Battery Enclosure

~45 kW / 4,500 kWh

~9.5’ x 8’ x 40’

10 Modules

Product Building Block with Integrated Auxiliary Systems

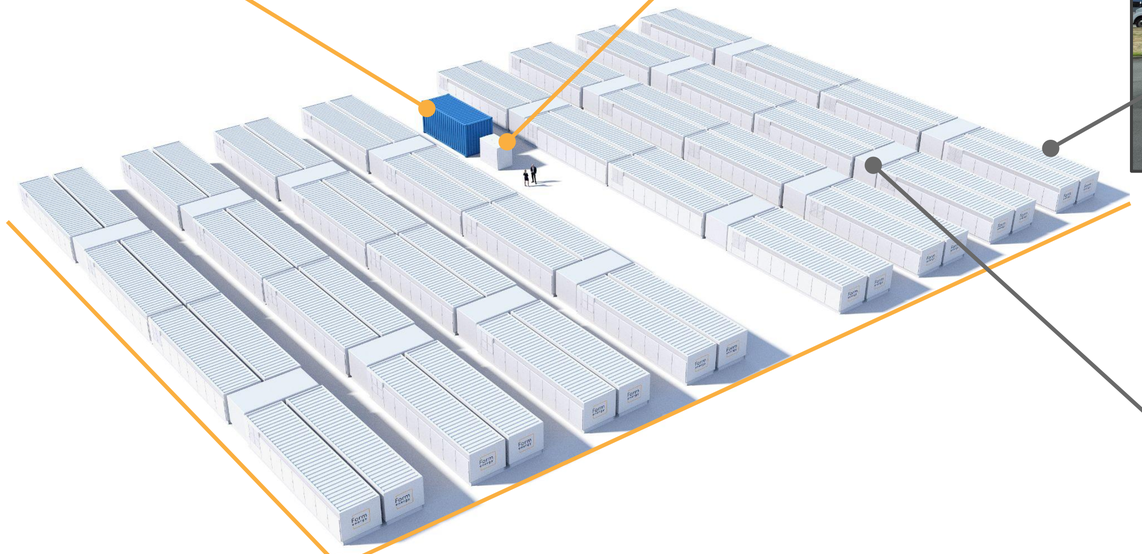
Form Assembled

Form Multi-Day Storage is uniquely modular & scalable, can be sited anywhere

2.5 MW Power Block deployed with industry standard approach for power systems

Water treatment skid
(optional water storage not shown)

3-4 MW Inverter



~200 ft
(~2 MW/Acre)

Battery Enclosure

~10x battery modules per enclosure

Auxiliary Skid

Each Auxiliary Skid houses a DC/DC converter and communications/electrical panels for a group of 4 battery enclosures

Form Energy's Iron-Air system uses an inherently safe chemistry and is designed to highest safety standards

Inherent Safety of Iron Air

SAFE COMPONENTS

Non-flammable materials, no heavy metals
Iron, air, & alkaline water-based electrolyte

NO THERMAL RUNAWAY

No mechanism for positive feedback loops that drive increasing temperatures

NO DENDRITES

No mechanism for internal short-circuit due to dendrite formation

System Standards & Features

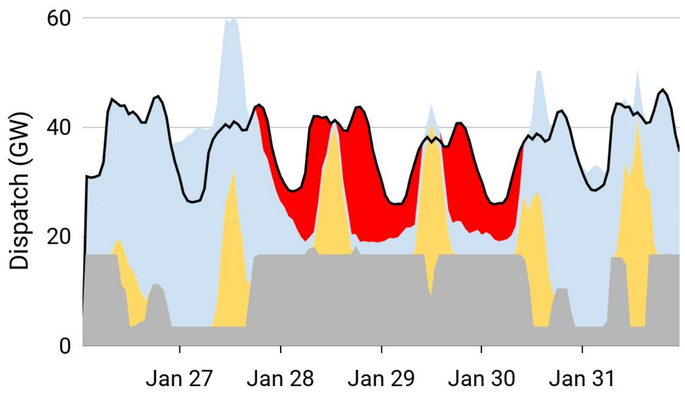
- **Target Certifications**
  - *Battery: NRTL certified to UL 1973*
  - *ESS: NRTL certified to UL 9540; UL 9540A tested*
  - *Inverter: IEEE 1547; UL 1741*
- **Design Safety Codes & Standards**
  - *Installation: NFPA 855*
  - *Electric: NFPA 70 (NEC)*
  - *Fire/Building: NFPA 1; IBC-2021, IFC-2021*
- **System Safety Features**
  - *Monitoring, detection, alarms at BMS*
  - *Redundant fault detection & mitigation*
  - *Containment at cell, module, & system*
  - *Exhaust system coupled to modules & enclosure*

Applications

The grid is increasingly vulnerable to multi-day reliability risks driven by weather

Prolonged energy scarcity for 24+ hour periods

Example: ISO-NE winter wind lull[1]

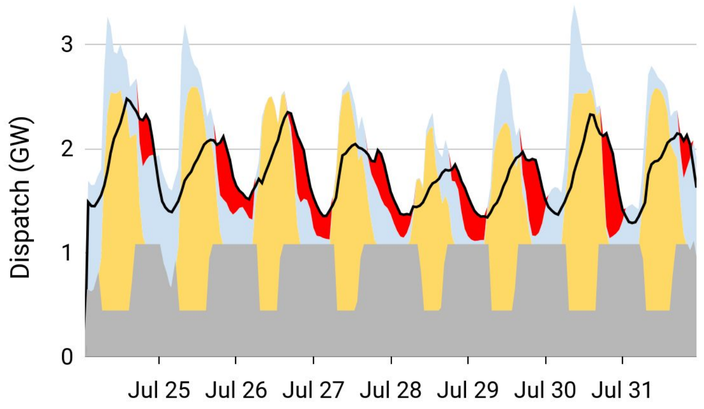


The challenge: Continuous periods of high net load or fuel shortages/price spikes can put the grid at risk of outage for 24+ hour periods.

Causes: multi-day wind generation lulls, winter storms (resulting in demand surges and fuel scarcity)

Back-to-back days with 8+ hours of tight conditions

Example: WECC utility during summer week[2]

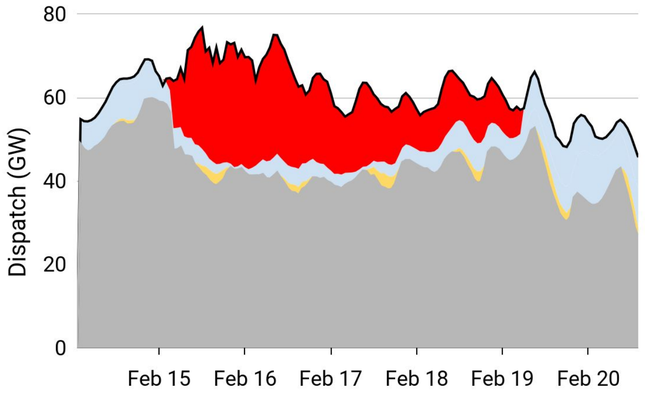


The challenge: Back-to-back days of high peak demand results in reliability risks during afternoon & evening hours. The system has insufficient energy to fully recharge short-duration batteries.

Causes: multi-day heat waves, multi-day stretch of low solar output

Extreme weather events lasting several days

Example: ERCOT Winter Storm Uri[3]



The challenge: Extreme weather events can result in prolonged grid failure, creating a need for firm energy reserves that can be dispatched for several days.

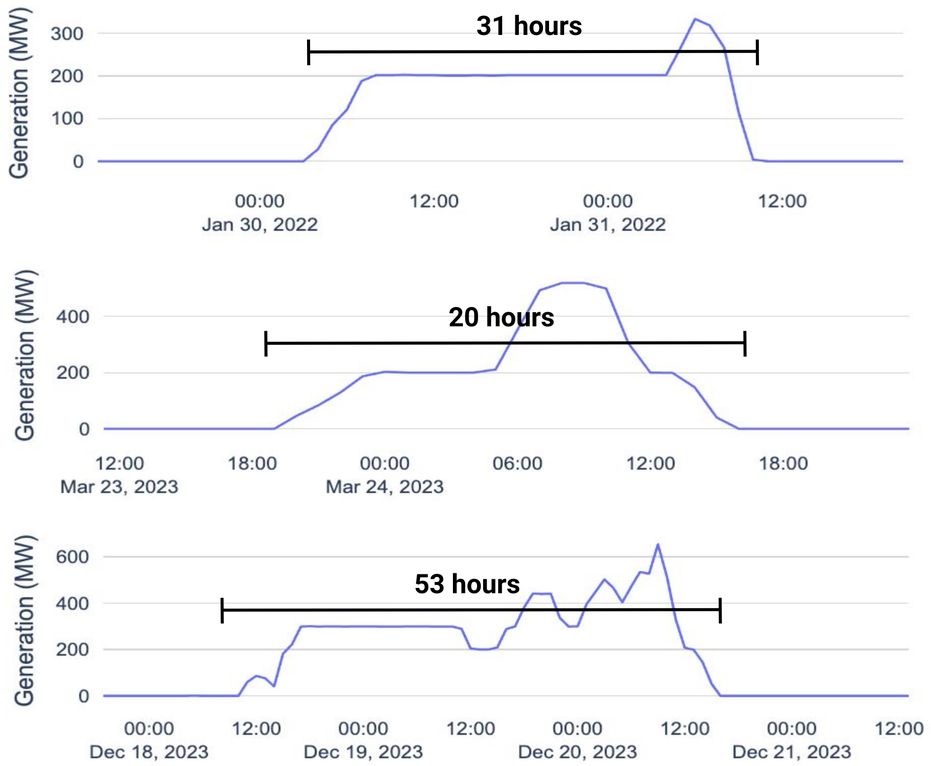
Causes: extreme storm conditions (e.g. Uri, Elliot, etc.) resulting in multi-day thermal outages, renewable outages, and/or limited regional import availability

[1] Full study available at Wilson *et al.*, "Clean, Reliable, Affordable: The Value of Multi-Day Storage in New England," September 2023.
[2] Operational simulation in Formware™ of 2035 WECC utility portfolio
[3] Historical ERCOT operational data during Winter Storm Uri from EIA-930

The grid needs resources than can deliver multi-day reliability

Historically, coal and gas generators have been dispatched over multi-day periods to keep the grid reliable

2022-23 dispatch of Southeastern Utility "reliability-only" gas peaker



Rapid changes to the grid are creating an acute need for new multi-day reliability assets

Rapid load growth driven by electrification and large C&I loads, with a 38 GW increase in US peak demand forecasted by 2028(2)

Increasing supply from intermittent renewables, with renewable share of total US electricity supply expected to increase to 49% by 2030(3)

Retirement of aging thermal generators, with 96 GW (~12%) of US fossil and nuclear capacity expected to retire by 2028(1)

Increasing exposure to extreme weather events, with the number of billion-dollar climate events in the US increasing by 68% over the last decade(4)

Sources: (1) North American Electric Reliability Corporation, "2023 Long-Term Reliability Assessment," December 2023 & U.S. Energy Information Administration, "Electricity explained: Electricity generation, capacity, and sales in the United States". (2) Wilson & Zimmerman, "The Era of Flat Power Demand is Over," December 2023. (3) U.S. Energy Information Administration, "Annual Energy Outlook 2023". (4) NOAA National Centers for Environmental Information, "US Billion-Dollar Weather and Climate Disasters," as of June 2024.

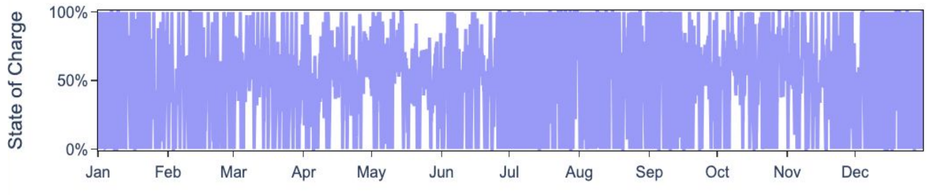
Multi-day storage and shorter duration technologies are designed to play distinct, complementary roles on the grid

Short-duration storage operations

Shifts energy from low-value to high-value periods **within each day**, i.e. high-efficiency diurnal cycling

~365 cycles per year (1,400 hours of discharge)

Example annual operations: 4 hour Li-ion battery



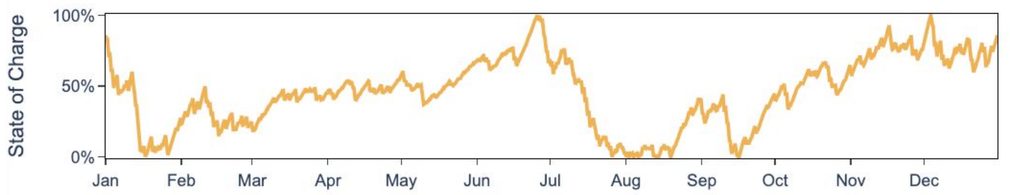
Delivers **2-4 hour bursts of peaking capacity**, recharging during off-peak hours

Multi-day storage operations

Shifts energy from low-value to high-value periods **across days, weeks, months, and seasons**

~8-13 cycles per year (800-1,300 hours of discharge)

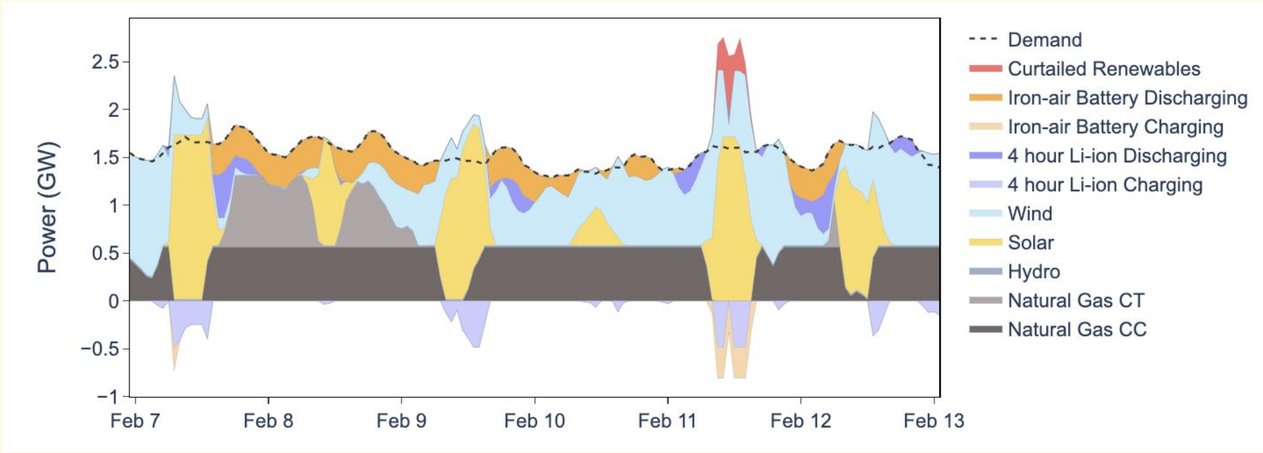
Example annual operations: 100 hour iron-air battery



Delivers **firm energy over prolonged grid stress periods**, without having to recharge each day

Complementary roles in maintaining reliability

Example: Winter week operations in MISO utility



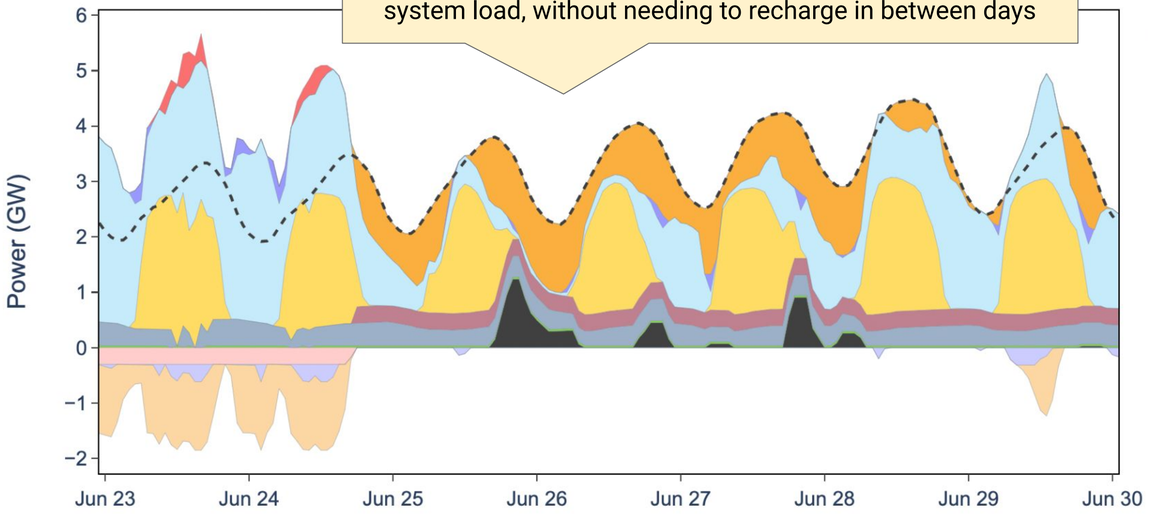
MDS delivers energy for several days at a time during periods of grid stress

Pacific Northwest utility 2030 least-cost portfolio

Portfolio with MDS

Total portfolio cost is 17% lower than portfolio without MDS, due to reduced storage overbuild, renewable overbuild, and thermal operations

MDS discharges continuously over a 72+ hour period to meet system load, without needing to recharge in between days

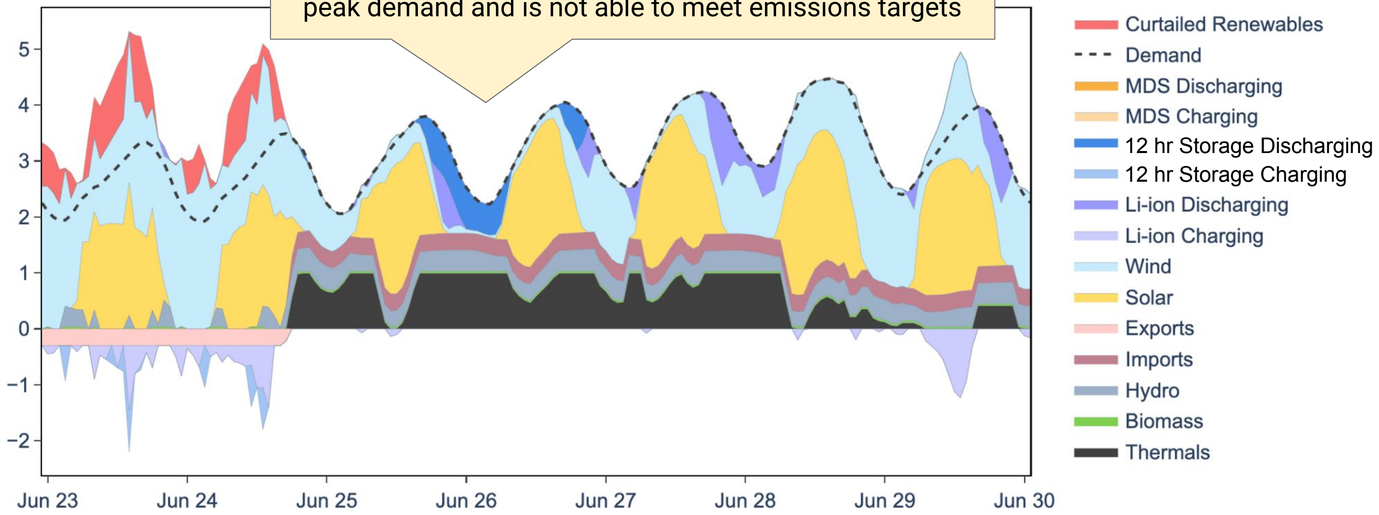


MDS absorbs excess wind generation, reducing curtailment

Portfolio without MDS

Annual emissions exceed 2030 target by 10%, unlike the portfolio with MDS which complies with target

System relies more heavily on thermal generation to meet peak demand and is not able to meet emissions targets



Excess energy is lost when relying on short duration solutions

Note: Summarizes and anonymizes an analytics engagement that Form Energy conducted with a utility located in the Pacific Northwest region.

Multi-day storage can provide a range of possible benefits

RELIABILITY/RESILIENCY

- Reduces total system costs, reducing both overbuild of other generation/storage resources and operating expenses
- Capable of “firming” renewable profiles at both the asset- and system-level, including over multi-day generation lulls

HEDGE AGAINST VOLATILITY

- Reduces total operating costs during periods of commodity price and/or market volatility

TRANSMISSION OPTIMIZATION

- Reduce uneconomic renewable energy curtailment, reduce transmission grid congestion, increase the total amount of low-cost renewable energy that flows across transmission boundaries, reduce needs for new transmission lines

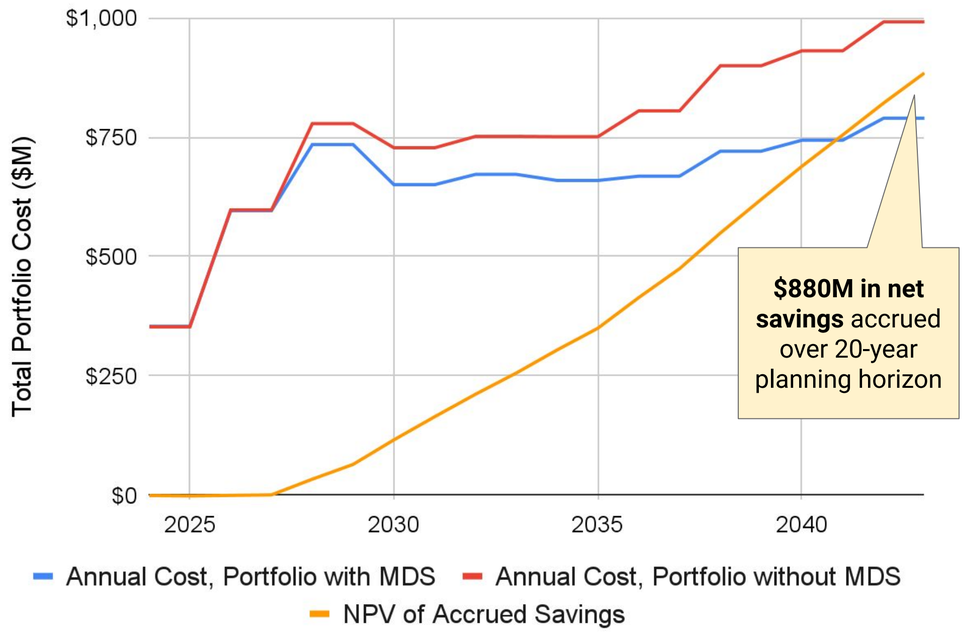
RENEWABLE FIRMING

- Capable of “firming” renewable profiles at both the asset- and system-level, including over multi-day generation lulls.
- Can shape renewable output to meet any load profile, including flexible and fast ramping needs

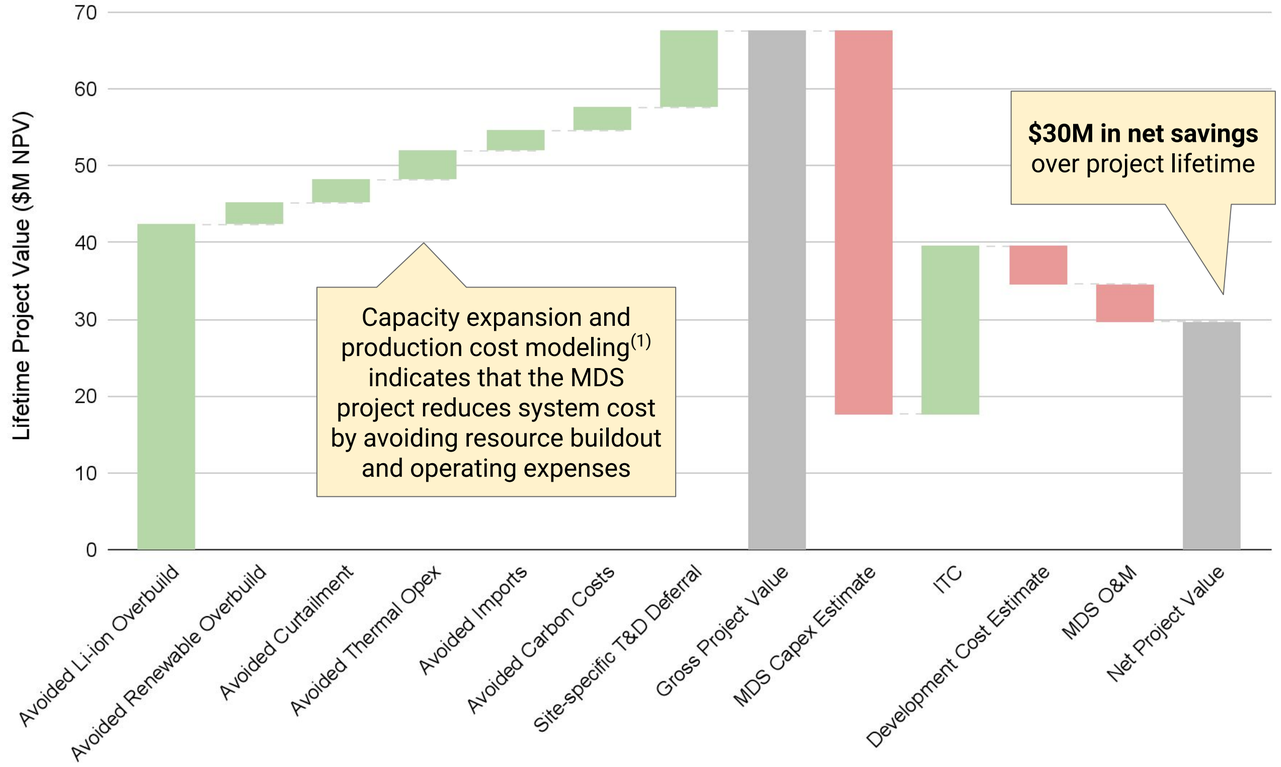
Application 1 | Multi-day storage reduces total cost of utility resource portfolio

Least-cost portfolio optimization for Mountain West utility selects MDS starting in 2027, with more than a gigawatt deployed by 2035

Long-term utility portfolio costs with and without MDS



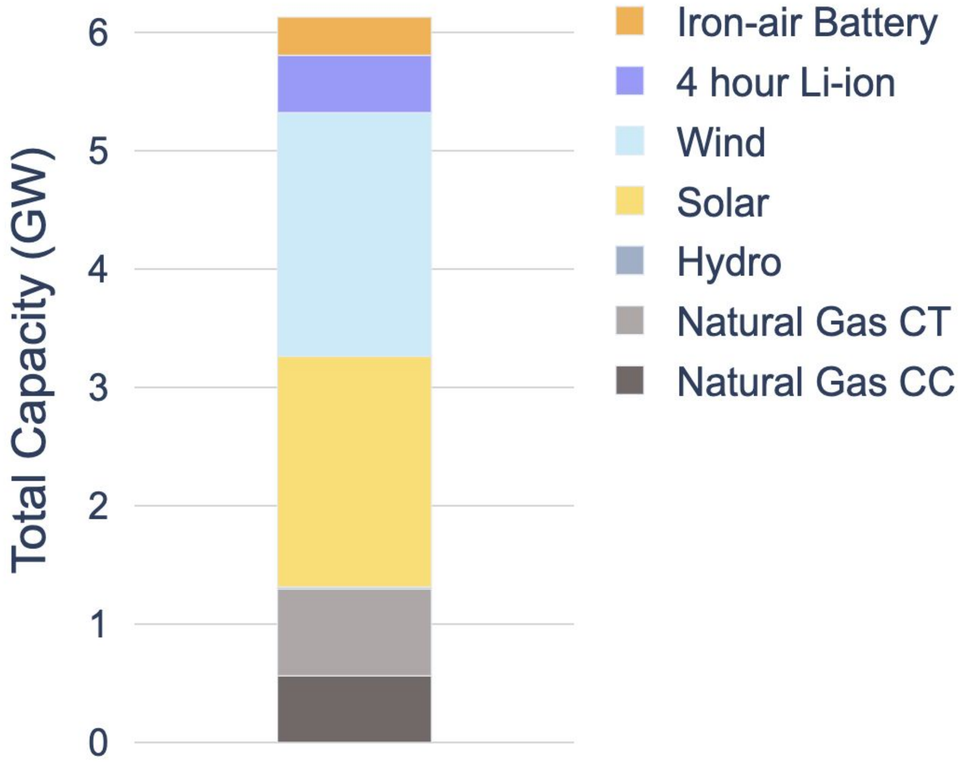
Value breakdown for a 25 MW MDS project in 2030



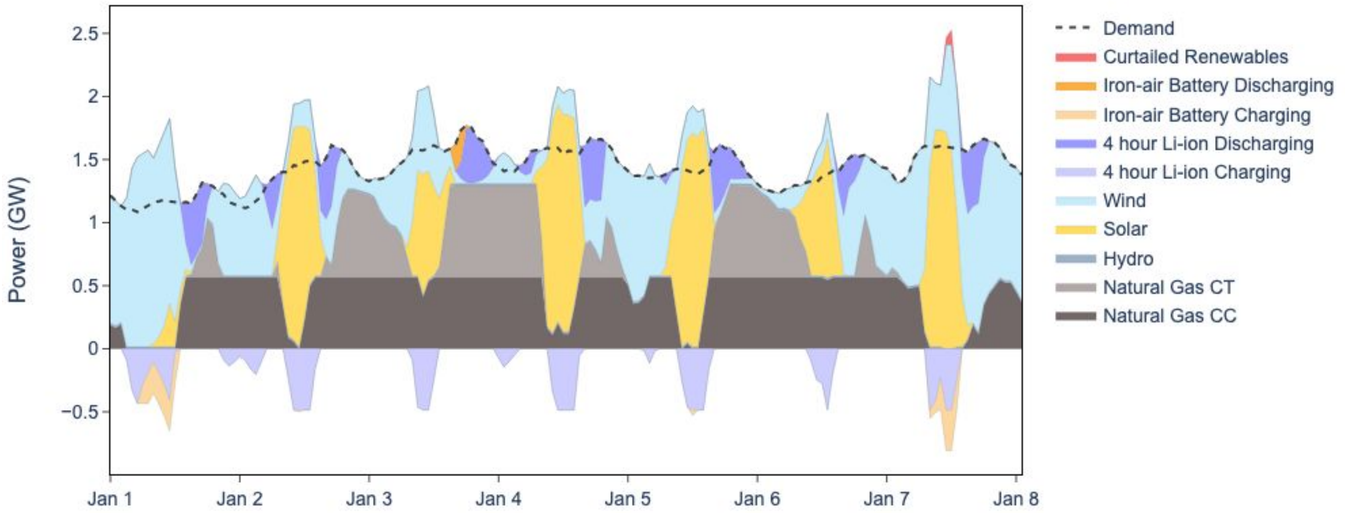
[1]Form Energy stresses the importance of implementing modeling best practices that capture year-round storage operations and weather variability. Commercially-available resource planning tools often struggle to accurately represent multi-day storage operations and its value within a resource portfolio. The presented analysis was performed in Formware™, which is designed to implement aforementioned best practices, such as portfolio optimization with 8760 hour temporal granularity.

Application 2 | MDS reduces portfolio operating costs during commodity price spikes

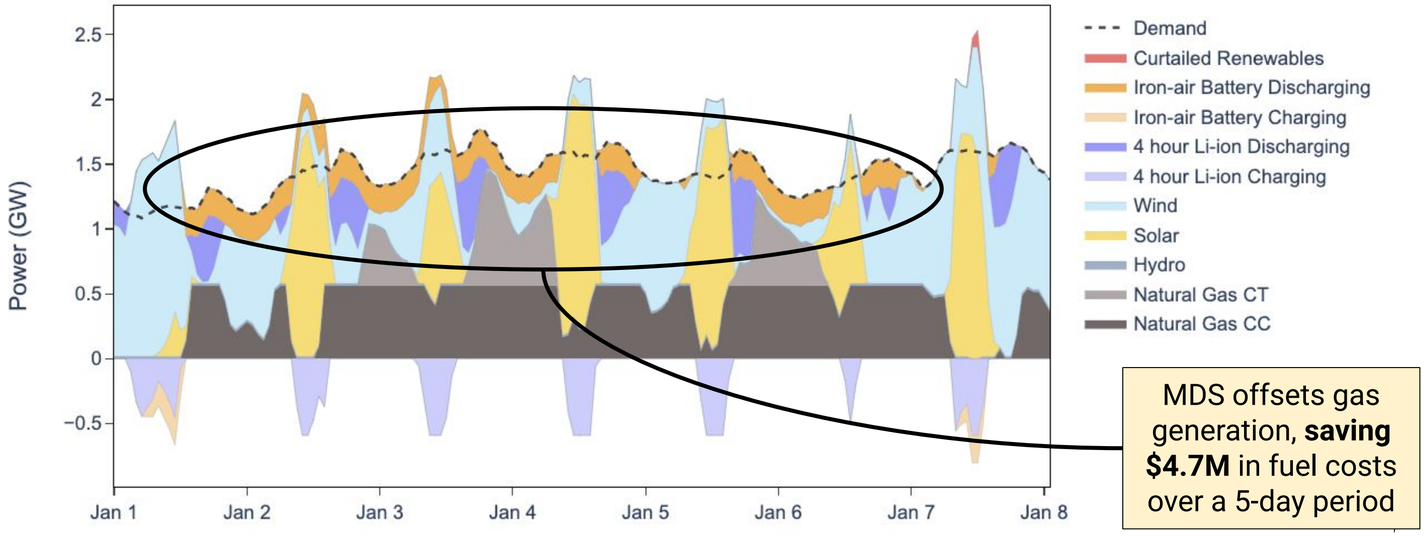
Midwestern Utility 2030 Least-cost Resource Portfolio



Winter week operations, typical gas price of $3/MMBtu



Winter week operations, gas price spikes to $23/MMBtu(1)



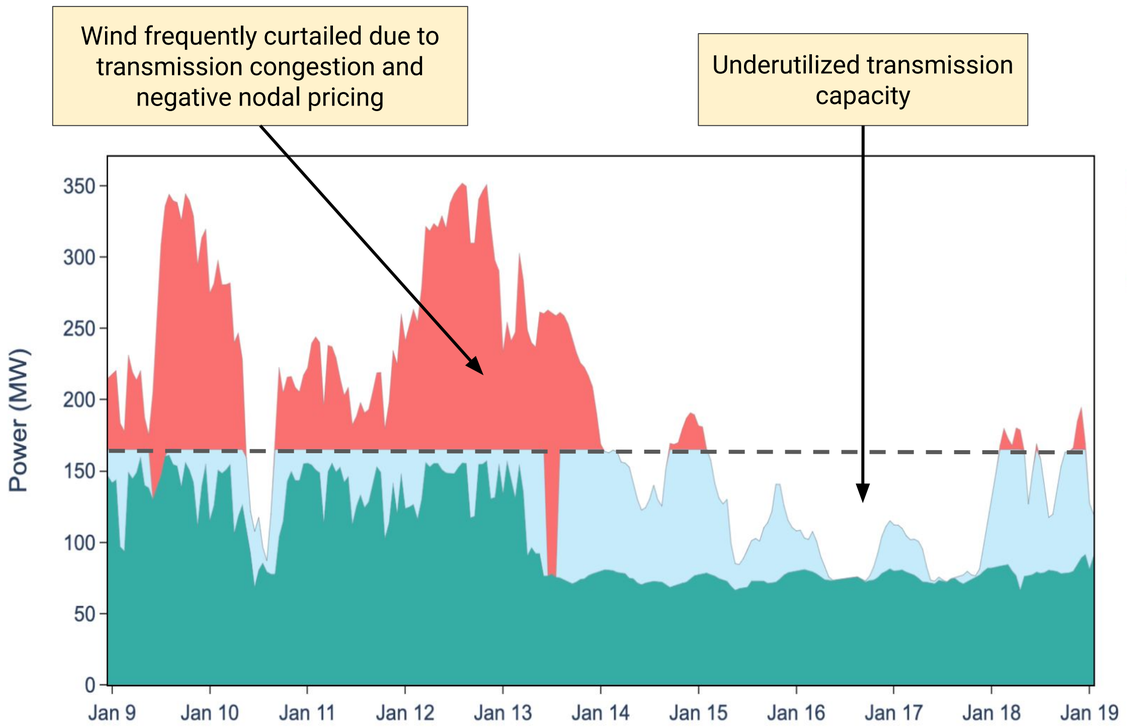
MDS offsets gas generation, **saving $4.7M** in fuel costs over a 5-day period

Note: (1) Average MISO-N natural gas spot price in February of 2021

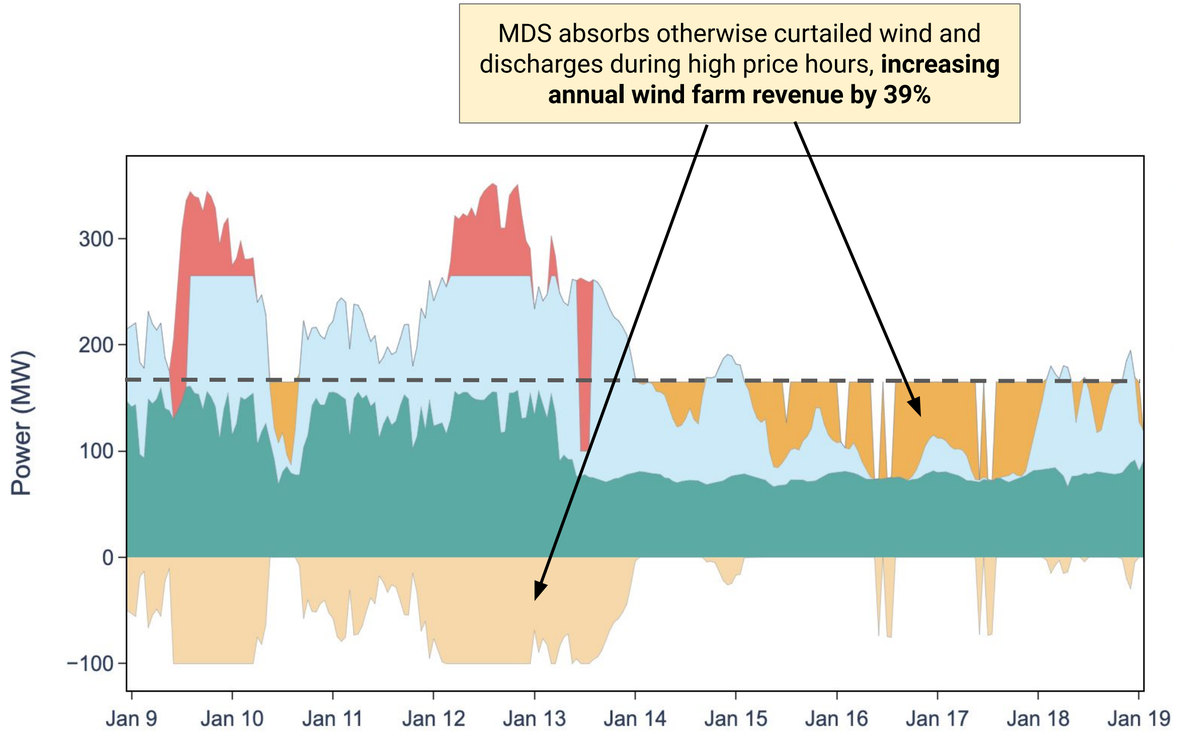
Application 3 | MDS balances generation from renewable assets to maximize revenue

Wind farm operations at transmission-constrained node in New England(1)

Without MDS



With MDS

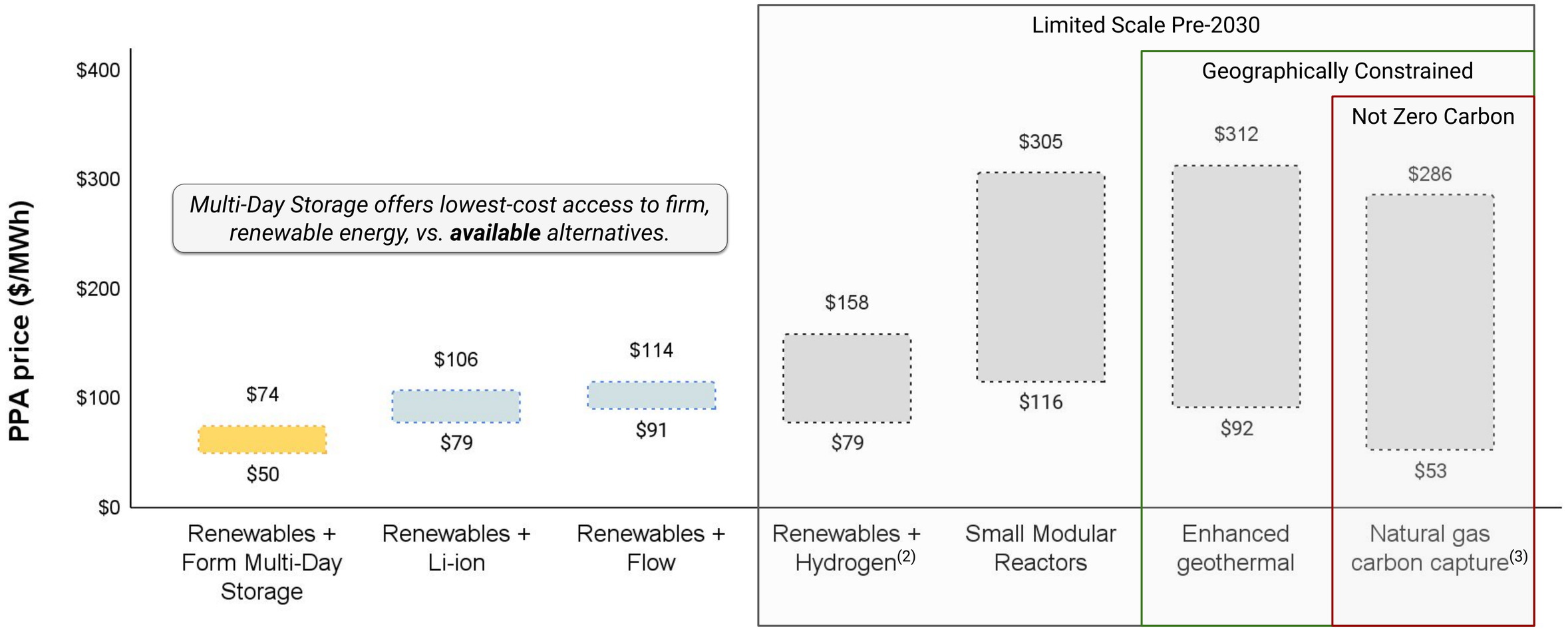


Dispatched Wind
Nodal Transmission Limit
Curtailed Wind
MDS Charging
Existing Transmission Congestion
MDS Discharging

Note: (1) Simulation based on historical weather conditions (wind generation, nodal pricing) across 5 historical weather years, 2018-2022. The displayed operations are from the 2022 weather year.

Application 4 | Multi-Day Storage + renewables offers a cost-effective, readily scalable pathway to 24/7 hourly matched carbon free energy for corporate offtakers

Indicative price ranges for 2030 firm, zero-carbon data center power purchase agreement(1)



Note: (1) Indicative model solves for 10% unlevered, after-tax IRR on 15-year PPA term with 95% hourly matching, in renewable-rich regions. Technology cost inputs from public sources (e.g., NREL ATB 2023). (2) Tanked (not geologic). (3) Low-end costs theoretical; high-end costs informed by real-world CCS projects (e.g., Boundary Dam, Kemper).

Thank you!