BREAKTHROUGH LOW-COST, MULTI-DAY ENERGY STORAGE

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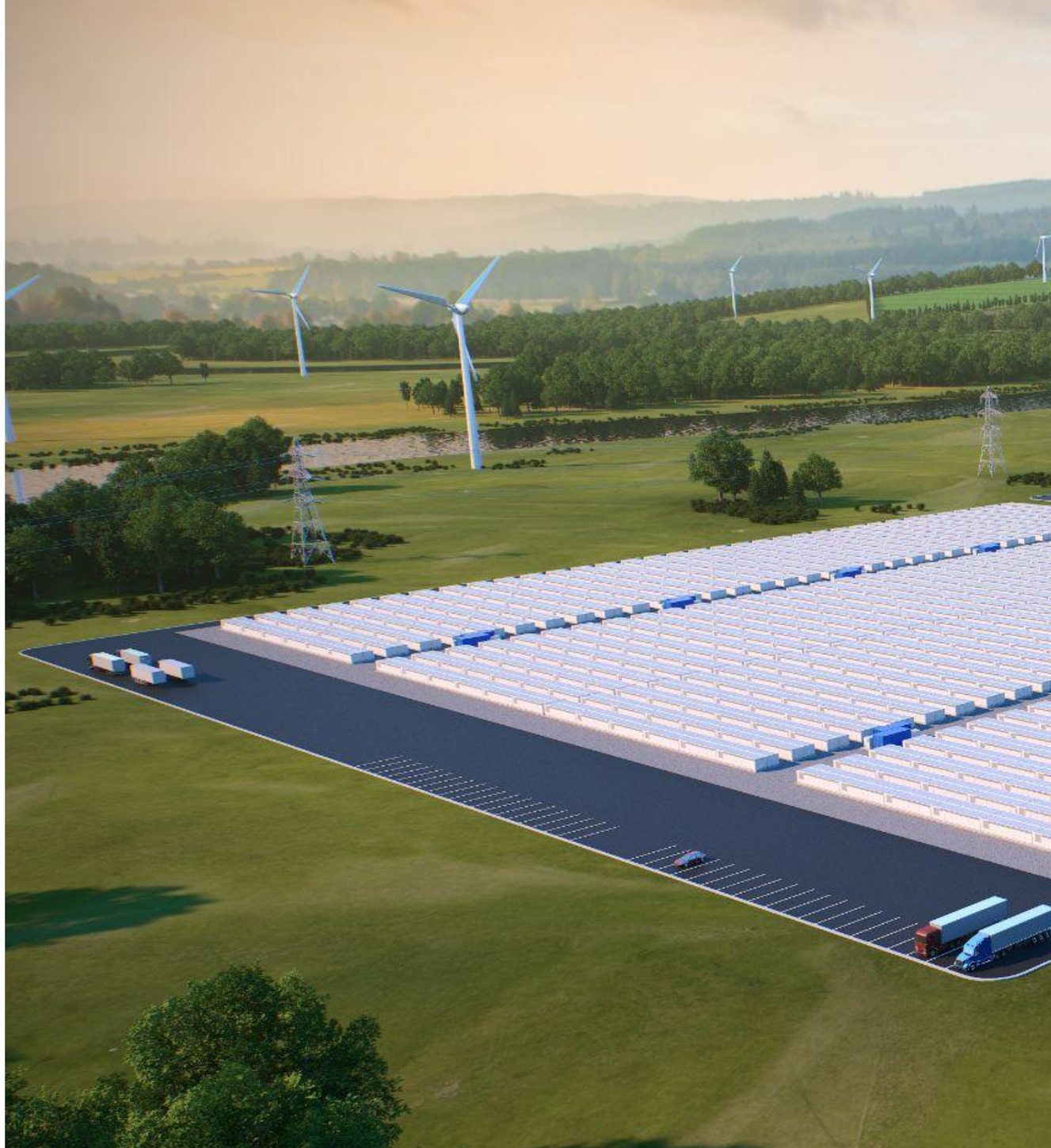
ESIG

Form energy

Energy Storage
For A Better World



The Challenge

The electrical grid needs to fundamentally transform to meet the challenges posed by climate change

Intermittency of renewable assets create periods of undersupply

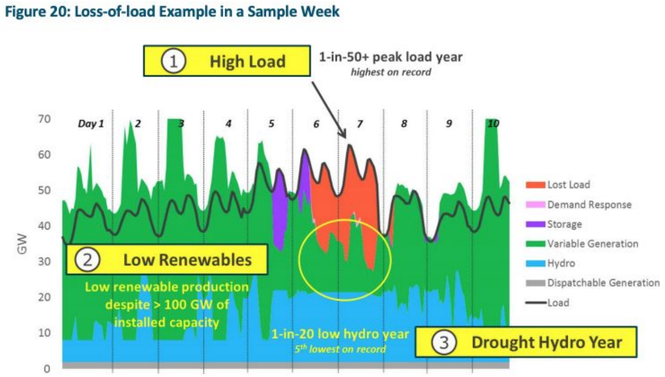
Carbon mandates require retirements and risk stranding fossil assets

Extreme weather events become more frequent and disruptive to customers

Increased transmission congestion and long interconnection queues

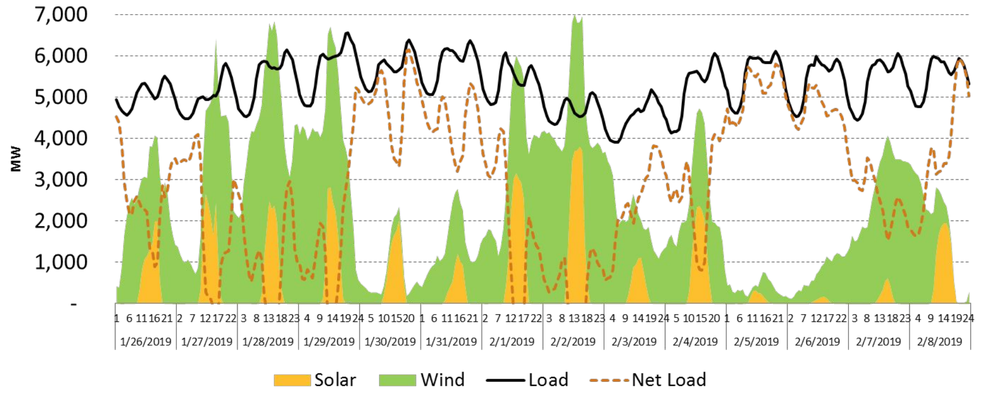
Weather-driven multi-day reliability challenges are universal

Pacific Northwest Multi-Day Weather Event, 2050



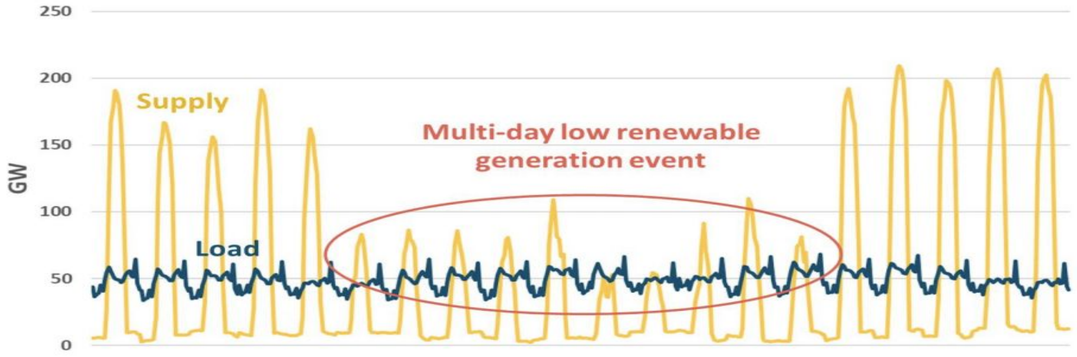
Source: E3, Resource Adequacy in the Pacific Northwest

Upper Midwest Multi-Day Weather Event in Winter, 2019



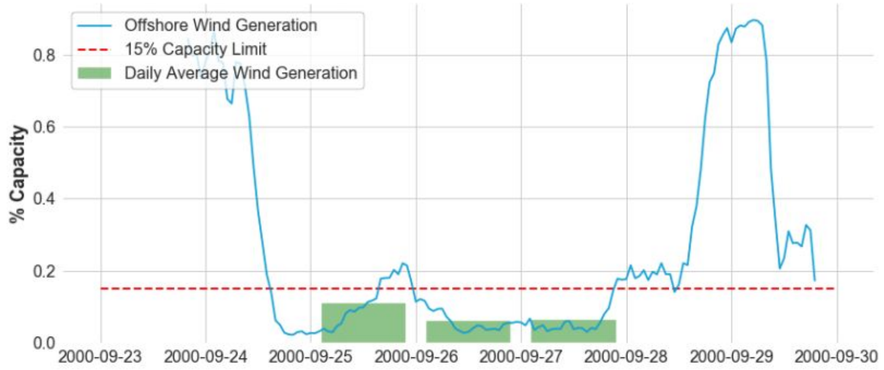
Source: Xcel Energy 2020-2034 Upper Midwest Resource Plan, May 20, 2019 Workshop

California Multi-Day Weather Event in Winter, 2050



Source: E3: Long-Run Resource Adequacy Under Deep Decarbonization

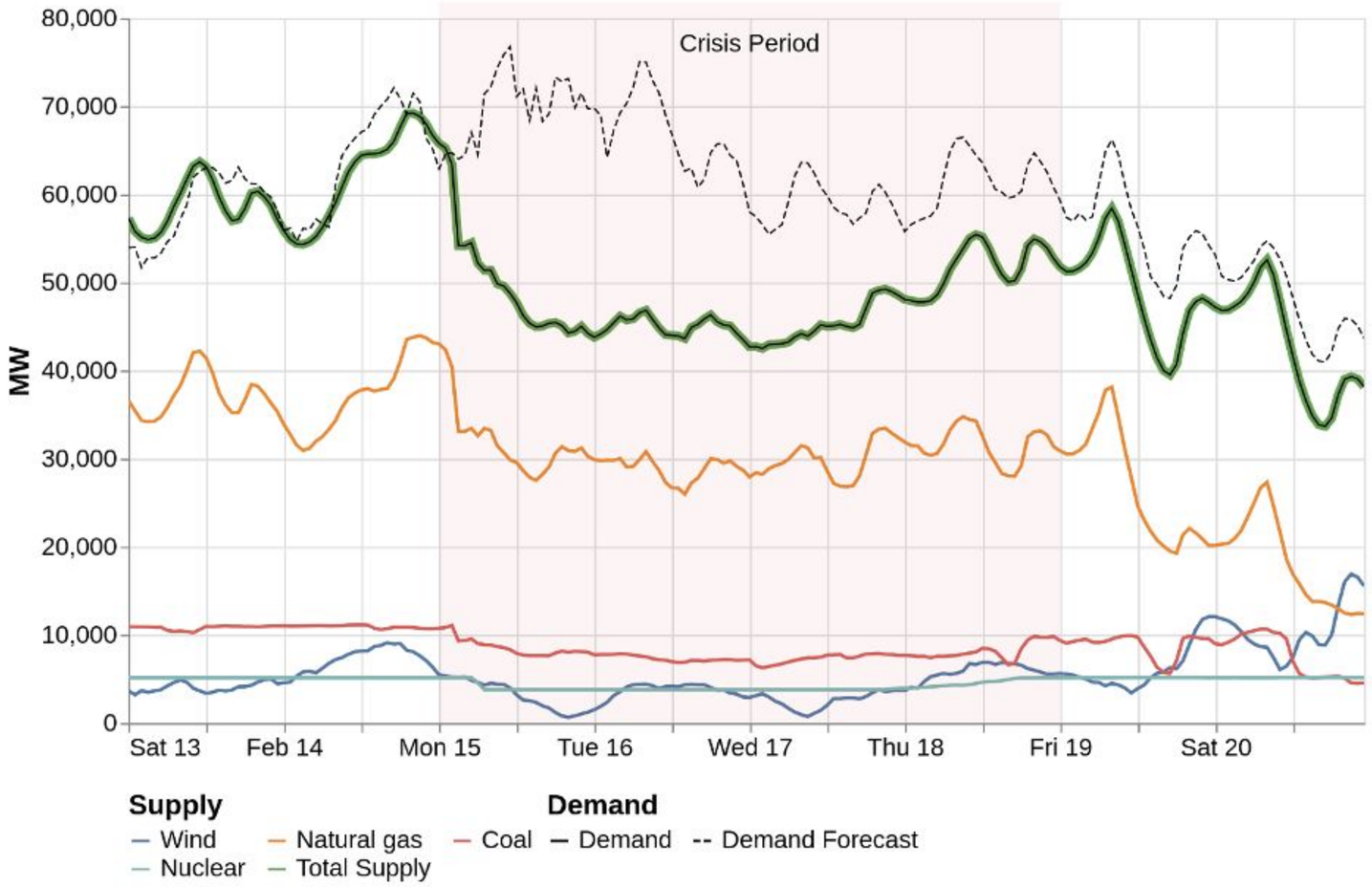
New England Multi-day offshore wind lull, 2000



Source: DNV-GL Analysis of Stochastic Dataset for ISO-NE

Winter Storm Uri highlights the near-term impacts of multi-day weather events

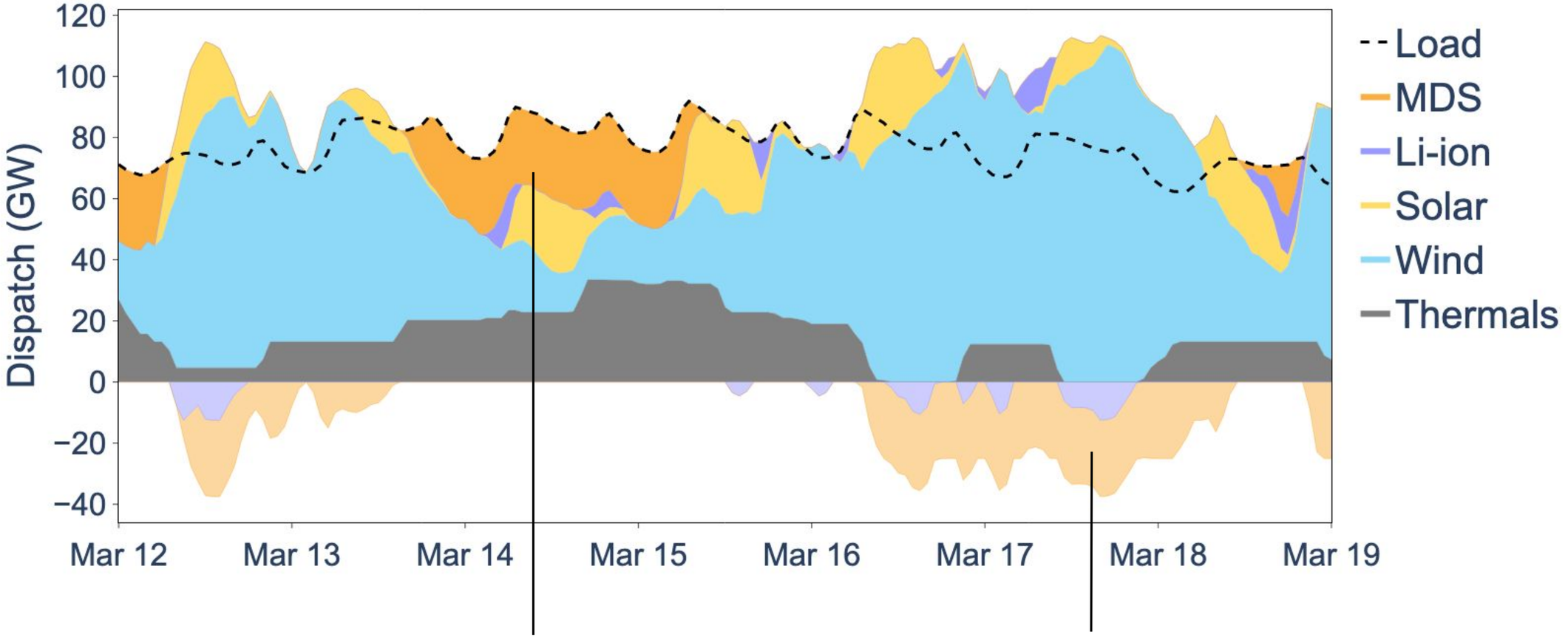
ERCOT Market Supply and Demand, February 12-17, 2022



- **Supply shortage:** 30GW of expected generation disappeared.
- **Cost to system**: >$30B in extreme energy prices and >$50B in damages.
- **Solution**: At low cost, weatherized multi-day storage could have cost-effectively ensured reliability during Winter Storm Uri

Delivering low-cost, reliable energy through multi-day renewable energy lulls

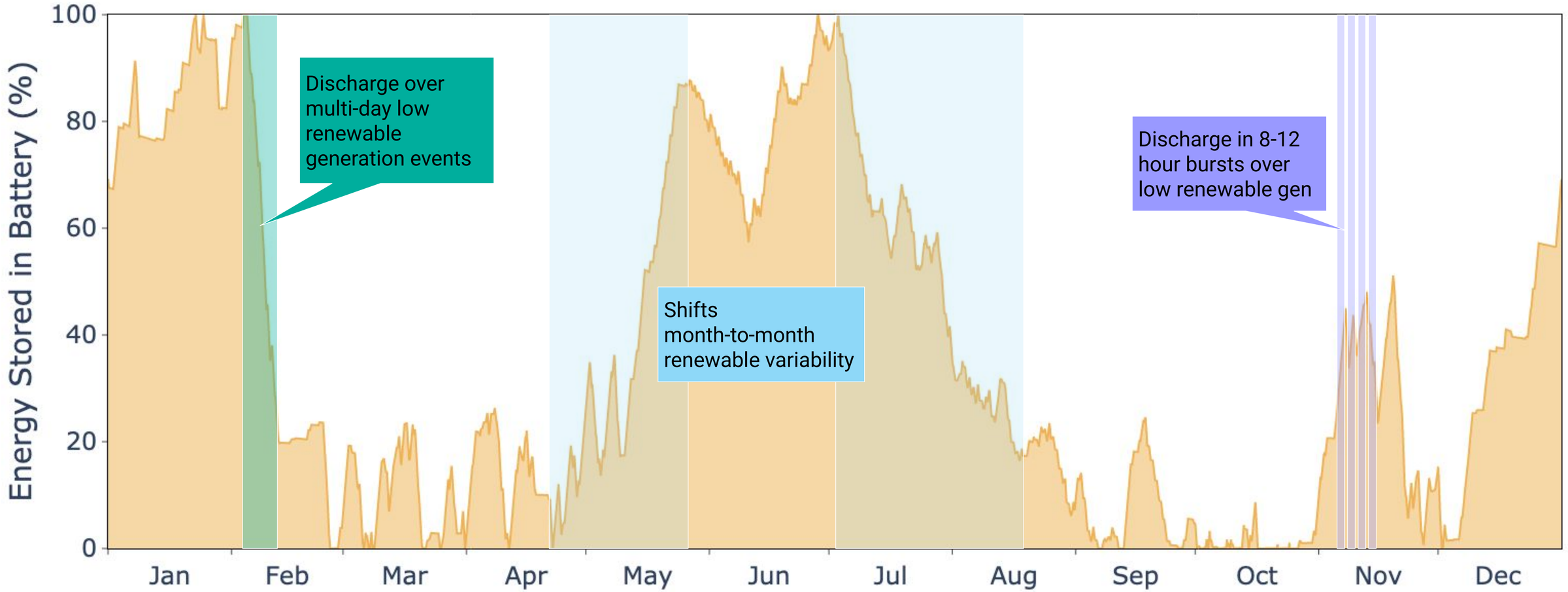
Example dispatch during multi-day renewable lull



Discharges
over multi-day renewable energy lulls

Charges
over periods of high renewable generation

Multi-Day Storage operates year-round to balance seasonal, multi-day, and intra-day variability in renewables



Multi-Day

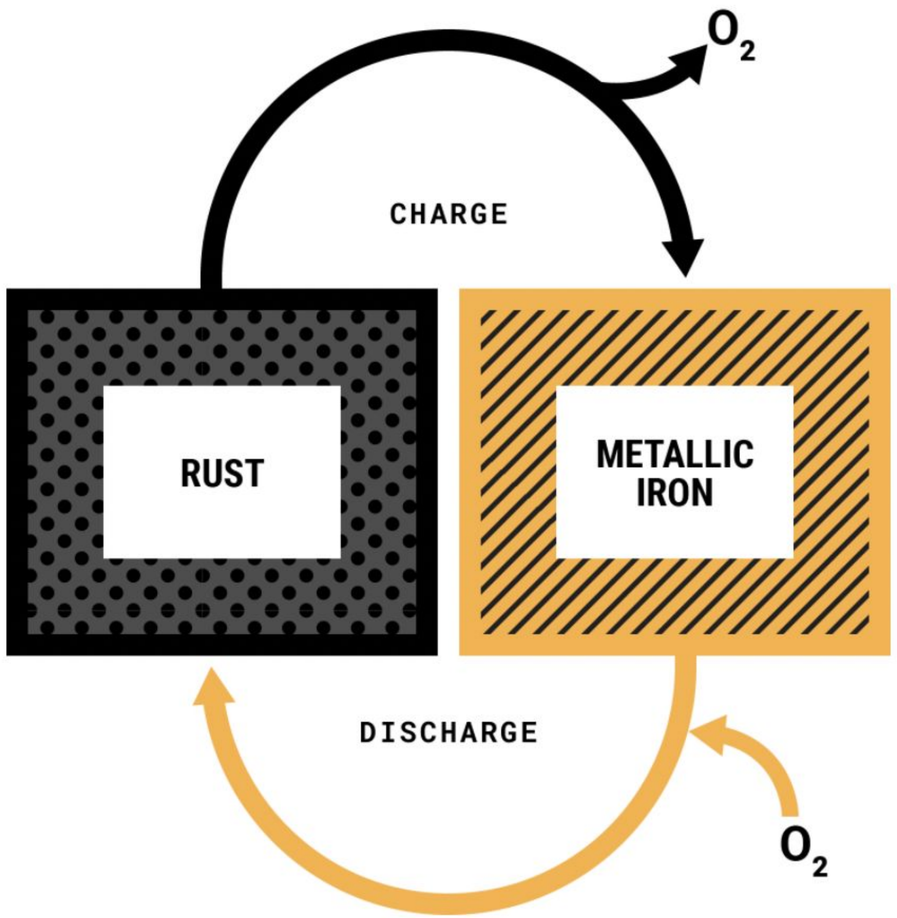
Seasonal Up
(net charge with excess renewables)

Seasonal Down
(net discharge during peak load season)

Intra-Day

Rechargeable iron-air delivers fundamental system flexibility

Reversible Rust Battery



COST

Lowest cost rechargeable battery chemistry.
Chemistry entitlement <$1.00/kWh

SAFETY

No thermal runaway (unlike li-ion)
Non-flammable aqueous electrolyte

SCALE

Iron is the most globally abundant metal
Easily scalable to meet TWh demand for storage

MODULAR

No geographic limitations: can be sited anywhere to meet utility-scale needs.

Iron-Air 100hr Multi-Day Storage delivers clean, dispatchable, capacity for flexible grid operation

System Overview

Rated AC System Power	10 - 500+ MW
System Capacity	1 - 50 GWh
Repeatable Power Block	3.5 MW / 350 MWh
Discharge Duration	100 hr
Overall Round Trip Efficiency*	39%
Ramp (offline to full power)	< 10 minutes
Areal Energy Density	> 200 MWh/acre
Operating Temperature	-40°C - 50°C
System Lifetime	20 years

**System round-trip efficiency inclusive of losses from power conversion and auxiliary loads at full power*

Modular, flexible design enables scaling to multi-GWh systems

Energy Storage System

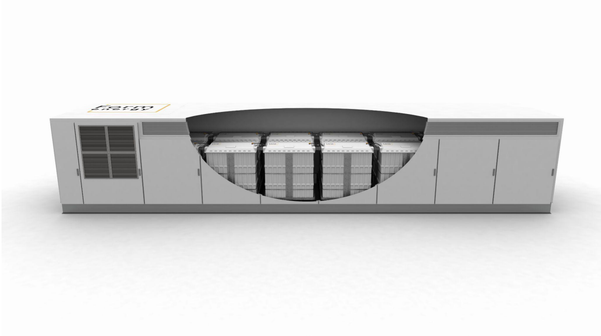
100+ MW / 10 GWh

50+ acres

1000s of **Enclosures**

Commercial Intent System

Enclosure



~ 10s kW

10 x 40’

5-10 **Modules**

Product Building Block with **integrated module auxiliary systems**

Battery Module

~ kW

1x1x1m

~10s **Cells**

Smallest Building Block of **DC** Power

Cell

< 1 kW

1x1 m

Electrodes + Electrolyte

Smallest **Electrochemical** Functional Unit

Commercial progress underway

Collaborating with Georgia Power on a project application of **up to 15 megawatts/1500 megawatt hours (MW/MWh)** of energy storage systems to be located in the utility's service area

"At Georgia Power, we know that we must make smart investments and embrace new technologies now to continue to prepare for our state's future energy landscape," said **Chris Womack, Chairman, President and CEO of Georgia Power.** "We're excited to have Form Energy as a partner to help us build on Georgia's solid energy foundation."

Partnering with Great River Energy to deploy a first-of-its-kind **1.5 megawatt/150 megawatt hour** multi-day energy storage project in Cambridge, Minnesota in 2023

"Great River Energy is excited to partner with Form Energy on this important project. Commercially viable long-duration storage could increase reliability by ensuring that the power generated by renewable energy is available at all hours to serve our membership," said **Great River Energy Vice President and Chief Power Supply Officer Jon Brekke.**

Thank You!