

# BREAKTHROUGH LOW-COST, MULTI-DAY ENERGY STORAGE

Clean Energy Expo - Wenatchee, WA  
December 14, 2023



Energy Storage  
For A Better World



# The Challenge

*The electrical grid needs to fundamentally transform to meet the challenges posed by the energy transition*



Intermittency of renewable assets creates periods of undersupply



Clean energy goals and changing economics risk stranding fossil assets



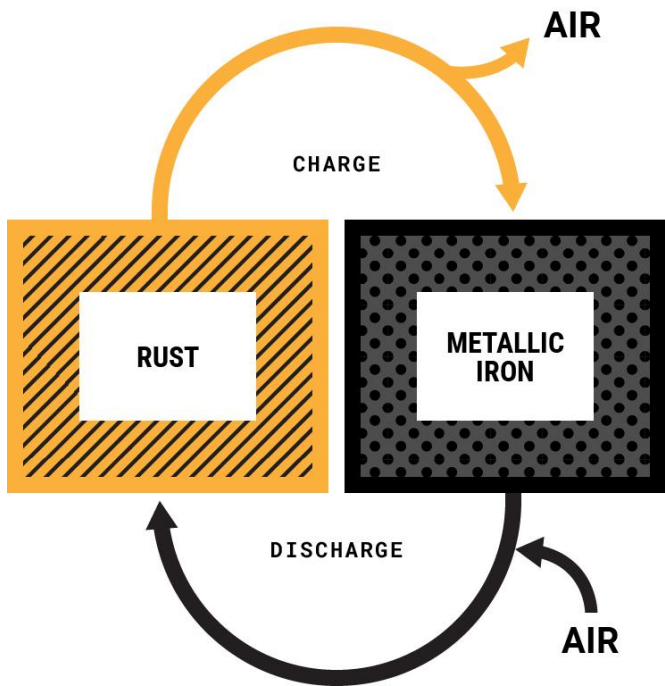
Extreme weather events are becoming more frequent and disruptive to customers



Transmission congestion and interconnection queues are increasing

# Rechargeable iron-air is the best technology for multi-day storage

## Form's 100-Hour 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 TW demand for storage



### DURABILITY

Iron electrode durability proven through decades  
of life and 1000's of cycles (Fe-Ni)

# Our rechargeable, static iron-air battery leverages globally abundant materials and off-the-shelf components

## SYSTEM BUILDING BLOCKS

### Iron Anode

- Highly abundant
- Very low cost metal
- Non-toxic
- Highly recyclable

### Air Electrodes

- Commercially proven air electrodes
- Readily scalable production

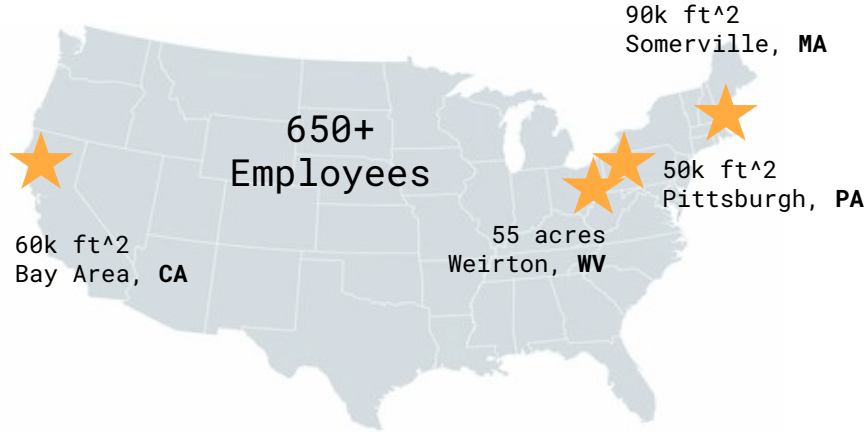
### Water based electrolyte

- High pH (similar to AA batteries)
- Non-flammable
- No heavy metals

### Balance of System

- Off-the-shelf water distribution, HVAC, & air handling system components
- Standard utility-grade inverter

# Form Energy Overview



## OUR INVESTORS: LONG-TERM AND IMPACT-FOCUSED

**\$820M+** in venture capital from top investors including: 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

LED BY ENERGY STORAGE VETERANS

Decades of cumulative experience in energy storage

- 100's of MW of storage deployed

TESLA  
ENERGY

SUNPOWER  
FROM MAXEON SOLAR TECHNOLOGIES

NEXTERA  
ENERGY

amsc

MIT  
Massachusetts  
Institute of  
Technology

A123  
SYSTEMS

24M



AQUION  
ENERGY

# Form Factory 1: Commercial-Scale Manufacturing

Transforming Weirton Steel Land for Battery Manufacturing in West Virginia



*Building rendering*

- **Total Local Investment:** \$760 million
- **Construction Start:** Early 2023
- **Production Start:** Late 2024
- **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 5 GWh of Commercial Engagements



First-of-its-kind **1.5 MW / 150 MWh** MDS project in Cambridge, Minnesota to come online in 2024



**Two 10 MW / 1,000 MWh** MDS systems; one in Becker, MN and one in Pueblo, CO. Both expected to come online as early as 2025



**10 MW / 1000 MWh** MDS system in New York to come online as early as 2025



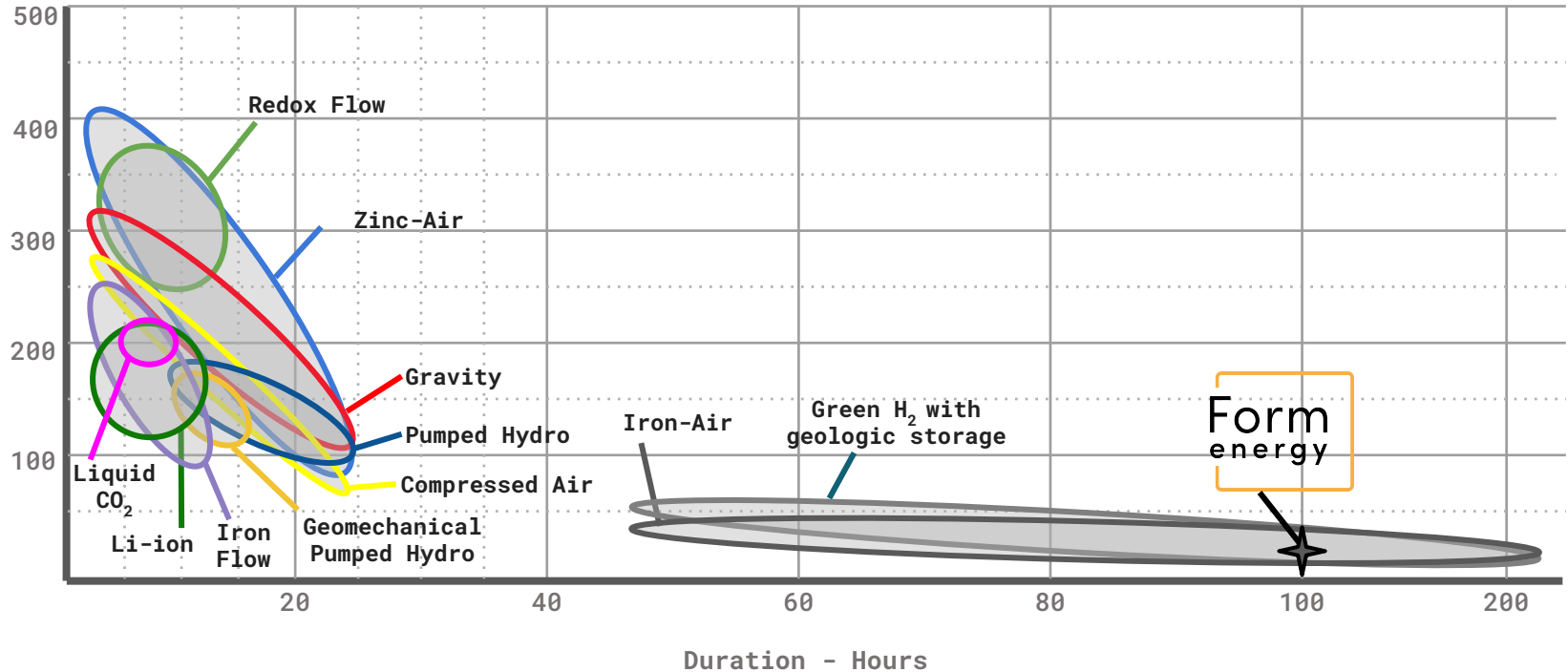
**15 MW / 1500 MWh** MDS system in Georgia to come online as early as 2026



**5 MW / 500 MWh** MDS system in Virginia to come online as early as 2026

# Form's Fe-air battery is the only technology targeting multi-day duration without geographic constraints

2030 Installed Cost - \$/kWh





# What makes up a Form Energy system

Modular design enables easy scaling to GWh systems

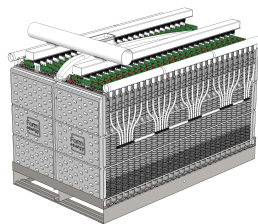
## Cell



Electrodes + Electrolyte

Smallest **Electrochemical** Functional Unit

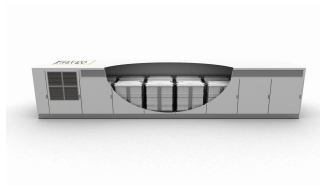
## Battery Module



~50 Cells

Smallest Building Block of **DC** Power

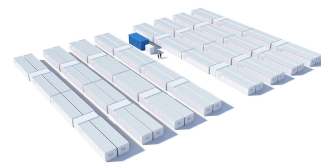
## Enclosure



~5 Modules

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

## Power Block



~3.5 MW / 350 MWh

<2 acres

~50 - 100 Enclosures

Smallest independent system and **AC Power** building block

## System



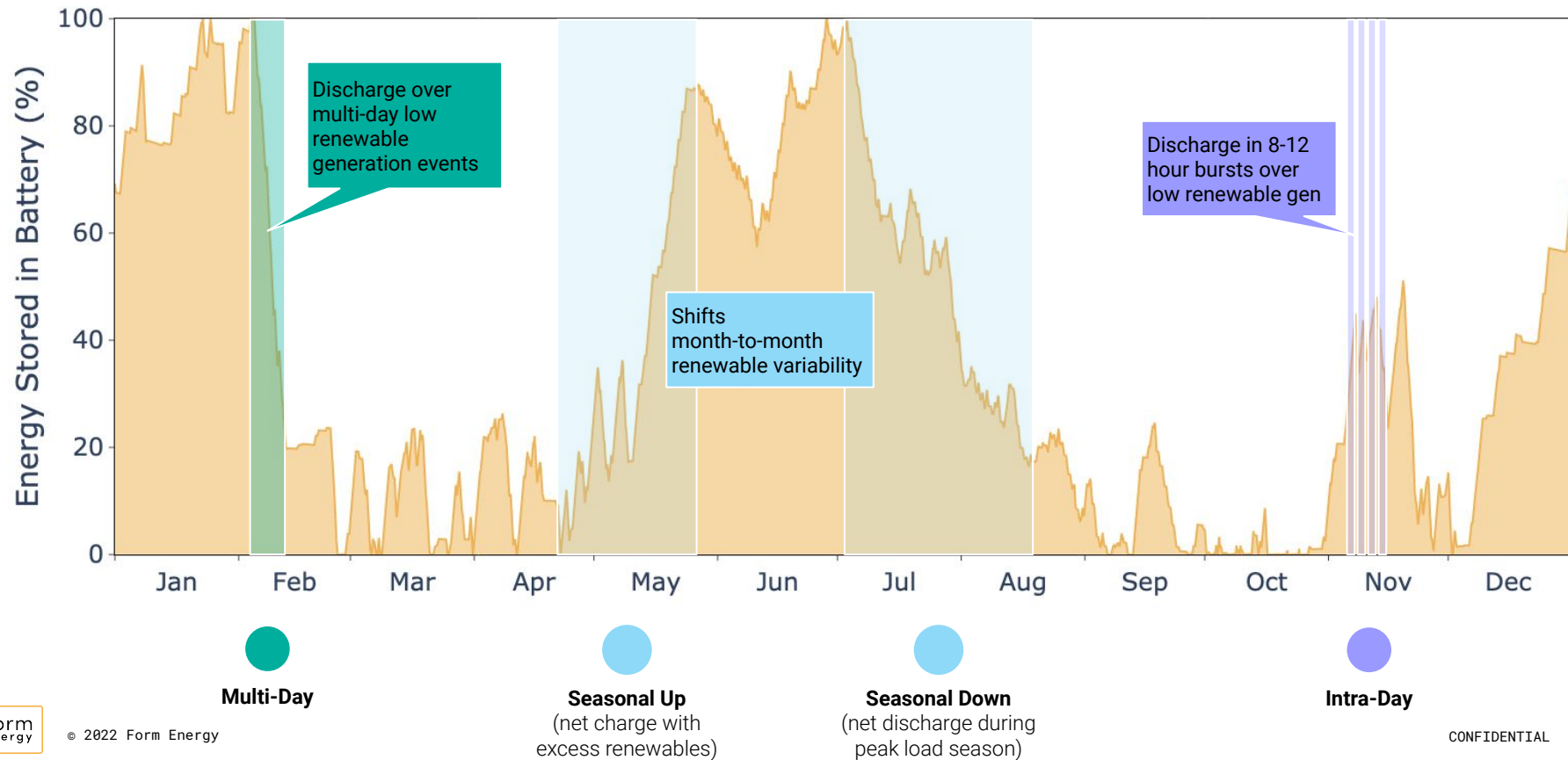
10 MW / 1000 MWh

5+ acres

10s - 100s of **Power Blocks**

Commercial Intent System

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



# Value propositions to consider

- ❑ Optimize renewable energy portfolio to avoid overbuilding
- ❑ Increase in system reliability and resource adequacy
- ❑ Balance intermittent renewable energy generation with non-emitting dispatchable capacity (hourly matching of renewables and loads)
- ❑ Microgrids
- ❑ Transmission offsets
- ❑ Generation pairing
- ❑ Other