# ENERGY SYSTEMS

#### ANNUAL GENERAL MEETING

October 27, 2021



## **The Energy Storage Imperative**

Energy storage has always been critical to generating electricity.

> Energy storage at a coal power plant in North Carolina



Pre-production storage enables power plants to be what utilities call a *load*following asset. The global move toward primary energy sources introduces intermittency.

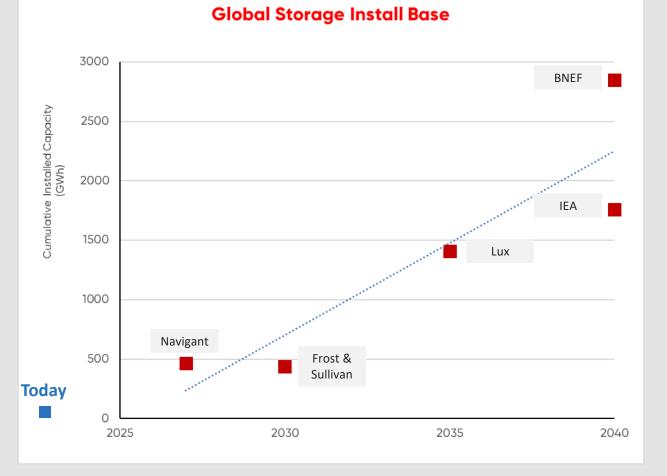


Post-production storage enables renewable energy to become a load-following asset.



#### **Market Size Projections**

Analysts & researchers forecast immense growth...



....aligned with political will.

**California:** "Governor proposes US\$350m support for long-duration energy storage"

**UK:** "Government's US\$100m long-duration energy storage funding competition underway."

**EU (IEA):** "[Market design and falling costs] are projected to drive... utility-scale deployments reaching 220 GW by 2040.

**US DOE:** The President's Fiscal Year 2022 Budget Request included a total of \$1.16 billion for (energy storage) activities



# **Utility Grade Energy Storage Characteristics**

|            | Lithium Ion   | Vanadium Flow  |
|------------|---|--|
| Safe       | Prone to catching on fire – difficult to put out.                   | No fire risk – electrolyte is mild, water-<br>based, battery acid. |
|            |   |  |
| Long life  | Degrades with use – five to seven years of daily cycling.           | Unlimited cycles – over 20 years of continuous operation.          |
|            |   |  |
| Economical | Lower upfront capital cost, but high cost per MWh over life (LCOS). | Low cost per MWh over life (LCOS).                                 |
|            |   |  |
| Proven     | Many installations at utility scale around the globe.               | Invinity's first utility-scale installations currently underway    |

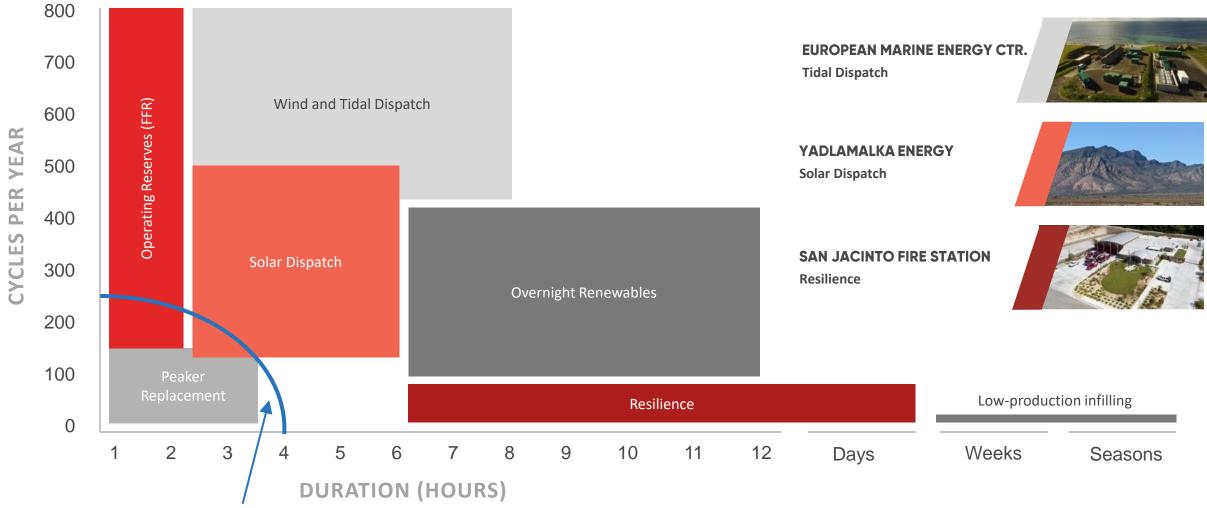


# **Energy Storage Market Targets**

ΙΝνινιτ

**ENERGY SUPERHUB OXFORD** Urban Decarbonization





"Lithium Barrier" (4 hours, 250 cycles per year)

### ESO – Cluster 2





## **Scottish Water**

# **Invinity VS3 Value Proposition**



COMPELLING ECONOMICS Superior levelized cost of storage (LCOS)



**MORE DURABLE** No degradation from heavy cycling 25 year lifetime



**SAFER** Non-flammable No risk of thermal runaway



#### LONGER DURATION

Optimized for requirements of 3 to 10 hours



SUSTAINABLE MATERIALS

No conflict minerals All components easily recyclable



#### FACTORY BUILT

Standardized product drives price down & quality up

THE RESULT: Energy storage superior to and complementary with lithium systems







