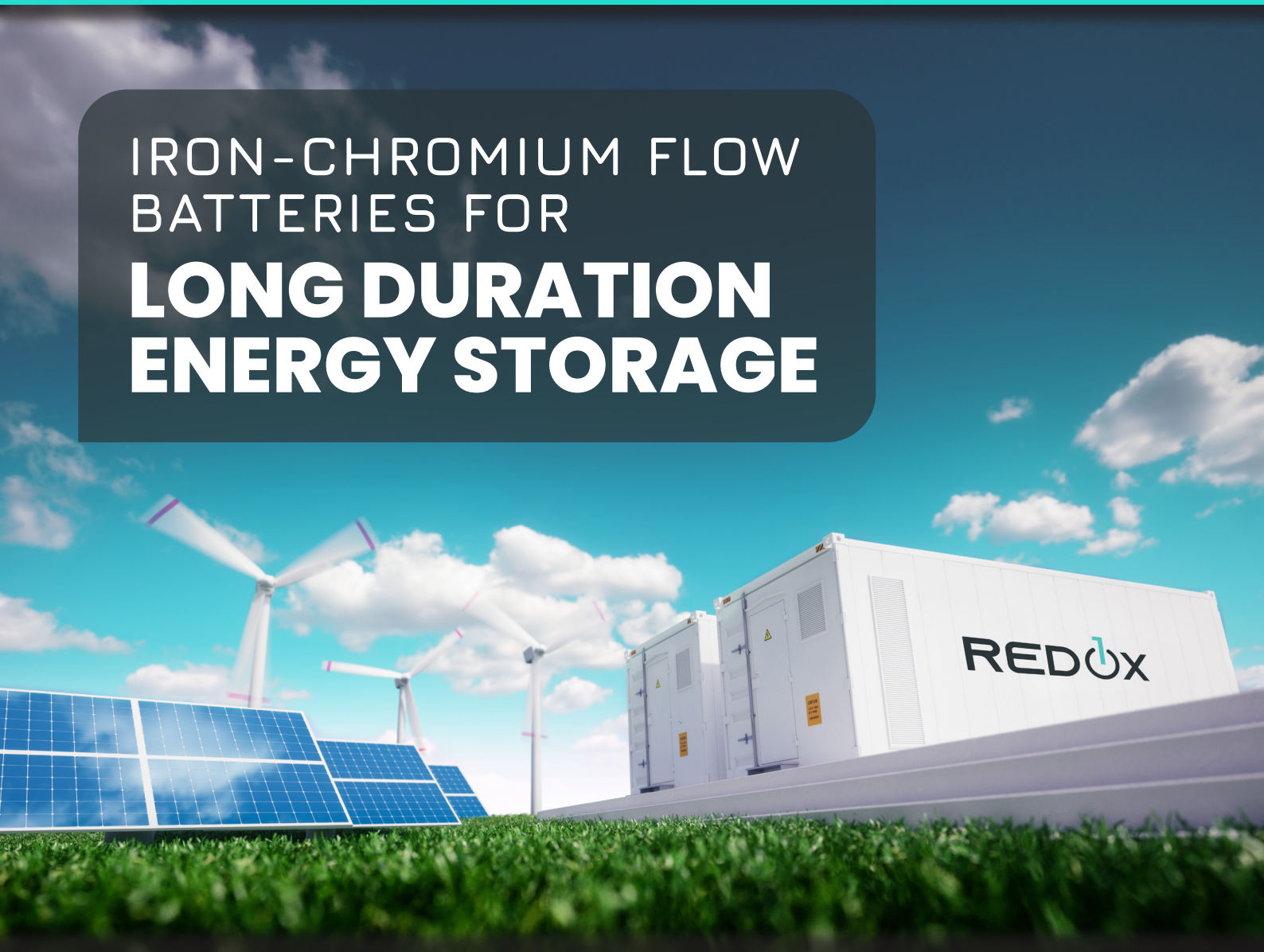


REDOX

FROM MINE TO

# MEGAWATT

IRON-CHROMIUM FLOW  
BATTERIES FOR  
**LONG DURATION  
ENERGY STORAGE**



**THOMAS GEBAUER, CEO**  
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**REDOX ONE LTD.**  
CYPRUS, GERMANY  
WWW.REDOXONE.COM

By covering the whole battery value chain through technology & strategic raw material partnerships we are enabling low-cost energy storage solutions for renewable energies at USD250/kWh system cost

**Mining**



**Crushing, milling and Spiral**



**Separation**



**Smelting**



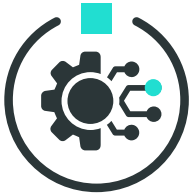
**Purification**



**Electrolytes used in batteries**



# THE CASE FOR REDOX ONE FE-CR-FLOW BATTERIES



**PROVEN**  
TECHNOLOGY

Proven storage technology  
Proprietary electrolyte  
manufacturing process



**HIGH-TEMPERATURE**  
STABLE

Fe-Cr flow batteries can operate at  
50-60C ambient temperature without  
cooling



**LOW**  
COST

Fe-Cr electrolyte cost a fraction of  
Vanadium or organic electrolytes



**UNPRECEDENTED**  
MARKET OPPORTUNITY

USD 18 billion addressable market by  
2040



**STRONG**  
INVESTMENT PARTNERS

Strong financial backing to produce  
the cost-effective large-scale ESS



**STRATEGIC**  
PARTNERSHIPS

Secured raw material supply, system  
integration partners and  
MWh demonstration customers

# THE CASE FOR REDOX ONE FE-CR-FLOW BATTERIES



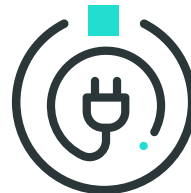
Manufacturer of Fe-Cr Flow Batteries for industrial ESS. Manufacturer of Fe-Cr Electrolyte



Multi-generational Fe & Cr supply for electrolyte manufacturing (GWh) through Tharisa plc



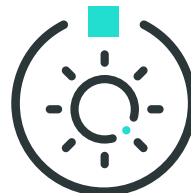
Spin off from Tharisa plc a European based integrated resources group Listed in London and Johannesburg



System integrators & partners for MWh storage projects: Chariot Transitional Energy, H1 Holdings, Acciona, eTana, Bentec/Kenera



Registered in Cyprus European technology centre in Germany Testing centre and Fe-Cr electrolyte manufacturing facility in South Africa



Demo customers signed up for MWh installations in 2024-2026 Tharisa Mine (RSA) & Karo Platinum (Zim)



Team of 30 energy storage experts with background in batteries, metallurgy chemical processing and scaling start-ups, growing fast

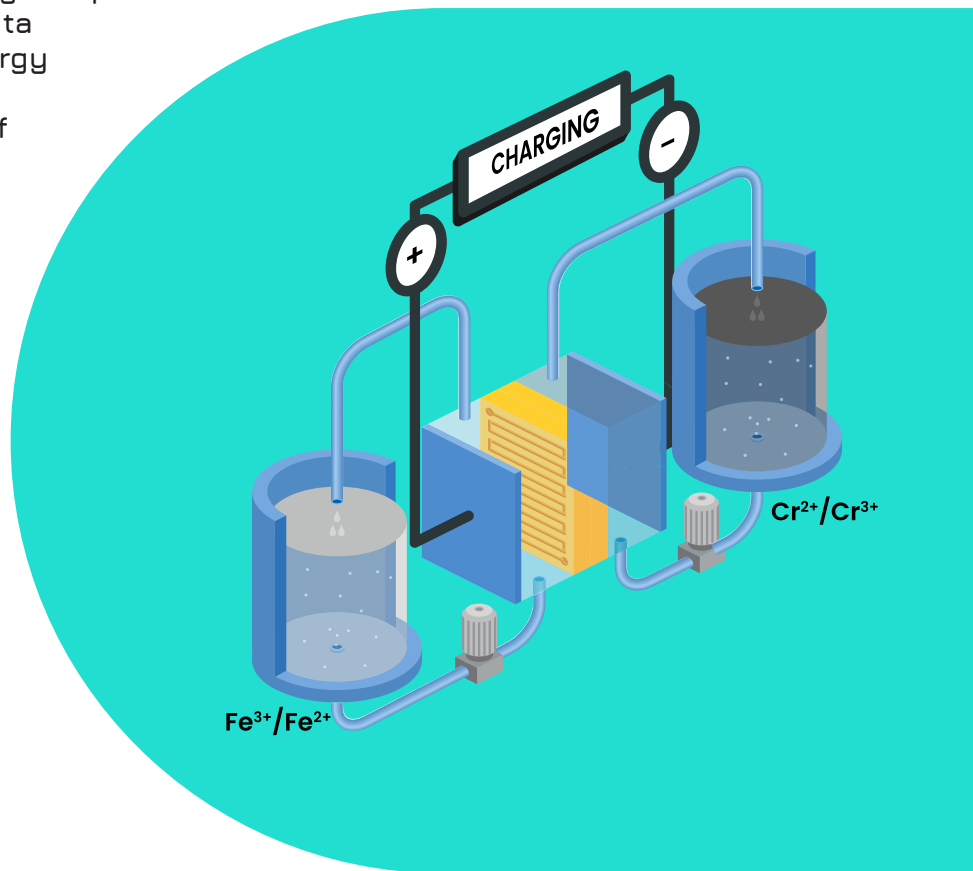


Well-connected in the MENA region and demo installations in negotiations with ACWA Power, ARAMCO, Kenera/Bentec

## REDOX ONE DEVELOPMENT PROCESS

### PROVEN TECHNOLOGY

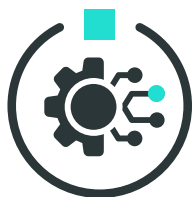
- Mature technology, developed by NASA in the 1970s
- Proprietary Manufacturing Processes and Stack Designs make us unique among competitors
- We own the IP, formulations, data and know-how from Deeya/Imergy and EnerVault, which both demonstrated the feasibility of Fe-Cr RFBs
- Large numbers of small Deeya systems are still in operation at cell tower diesel backup sites
- 1 MWh EnerVault Turlock successfully completed a 2014 US Department of Energy demonstration, proving scalability



Pioneering Sustainable Energy Solutions



Sustainability in Action



Threefold Innovation



Proven Track Record



The Future of Energy Storage

# ROAD TO MEGAWATT HOUR STORAGE



## TECHNOLOGY DEVELOPMENT

**1970-1990**

Fe-Cr FB technology developed by NASA & Mitsui

**2008-2016**

Initial demonstration by EnerVault (US), Imergy (US) in kWh/MWh scale

**2020-2022**

Commercialization by Cougar Creek (US) & SPIC (China) etc.

**2021-2023**

Tharisa developed Fe-Cr electrolyte manufacturing Process (from ore to electrolyte)



## COMMERCIAL VALIDATION

2023

**JAN - DEC 2023**

Pilot trial phase Fe-Cr FBs (kWh)

**JUL-DEC 2023**

Demonstrate Fe-Cr electrolyte production on 3 MWh scale

**DEC 2023**

First scalable container system ordered for demonstration in 2024



## DEMONSTRATION & DEPLOYMENT

2024+

**2024-2025**

Demonstration Phase (MWh)  
Deploy first MWh Fe-Cr FBs  
Scale electrolyte production

**2026+**

Deployment Phase (MWh)

**2028+**

PPS Phase  
(Power Producer and Supplier)  
Own & Operate our Fe-Cr FBs

# REDOX ONE SCALE-UP ROADMAP

## COMMERCIAL VALIDATION 2023



20 kWh to  
200 kWh

## DEMONSTRATION PHRASE 2024-2025



200 kWh to  
20 MWh

## DEPLOYMENT PHRASE 2026+



50 to 100 MWh  
& beyond

**REDOX**<sup>1</sup>**OX**

# **INNOVATION IS NOT JUST A WORD**

IT'S OUR DRIVING FORCE AT REDOX ONE

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