

# Clean Power

When and where you need it

AZELIO

# Overview Azelio

2008 – LISTED AS "CLEANERGY"

160 EMPLOYEES

GOTHENBURG  
HQ, R&D

ÅMÅL  
R&D, testing

UDDEVALLA  
Manufacturing

STOCKHOLM  
Business Development

BEIJING, CHINA  
Sales & project management

MORROCCO  
Project management

SPAIN  
Satellite office



Uddevalla



Åmål



Gothenburg



Stockholm



LISTED AT NASDAQ  
First north, Stockholm



# TES.POD<sup>®</sup>: THE CONCEPT

Long-duration renewable energy storage system providing reliable and affordable power on demand

The TES.POD<sup>®</sup> cluster solution



# TES.POD®



Receives electricity from renewable sources, like solar PV and wind power. Stores the energy as heat in a recycled aluminium alloy at the melting point of 600°C.



# TES.POD<sup>®</sup>



The heat is transferred to a Stirling engine on demand to produce electricity to a low cost and deliver heat at 55-65 degrees Celsius, for up to 13 hours at continuous operating power.

# TES.POD<sup>®</sup>: A GROUNDBREAKING INNOVATION

Renewable electricity at a low cost,  
all hours of the day.

- Phase Change Material (PCM) - recycled aluminum alloy
- Storage capacity of up to 13 h at continuous operating power
- No degradation or loss of storage medium (PCM)
- Electrically heated PCM, melted at ca. 600 °C (1,112 °F)
- Fully charged storage in 6 hours (at max. power input)



# VERIFICATION PROJECTS



*Awaiting verification start*

**Noor solar power complex in Morocco**

World-leading solar park and arena for breakthrough technologies

**2 modules installed**



*Verification started*

**By the technical center in Åmål**

The heart of the technology where the global installations are monitored

**2 modules installed**



*Installed Q4, 2020*

**In Abu Dhabi with Masdar and Khalifa University**

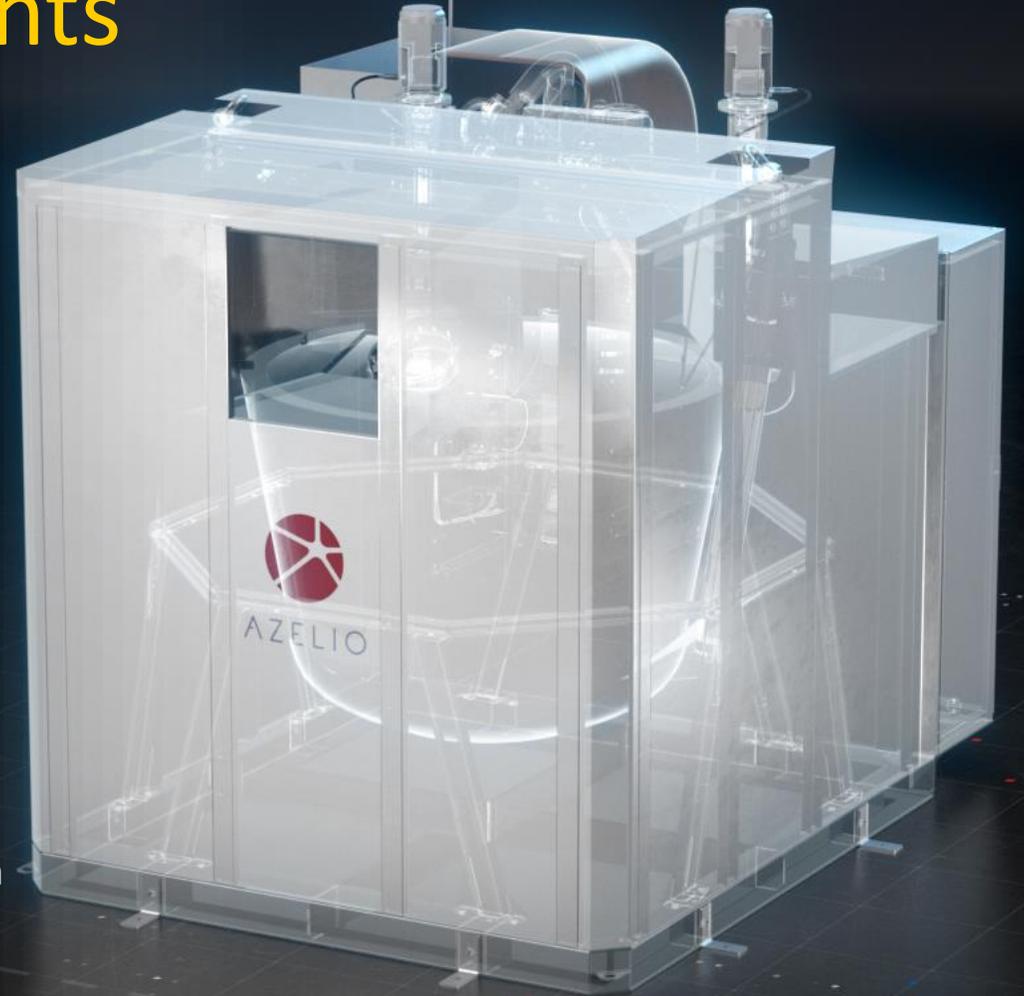
Evaluate the technology to be included in Masdar's product portfolio

**4 modules installed**

# R&T - Continuous improvements

## What are the technical challenges?

- Conversion efficiency set by PCM melting temperature
  - Trade cost, life-time and efficiency
- PCM containment protection against molten Aluminum
- High temperature heat transfer fluids better than Sodium
- Minimise heat losses to enable longer storage times by developing low cost and more efficient insulation materials
- Lower OPEX by longer time between overhaul – Stirling Engine
- Optimised Energy management system with lower power conversion losses
- Develop solutions and systems for Heat and Power





AZELIO

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Clean power by Sweden 