

STUTT GART  
28/03/2023

# BVES SECTOR ANALYSIS 2023

Development and Perspectives  
for the German Energy Storage Sector

# DISCLAIMER



This study has been compiled on behalf of BVES. Results represent 3EC's analysis of publicly available information as well as anonymously provided input by market participants. 3EC accept no liability for their accuracy or completeness.

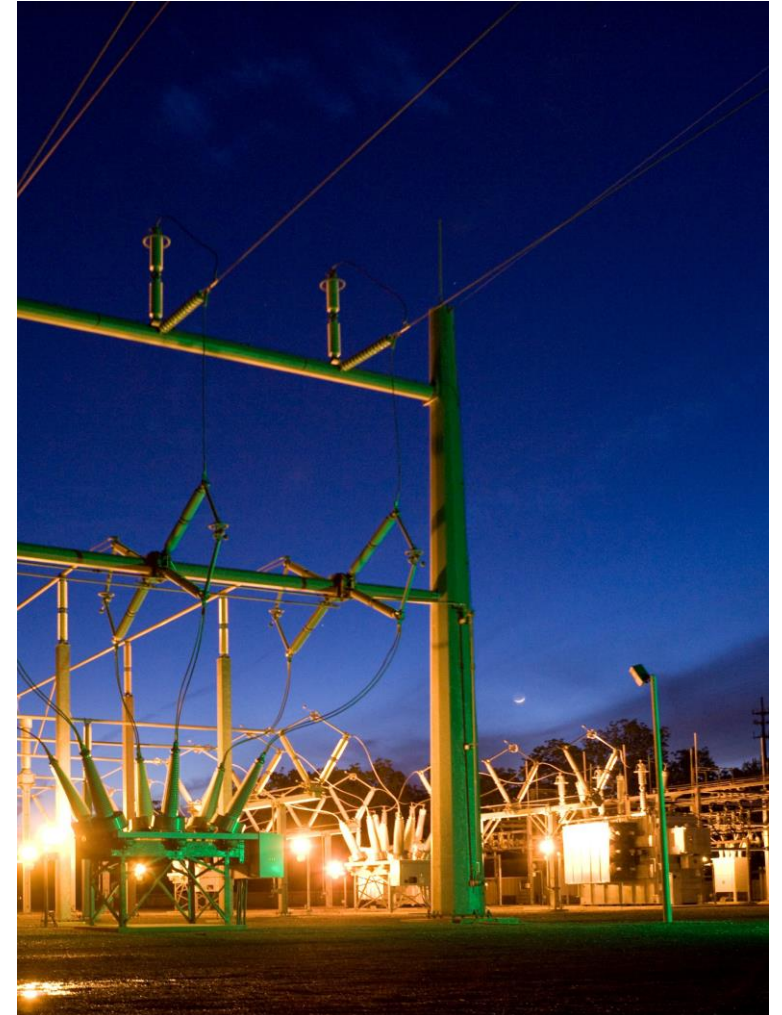
3EC explicitly point out that any forecasts of future developments are our own assessments based on currently available information.

# BVES SECTOR ANALYSIS 2023

## The German Energy Storage Sector

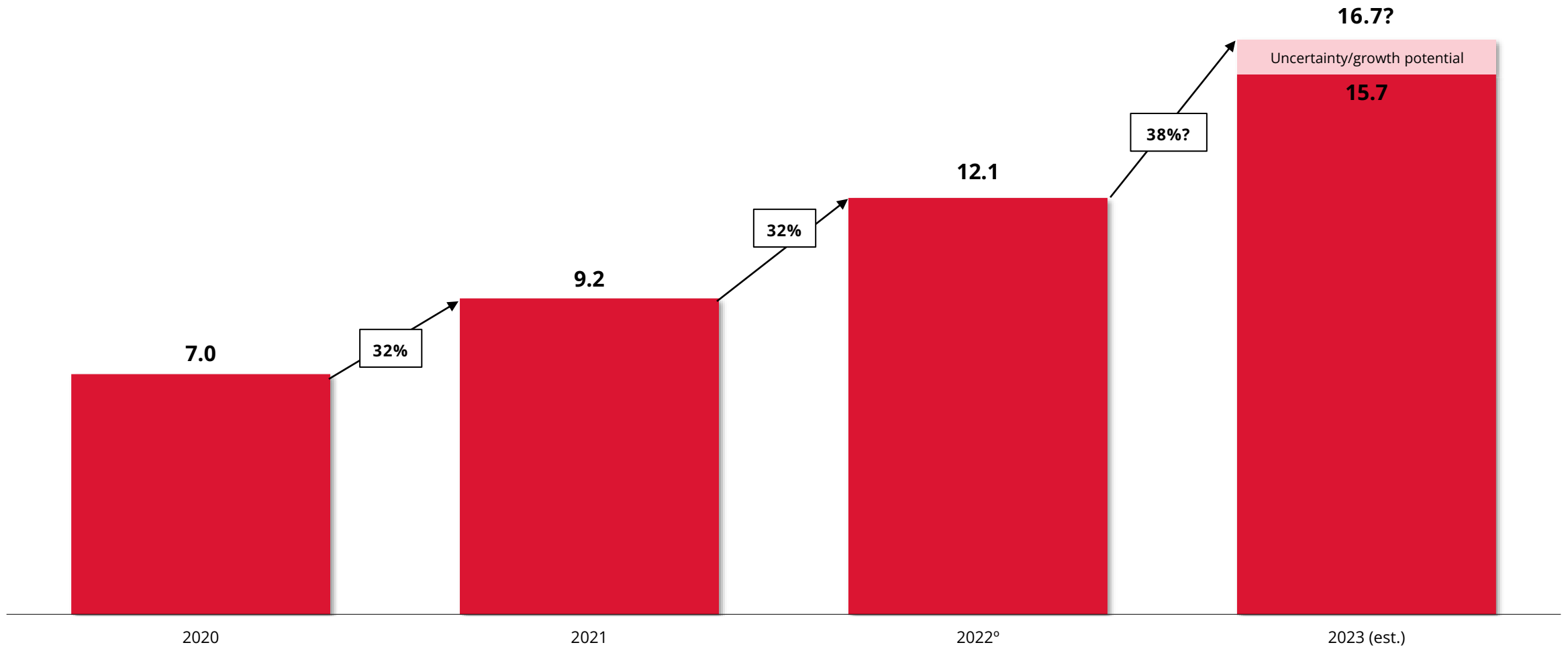
### Introduction

- Continuation of 2018-22 analyses commissioned by BVES.
- Division into application segments: Residential, commercial & industrial and utility.
- Includes thermal, mechanic, electrochemical and chemical storages as well as relevant sector coupling areas (charging stations, hydrogen).
- Determination of key figures (e.g., revenue, number of employees) through analysis of external sources and metadata as well as surveys and interviews with experts and members.



# GROWTH RATES ARE ACCELERATING

Energy storage industry revenues\* in Germany 2020-2023 (in €B)



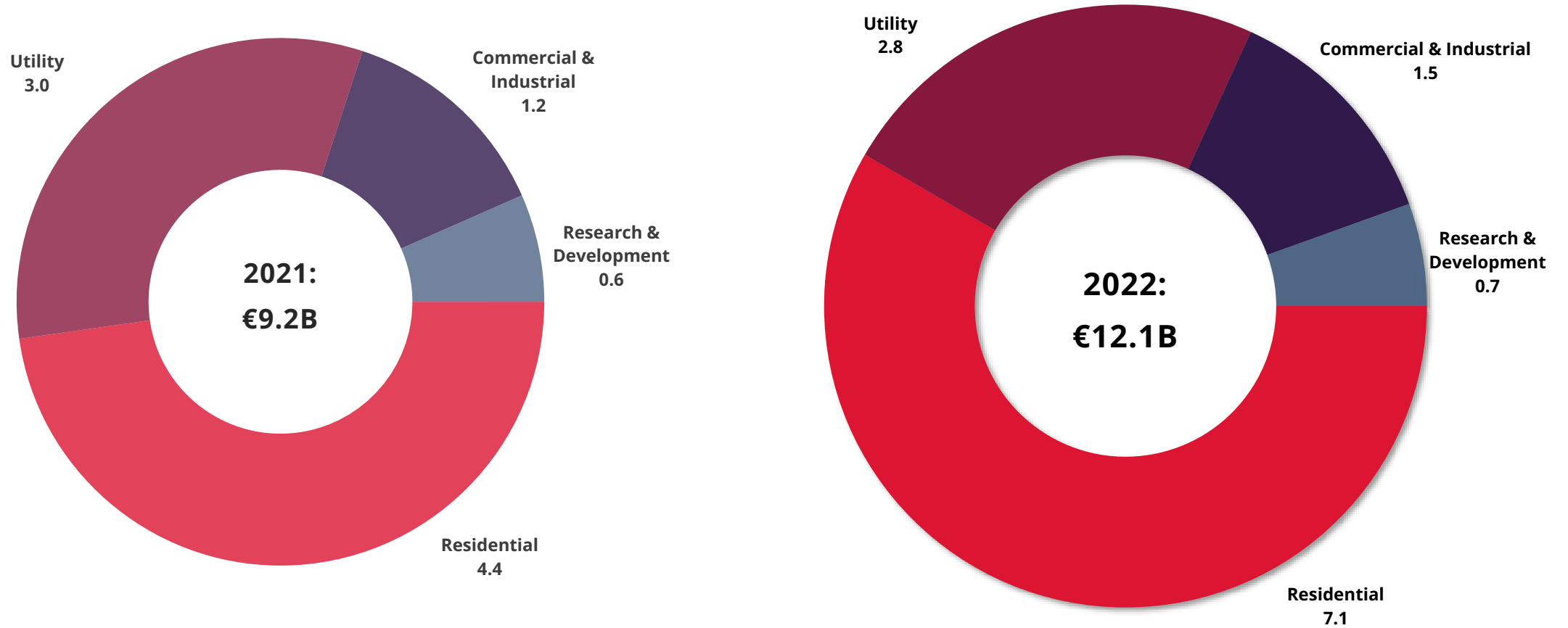
\* Domestic and international revenues of companies registered in Germany

° Preliminary

Source: 3EC

# ANALYSIS BY SEGMENT

2021 & 2022 revenue distribution\* in Germany (in €B)



Source: 3EC

\* Some figures still preliminary

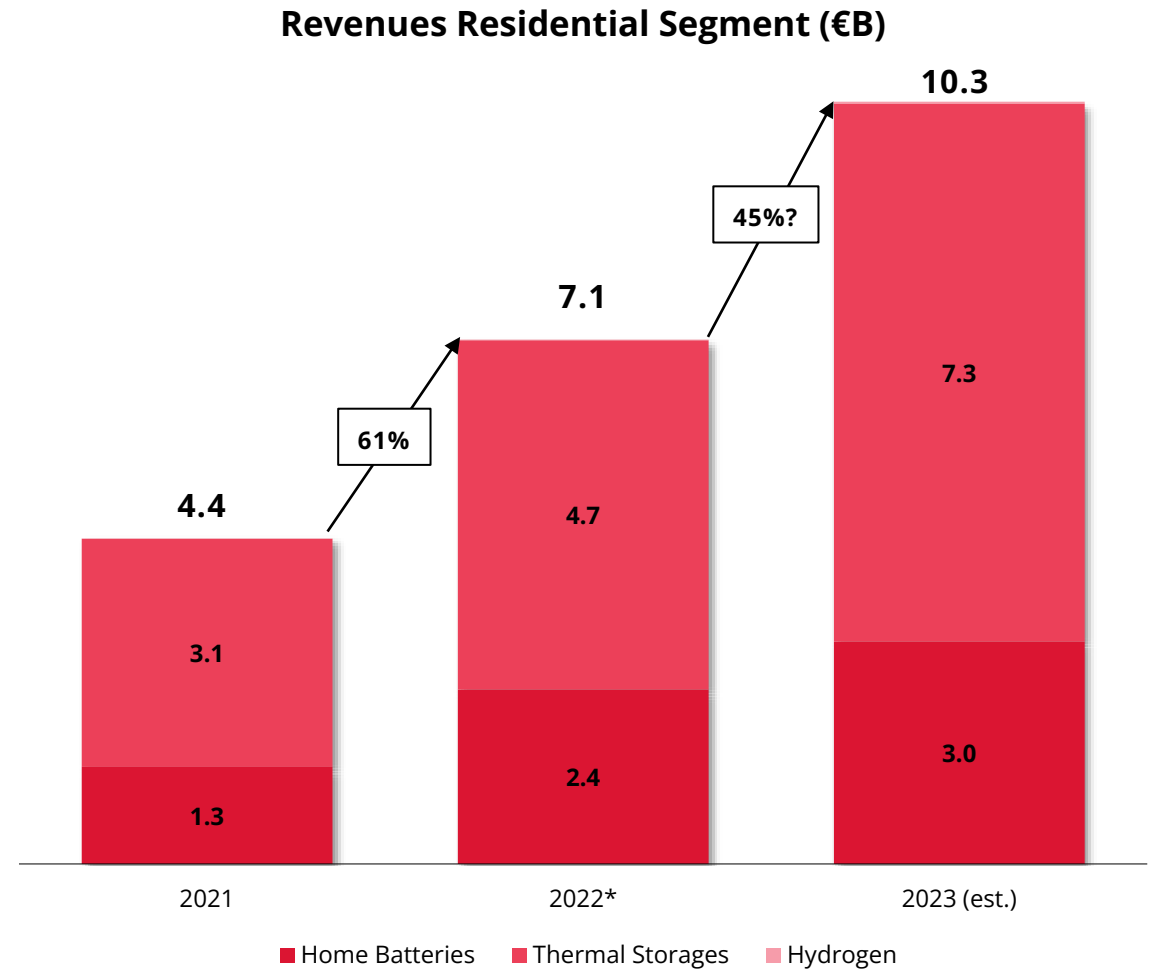
Source: 3EC

# RESIDENTIAL SEGMENT

Extraordinary growth rates drive record revenues

## Developments in 2022

- Much stronger growth than expected: €7.1B revenues vs. €5.4B.
- **Biggest demand drivers:** High energy prices as well as self-sufficiency initiatives and security of supply concerns.
- Hydrogen-based concepts for residential segment have doubled sales, but still at low level overall.



\* Some figures still preliminary

Source: 3EC

# HOME BATTERIES IN RESIDENTIAL SEGMENT

Expected to surpass one million units in 2023

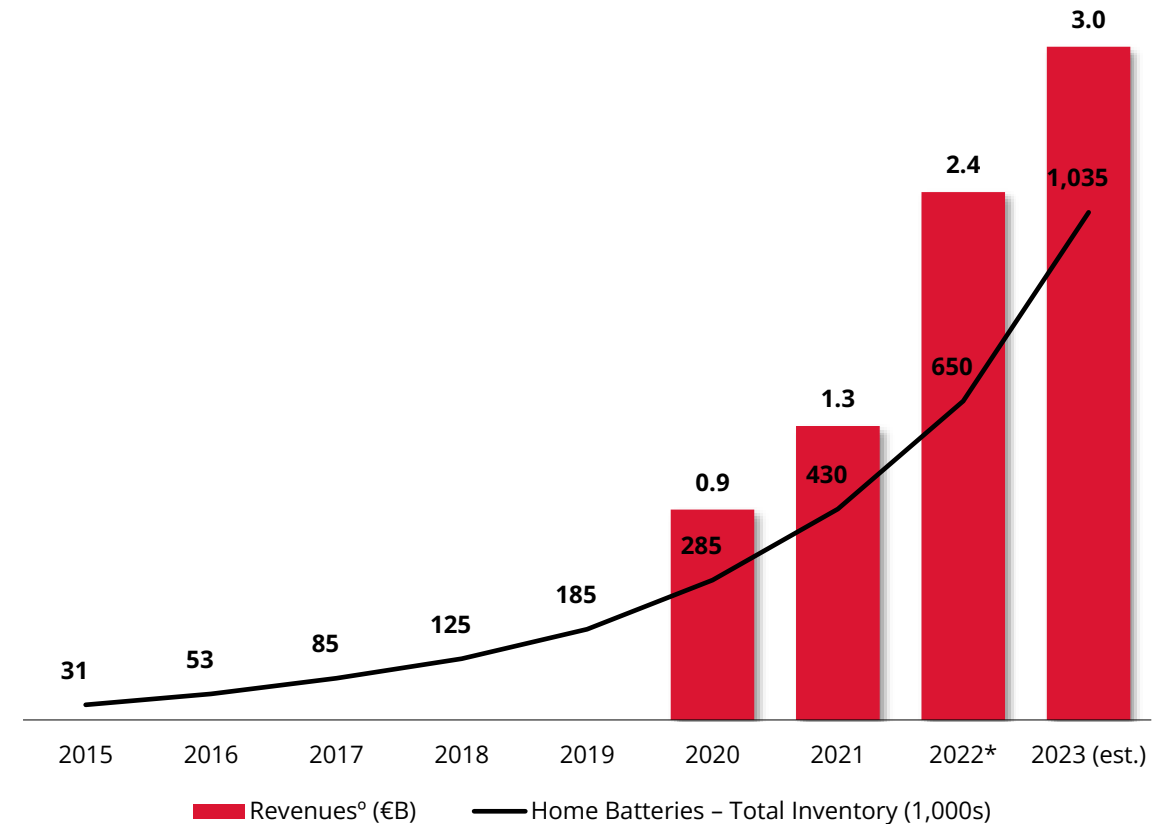
## Developments in 2022

- Uptake driven by new PV installations and high energy prices: **75% of households with solar also have storage<sup>†</sup>**. Self-sufficiency and e-mobility considerations support growth above 50% year-on-year.
- Sector coupling trend pervades: 40% of households with storage also have heat pumps, 36% use EV<sup>†</sup>.
- Average storage size currently not growing (8.8 kWh<sup>‡</sup> in 2022) despite increasing solar installation sizes.
- **German providers hold more than 50% of market**, but losing small share to foreign suppliers.

## Expectations for 2023

- Strength continues as fundamental drivers remain unchanged. New build capacity ensures **year-on-year growth above 60% and beyond one million units**.

## Home Batteries – Revenues and Inventory (Germany)



\* Some figures still preliminary

<sup>°</sup> Recorded from 2020

<sup>†</sup> ISEA RWTH Aachen (Speichermonitoring BW in 2022)

<sup>‡</sup> In 5 -15 kWh range

Sources: [ISEA RWTH Aachen 2023](#) (inventory), estimates 3EC

# THERMAL STORAGES IN RESIDENTIAL SEGMENT

The energy transition has arrived in the residential segment – growth rates are accelerating

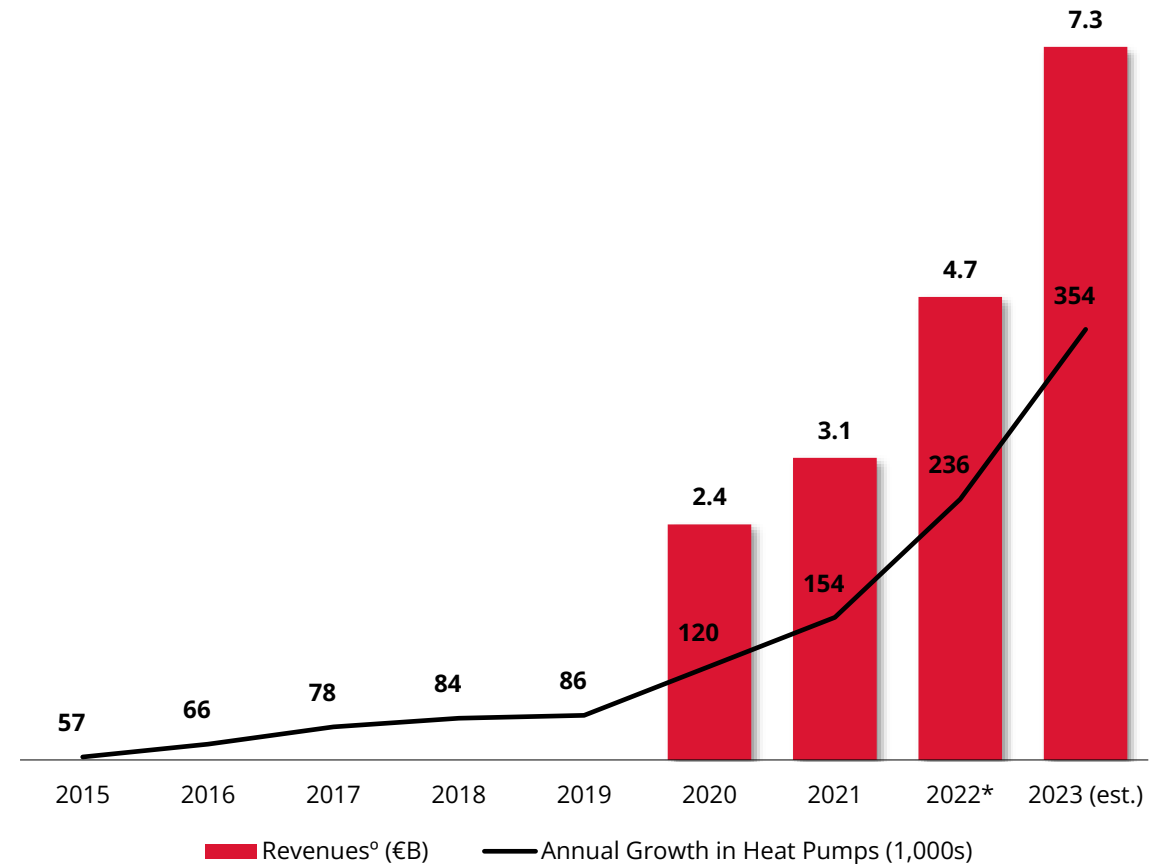
## Developments in 2022

- Growth significantly exceeded expectations, with security of supply concerns driving heat pumps to top 500,000 units by 2024.
- Air-water heat pumps much more common in building upgrades than new builds.
- Skills shortages and high power prices restrict growth.
- Legislative changes (65% renewable share for new heating installation operations from 2024) still pending.

## Expectations for 2023

- Year-on-year growth expected around 50% aided by passing of renewables law.

Thermal Storages – Revenues and Growth (Germany)



\* Some figures still preliminary  
° Recorded from 2020

Sources: BWP (annual growth), estimates 3EC

# COMMERCIAL & INDUSTRIAL SEGMENT

Lower revenues and growth than expected

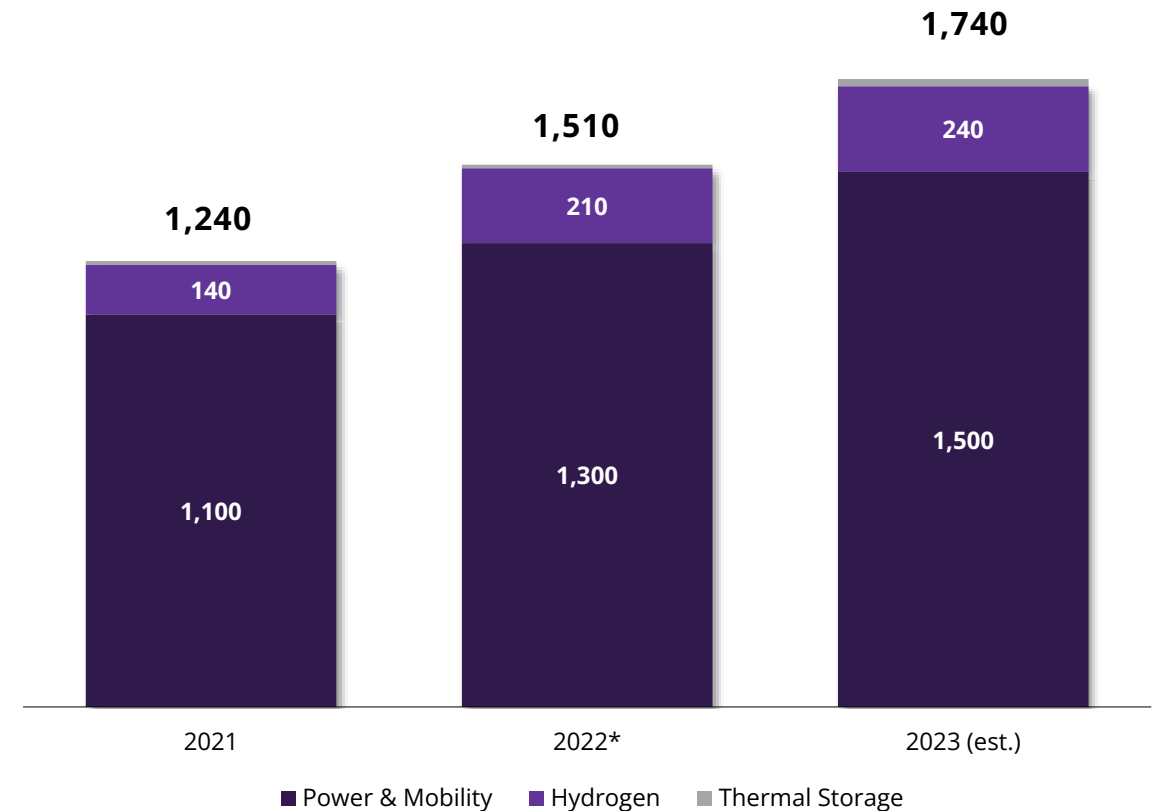
## Developments in 2022

- 2021/22 below last year's projections; revenue growth of 20% from 2022+ expected.
- Drivers: High energy prices, e-mobility, security of supply. Self-sufficiency, decarbonization obligations becoming more relevant.
- Hydrogen applications remain marginal; some demand seen in 1-10 MW range. More field tests and IPCEIs expected from 2025.
- Thermal storage gaining significance: Still mostly project-linked but seeing growing demand. Mindset change from molecules to electrons major obstacle.
- Complex subsidy rules, long approval processes, relatively low interest in/understanding of self-sufficiency concepts hinder segment.

## Expectations for 2023

- Growth rate in line with prior year. Impact of war in Ukraine could provide boost.

Revenues Commercial & Industrial Segment (€M)



\* Some figures still preliminary

Source: 3EC

# UTILITY SEGMENT

Energy price volatility driving revenues

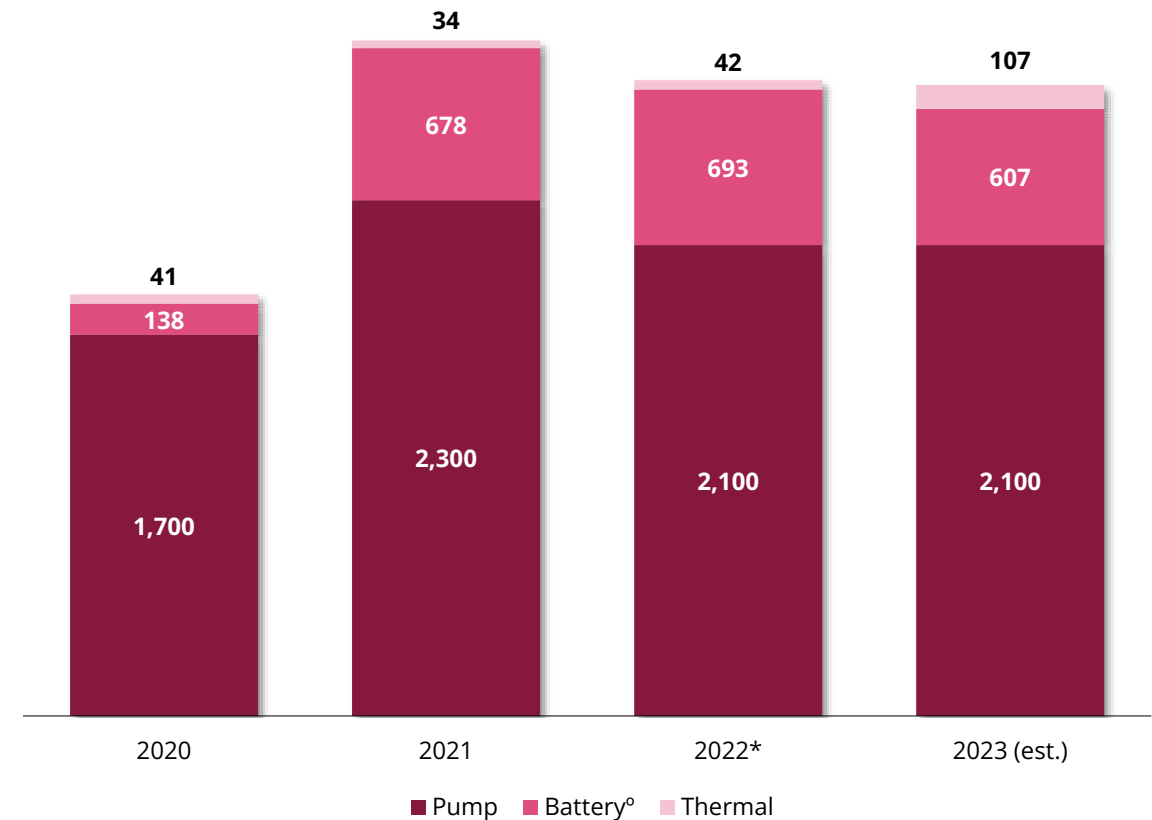
## Developments in 2022

- Pump storage seeing revenues spike due to price volatility.
- Significant increase in battery storage revenues on higher control energy prices. Multiple new units online to manage grid flexibility.
- Thermal as well as battery storages often linked to large projects; growth in sector thus dependent on their progress.
- Hydrogen caverns in Krummhörn (Uniper), „Clean Hydrogen Coastline“ project (EWE), energy park Bad Lauchstädt (VNG) potentially gaining relevance from 2024+ through field tests and IPCEIs.

## Expectations for 2023

- Trend in new large battery storage connections to continue. New pump storages in planning phase.

Revenues Utility Segment (€M)



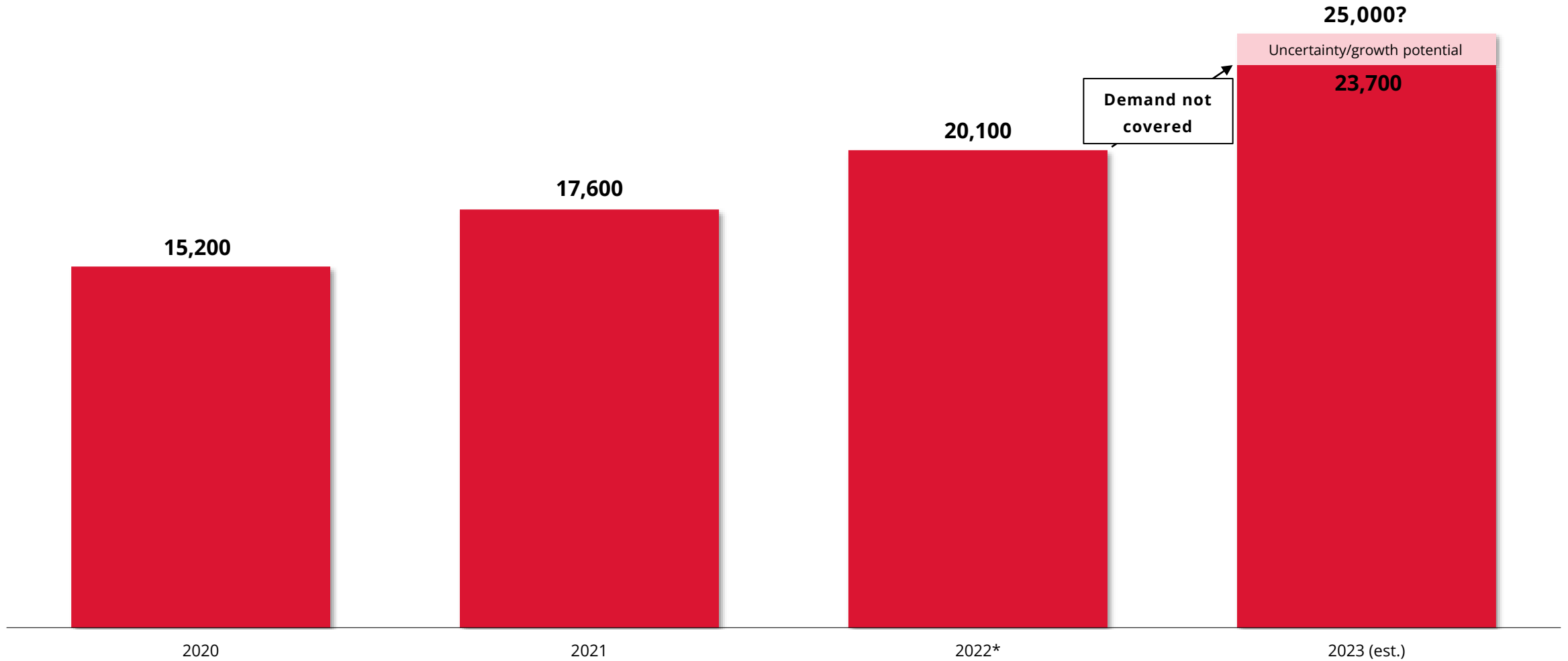
\* Some figures still preliminary

° Revenues from arbitrage activities not included

Source: 3EC

# EMPLOYEE NUMBERS GROWING WITH REVENUES

Employees in Germany 2020-2023



\* Some figures still preliminary

Source: 3EC

# MANY THANKS



Lars Berensen

+49 (0) 172 410 66 55

[lars.berensen@3ec.energy](mailto:lars.berensen@3ec.energy)

Jörg Blaurock

+49 (0) 152 341 283 59

[joerg.blaurock@3ec.energy](mailto:joerg.blaurock@3ec.energy)

Pavel Wilhelm Kusch

+49 (0) 175 671 310 5

[pavel.kusch@3ec.energy](mailto:pavel.kusch@3ec.energy)

Florian Reichel

+49 (0) 176 565 345 08

[florian.reichel@3ec.energy](mailto:florian.reichel@3ec.energy)