



E-BROCHURE

# Applications for Battery Storage (BESS)

Secure, protect and optimize battery storage systems

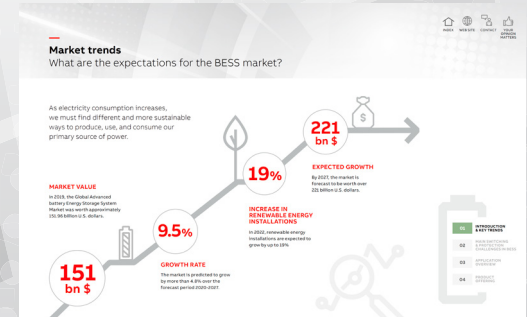
# What's in this document

Explore this document to find out what ABB offers to optimize, protect, and enhance Battery storage systems.

## How?

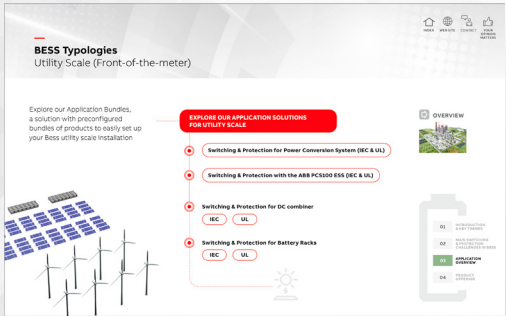


Click on the interactive infographics to see more information.



## Where?

Go through the interactive landscape to explore ABB Application solutions and find the one that best suits your needs.



## Explore

Click on the desired Application Bundle to explore our offering.



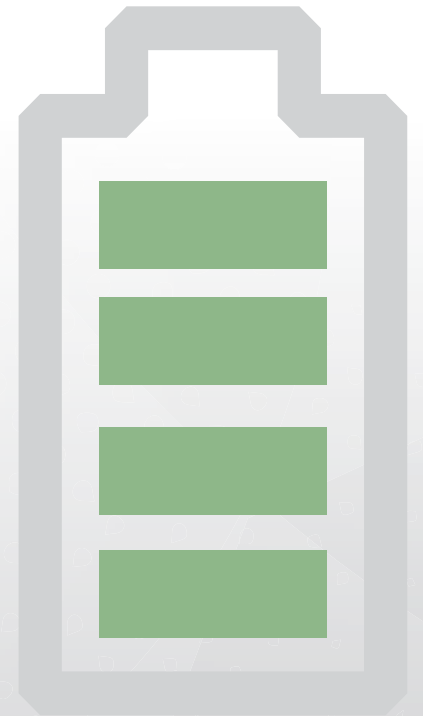
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# Introduction & key trends

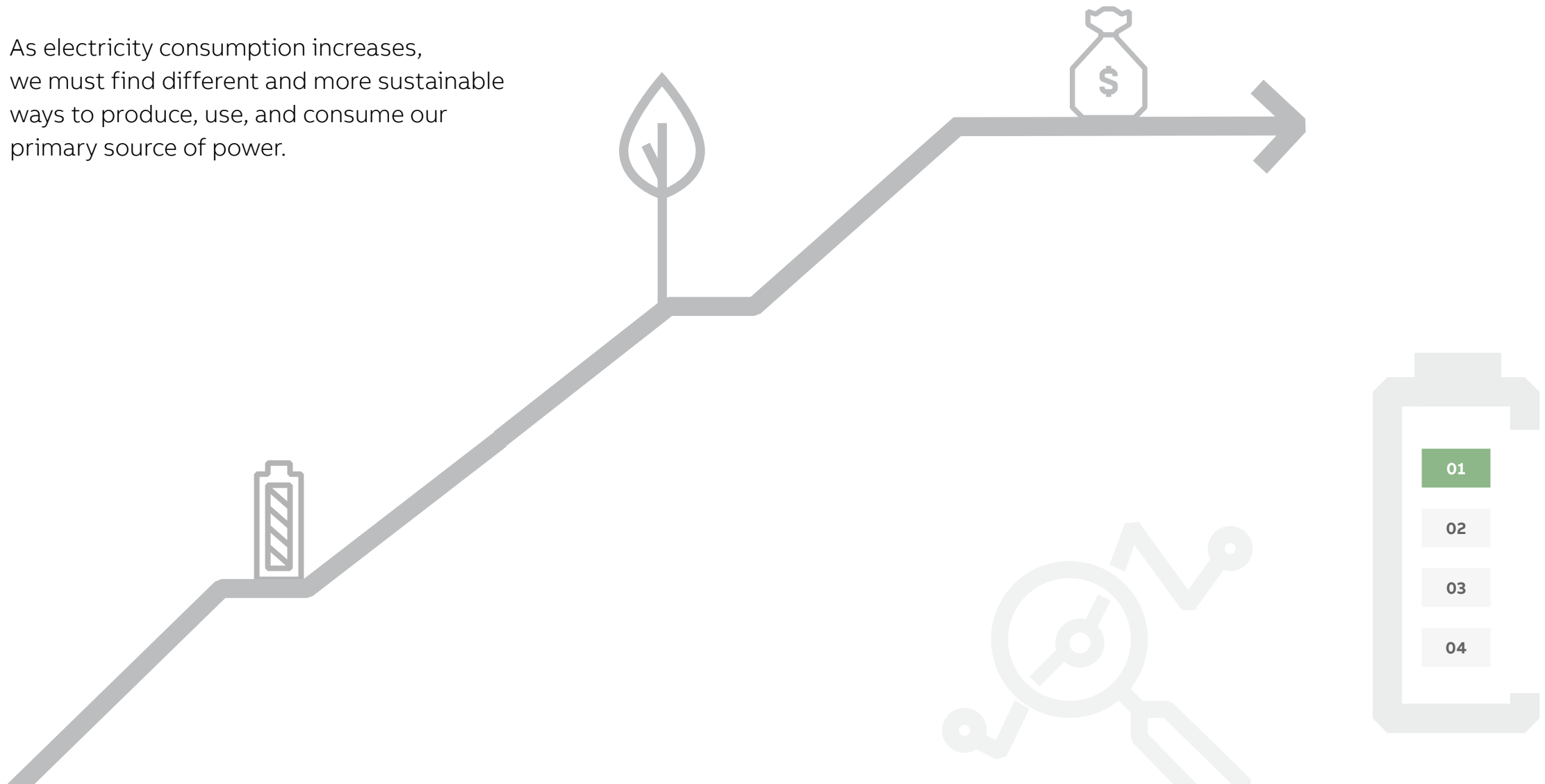
In a world becoming more digital and electric every day, we need Energy Storage Systems to help the world produce and consume energy more efficiently and sustainably.



## Market trends

What are the expectations for the BESS market?

As electricity consumption increases, we must find different and more sustainable ways to produce, use, and consume our primary source of power.



## Key trends

### Current challenges of the electrical grid

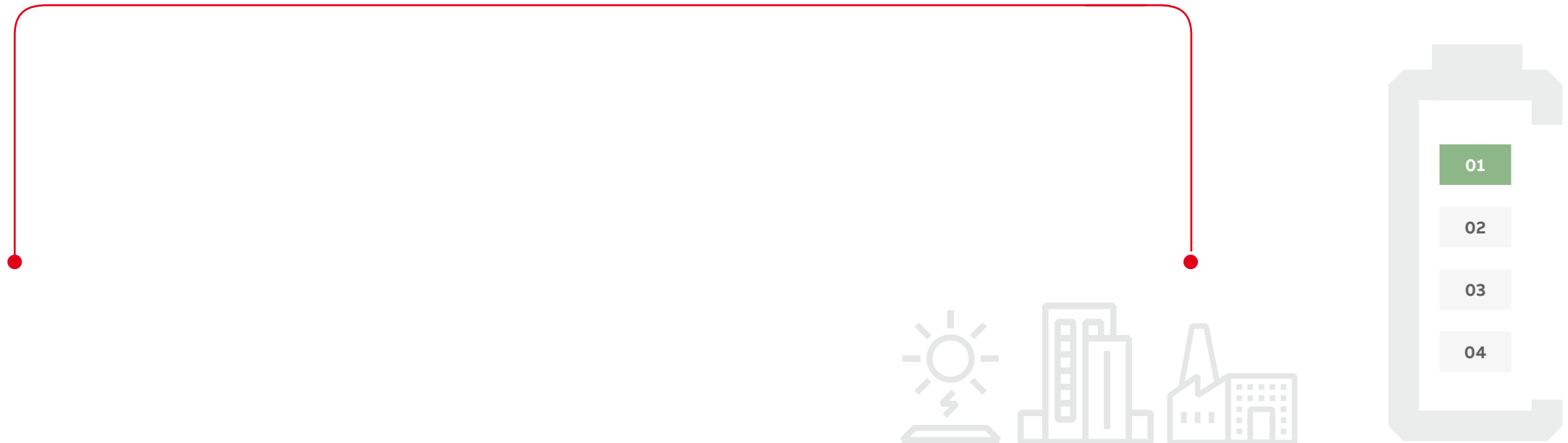
Electrical grids that were once state-of-the-art now struggle to deliver the reliability and efficiency required today.





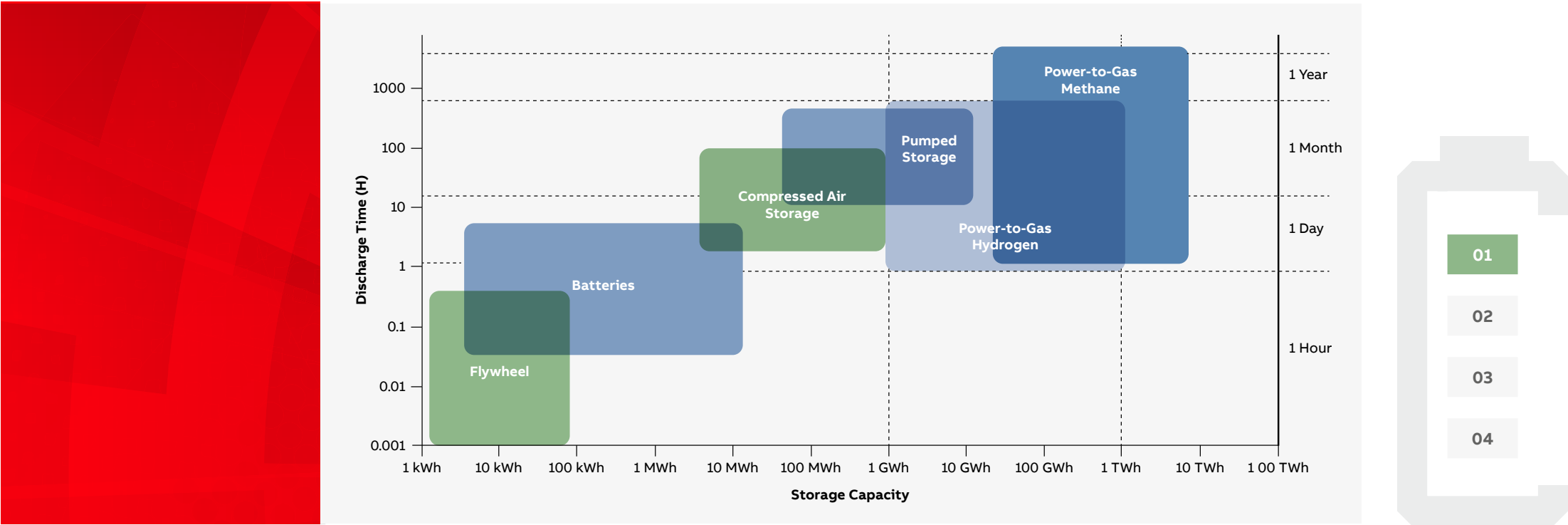
## How does energy storage benefit the grid and industry?

Energy Storage Systems (ESS) can solve one of the well-known problems in electricity production: the electricity needs to be used as it is generated, which is not always the same time it is needed.



# How ESS becomes BESS

There are many types of energy storage systems depending on the type of technology used. Some technologies provide short-term energy storage, while others provide energy storage for a longer duration.

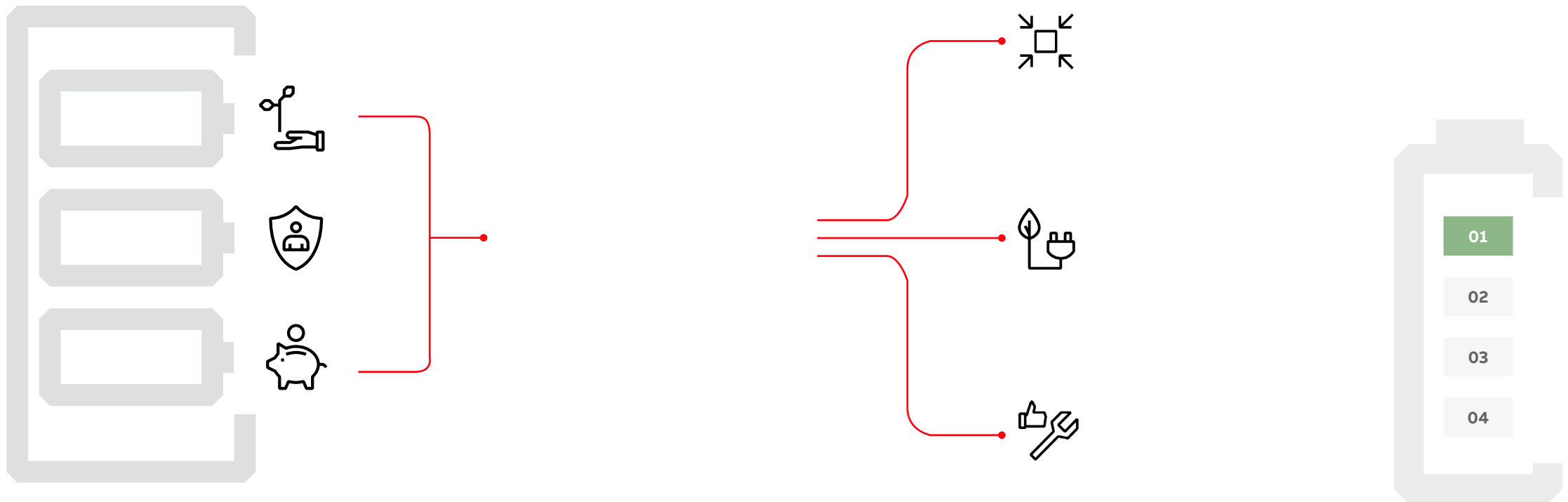




## Why we need Energy Storage

Battery energy storage systems provide short-term energy storage.

Lithium-ion batteries, which are used in mobile phones and electric cars, are currently the dominant storage technology for large-scale plants to help electricity grids ensure a reliable supply of renewable energy.





# Main switching & protection challenges in BESS

Handling higher fault current events, managing direct currents and protecting the battery storage against ground faults are just few of the latest challenges that Battery is faced with today.



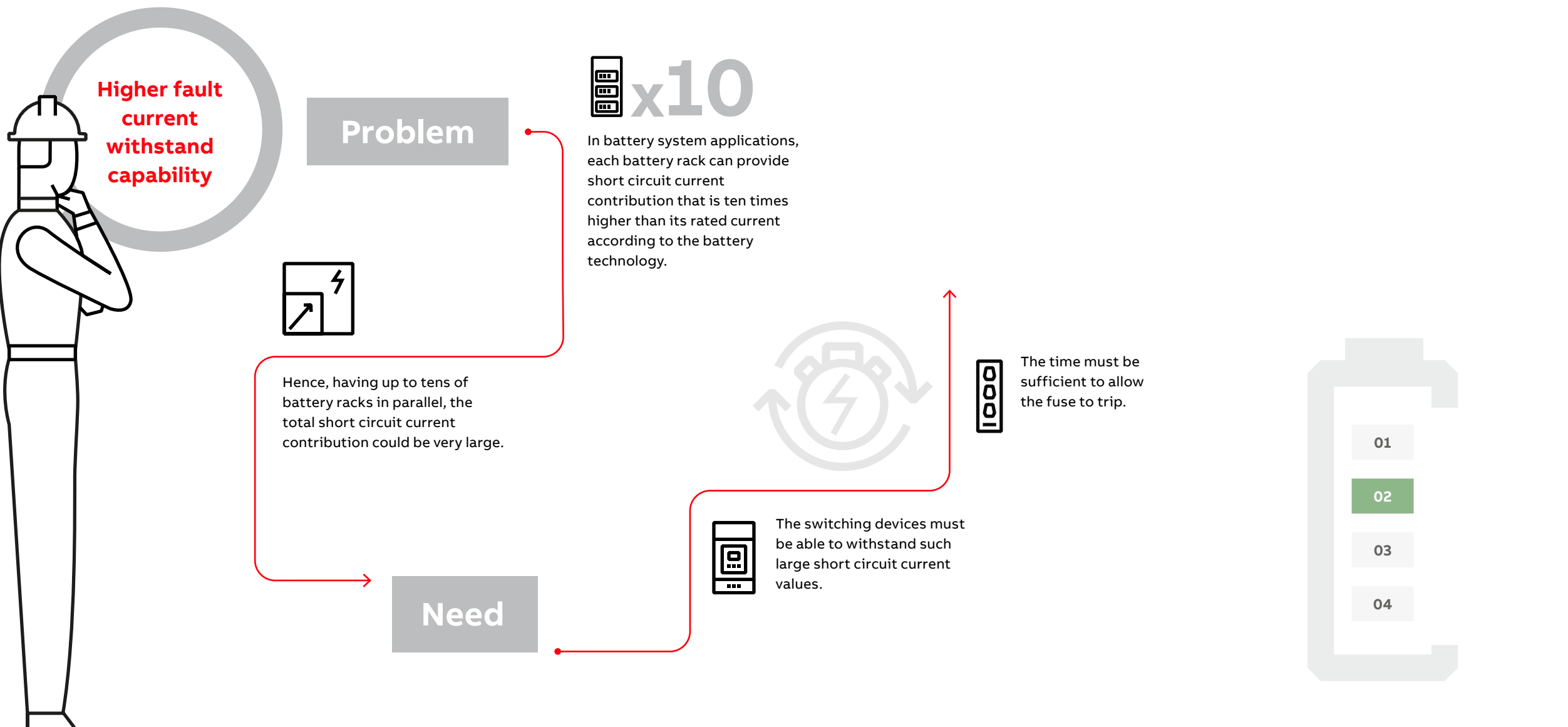
## **New technology on the rise**

### BESS moving to higher DC and AC voltages

Today, most utility-scale solar inverters and converters use 1500 VDC input from the solar panels. Matching the energy storage DC voltage with that of the PV eliminates the need to convert battery voltage, resulting in greater space efficiency and lower equipment costs.

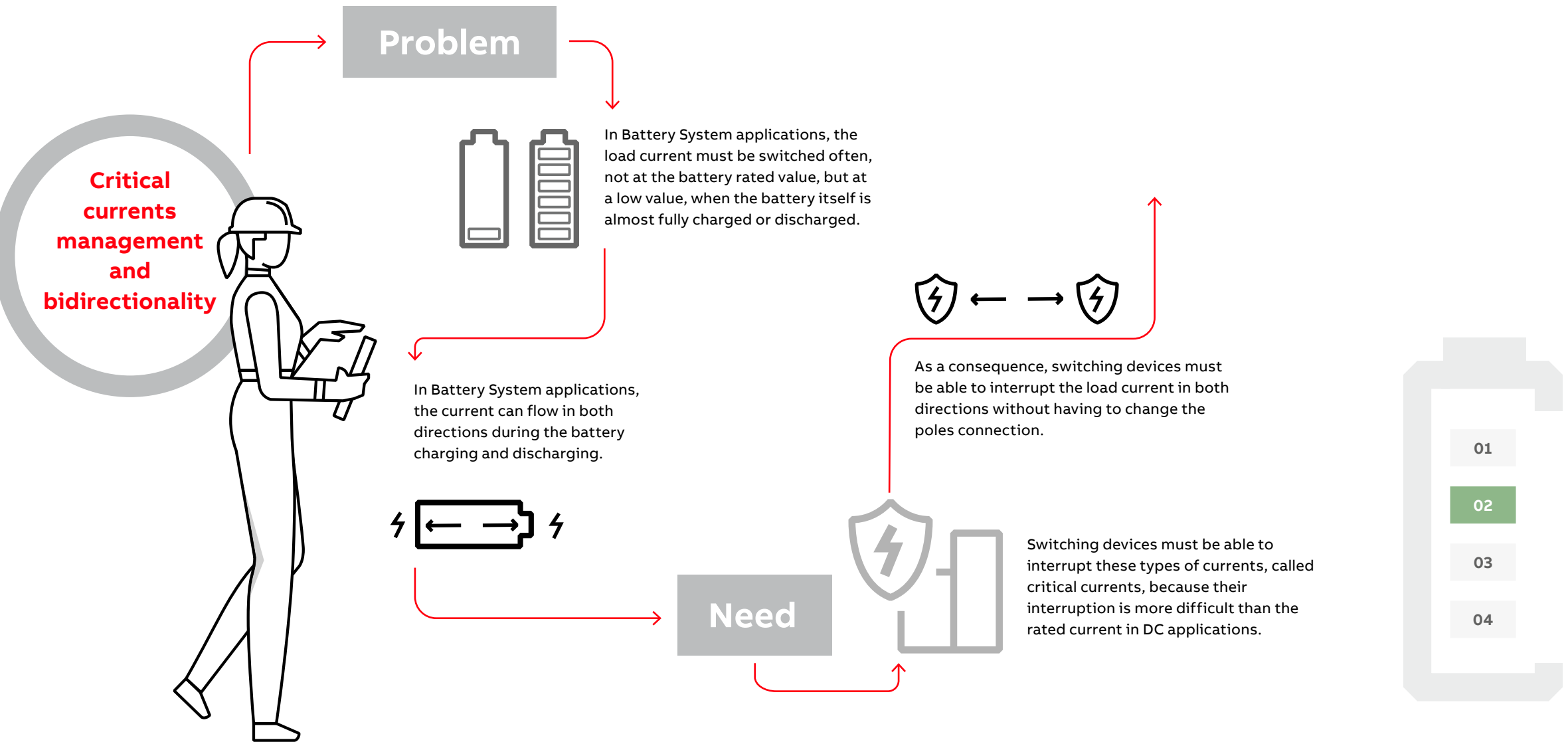


# Main switching and protection challenges in BESS



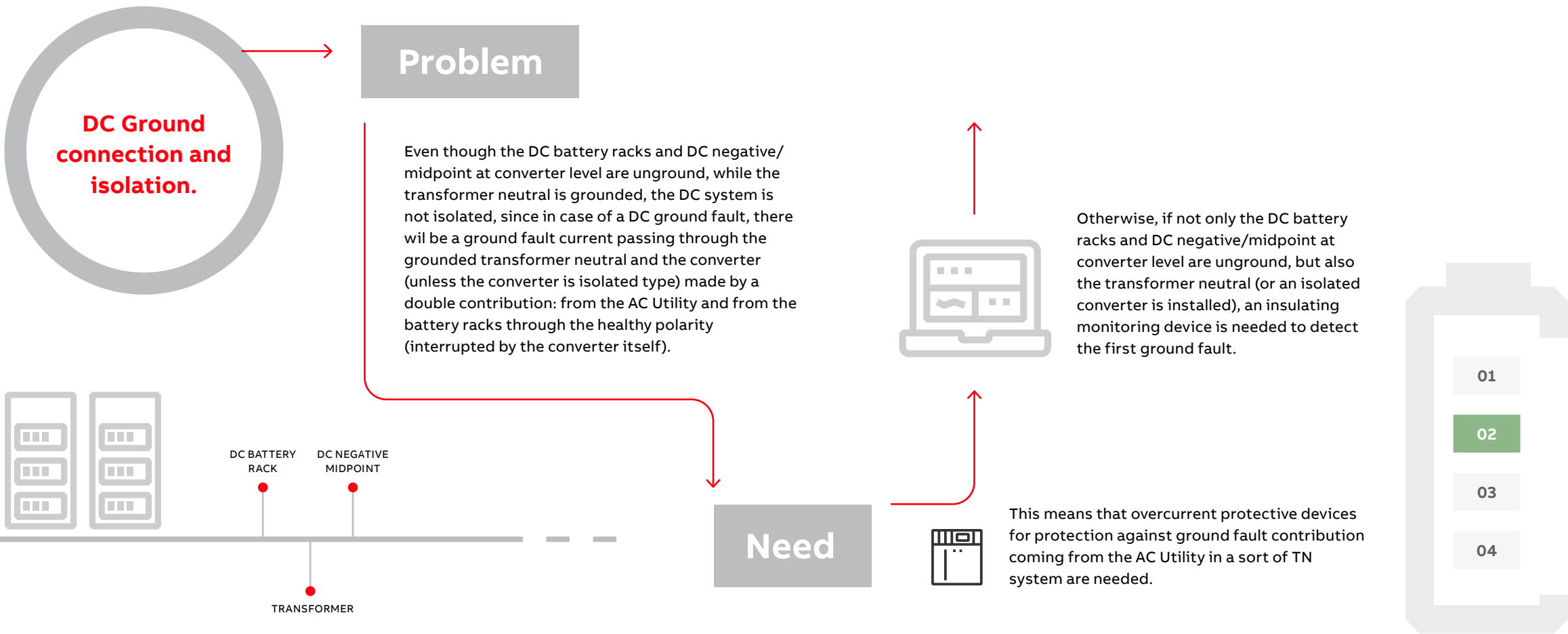


# Main switching and protection challenges in BESS

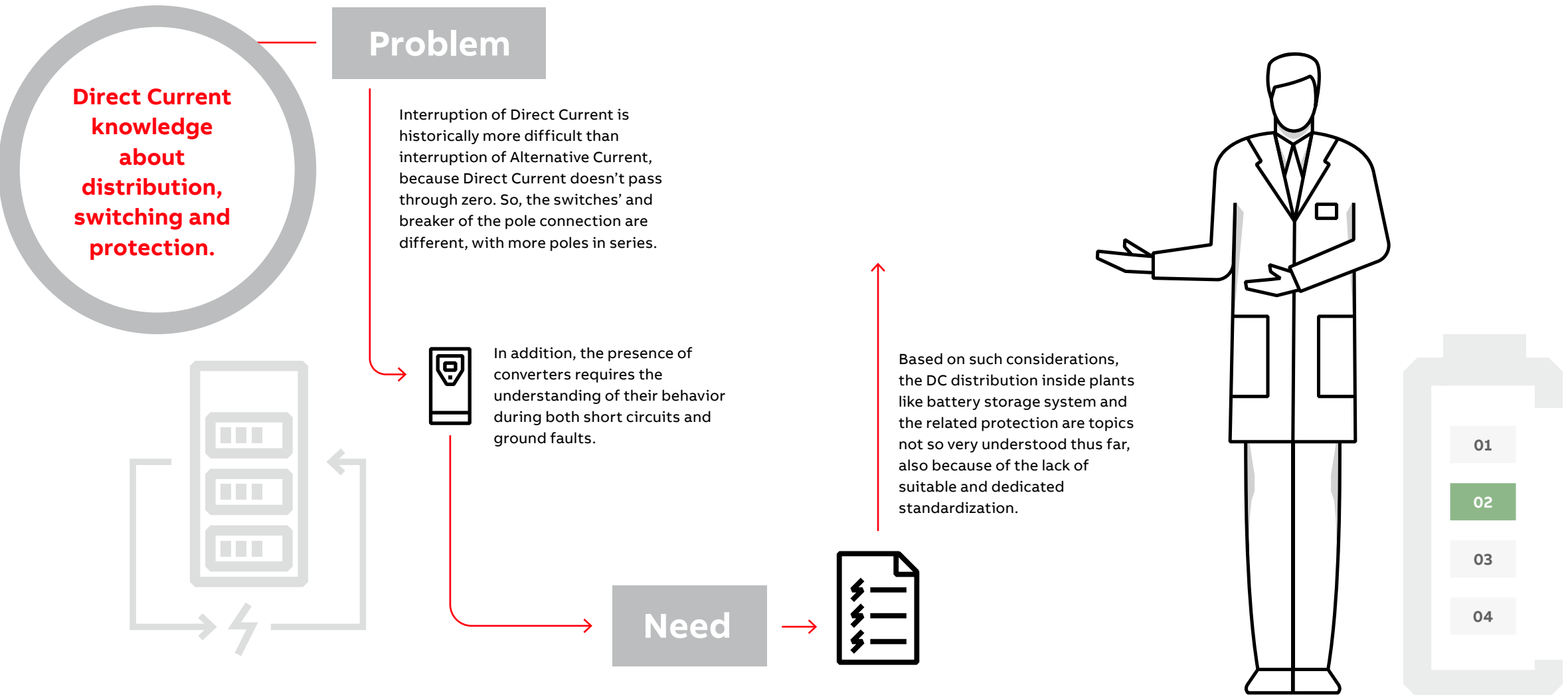


# Main switching and protection challenges in BESS

In a Battery System there can be up to three ground connection points: the MV/LV transformer neutral, either the DC negative or the DC midpoint (if present) at the converter level, and either the DC negative or the DC midpoint (if present) at the battery rack level.



# Main switching and protection challenges in BESS





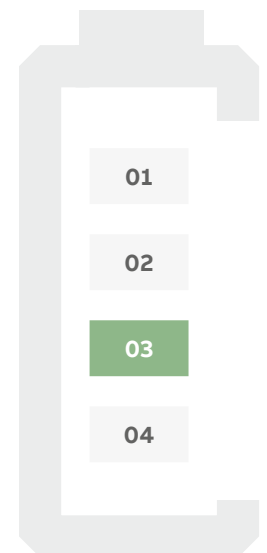
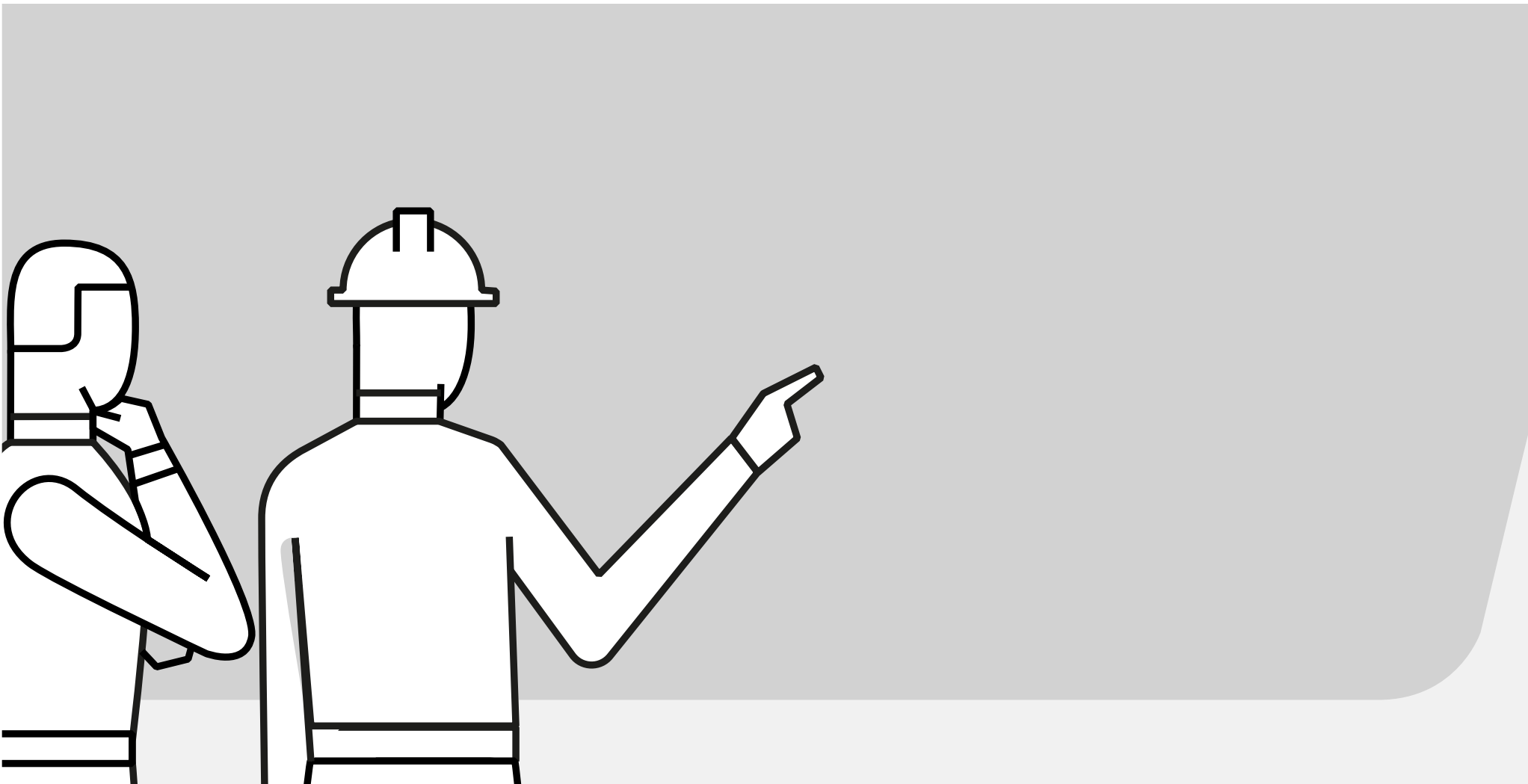
# ABB

## Application overview

Explore ABB tailored solutions to secure, protect and optimize any type of battery storage systems.



## Why to choose ABB solutions





# Application Overview





# BESS Typologies

## Utility Scale (Front-of-the-meter)

Explore our Application Bundles, a solution with preconfigured bundles of products to easily set up your Bess utility scale installation

### EXPLORE OUR APPLICATION SOLUTIONS FOR UTILITY SCALE



**Switching & Protection for DC combiner**



**Switching & Protection for Battery Racks**



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# BESS Typologies

## Commercial and Industrial (Behind-the-meter)

Explore our Application Bundles, a solution with preconfigured bundles of products to easily set up your Bess Commercial & Industrial installation

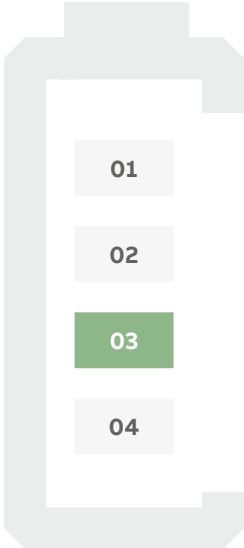
EXPLORE OUR APPLICATION SOLUTIONS FOR  
COMMERCIAL AND INDUSTRIAL



Switching & Protection for DC combiner



Switching & Protection for Battery Rack





# BESS Typologies

Residential (Behind-the-meter)

EXPLORE OUR APPLICATION  
SOLUTION FOR RESIDENTIAL



Switching and protection solutions  
**COMING SOON**



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# Product offering

Explore our most cutting-edge products to secure, protect and optimize battery storage systems

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## Product offering

Emax 2/E9



Tmax T HV



AF contactor



PCS



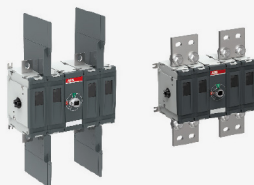
Surge protection



GF contactors



DC switch-disconnectors  
16...1000 A



Emax 2 MS/DC-E



Insulation  
monitoring relays



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To explore the complete product offering visit our web page

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