

EMMES is the definitive analysis of the European markets for energy storage and how they are developing



Current size of the energy storage market in Europe

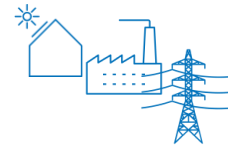


Forecast for energy storage market development to 2020



Data on front-of-the-meter and behind-the-meter markets in each main country

The key market trends across Europe



The main drivers & barriers in each country



How European policy is affecting the market today and shaping it into the future

- ▶ EMMES is produced by leading 'new energy' research and consulting company Delta Energy & Environment (Delta-ee), in close partnership with EASE (European Association for Storage of Energy)
- ▶ Based upon primary research with leading companies and stakeholders – many of whom are members of EASE
- ▶ Market data that companies can rely on, and is updated every 6 months
- ▶ Analysis of EU policy and all the main country markets in Europe – segmenting the residential, commercial & industrial and front-of-meter sectors
- ▶ EMMES is available to EASE members and to subscribers of Delta-ee's Energy Storage Research Service
- ▶ Each biannual EMMES report can be purchased by non-members for €4,000

The third edition EMMES 3.0 report updates and extends the previous report (EMMES 2.0) published in June 2018.

Each EMMES report includes:

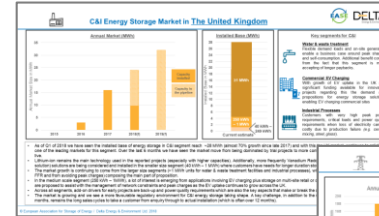
- ▶ Country energy storage data (2015-2020):
  - ▶ Installed base in residential, C&I and front-of-meter sectors (MW / MWh)
  - ▶ Battery sales in residential, C&I and front-of-meter sectors (units or MW / MWh)
  - ▶ Key developments which explain the market trends
- ▶ Forecast of country energy storage markets for 2019 - 2020
- ▶ What's new summary of market developments
- ▶ Latest update and status of EU policy developments
- ▶ Market Hot Topic

For more information and to purchase, please contact:

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## Comprehensive geographical coverage of Europe (broken down into 8 regions)

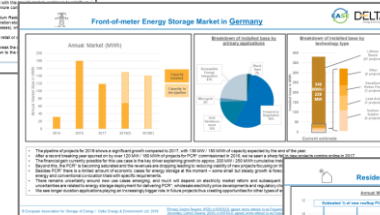
- ▶ France
- ▶ Germany
- ▶ Italy
- ▶ UK
- ▶ Central / Eastern Europe
- ▶ Iberia
- ▶ Nordics
- ▶ Rest of Europe



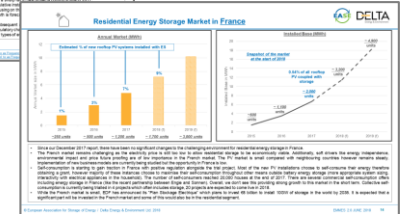
### Front-of-meter



## Looking at three major segments



### Residential



## Extended summary of the overall status and trends across Europe

**Summary of the energy storage market in Europe.**

The European market continues to grow strongly in 2018, and we forecast that the market will reach over 100 MWh, 40% up on 2017. The market grew by 40% in the last 12 months. Market activity remains robust in 2018, with significant capacity added in the last 12 months. The market is expected to continue to grow in 2019, with a forecasted growth of 40%.

**European Market Comparison (Key Markets)**

| Market  | Front-of-meter                              | BIM CAI                                     | BIM Residential                             |
|---------|---|---|---|
| France  | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High |
| Germany | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High |
| Italy   | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High |
| UK      | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High |
| CEE     | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High |
| Iberia  | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High |
| Nordics | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High | Market Activity in the last 12 months: High |

**What's new? country-by-country developments**

- Italy:** Very active residential market is a significant feature of the storage market in Italy. The market is expected to continue to grow in 2019, with a forecasted growth of 40%.
- UK:** Some delay in commissioning of 2017 front-of-meter projects but market activity remains strong. The market is expected to continue to grow in 2019, with a forecasted growth of 40%.
- Nordics:** No major market developments or general commissioning of the last 12 months. The market is expected to continue to grow in 2019, with a forecasted growth of 40%.
- CEE:** Ongoing organic growth in the residential market. The market is expected to continue to grow in 2019, with a forecasted growth of 40%.

**Overview of the EU policy and regulation.**

Policy changes that may happen in the future:

- The 'Clean Energy for all Europeans' Package (CEEP), published by the European Commission in November 2018, contains several legislative and non-legislative proposals that, once adopted, will have a significant effect on the energy storage industry.
- Proposed for revised Electricity Regulation
- Proposed for revised Electricity Directive
- Proposed for revised Electricity Market Design
- Proposed for revised Renewable Energy Directive

The below timeline describes the process to adopt these three proposals:

| Year           | Legislative proposals defined by the EC | Council's Negotiating Position | Parliament's Negotiating Position                   | Expected final agreement | Expected implementation of CEEP in EU Member States |
|----------------|---|--------------------------------|---|--------------------------|---|
| 2011/2016      | Legislative proposals defined by the EC |                                |   |                          |   |
| 18/12/2017     |   | Council's Negotiating Position |   |                          |   |
| 11 and 12 2017 |   |                                | Parliament's Negotiating Position                   |                          |   |
| 21/03/2018     |   |                                | Vote in the EP                                      |                          |   |
| July 2018      |   |                                | Tripartite to start under the Presidency            |                          |   |
| End 2018       |   |                                | Expected final agreement                            |                          |   |
| End 2018       |   |                                | Expected implementation of CEEP in EU Member States |                          |   |

## Market Hot Topic: The 'Clean Energy for All Europeans' Package: How Will it Impact the Storage Industry?

### Market Hot Topic:

#### The 'Clean Energy for All Europeans' Package: How Will it Impact the Storage Industry?

**Clean energy for all Europeans package.**

The package consists of three main parts: 1. Provisions with Impact Across the Energy Storage Sector, 2. Provisions with Impact Across the Energy Storage Sector, and 3. Provisions with Impact Across the Energy Storage Sector.

**S.I Residential Storage.**

The package will have a significant impact on residential storage, particularly in terms of market activity and capacity added.

**Renewable Energy Transition.**

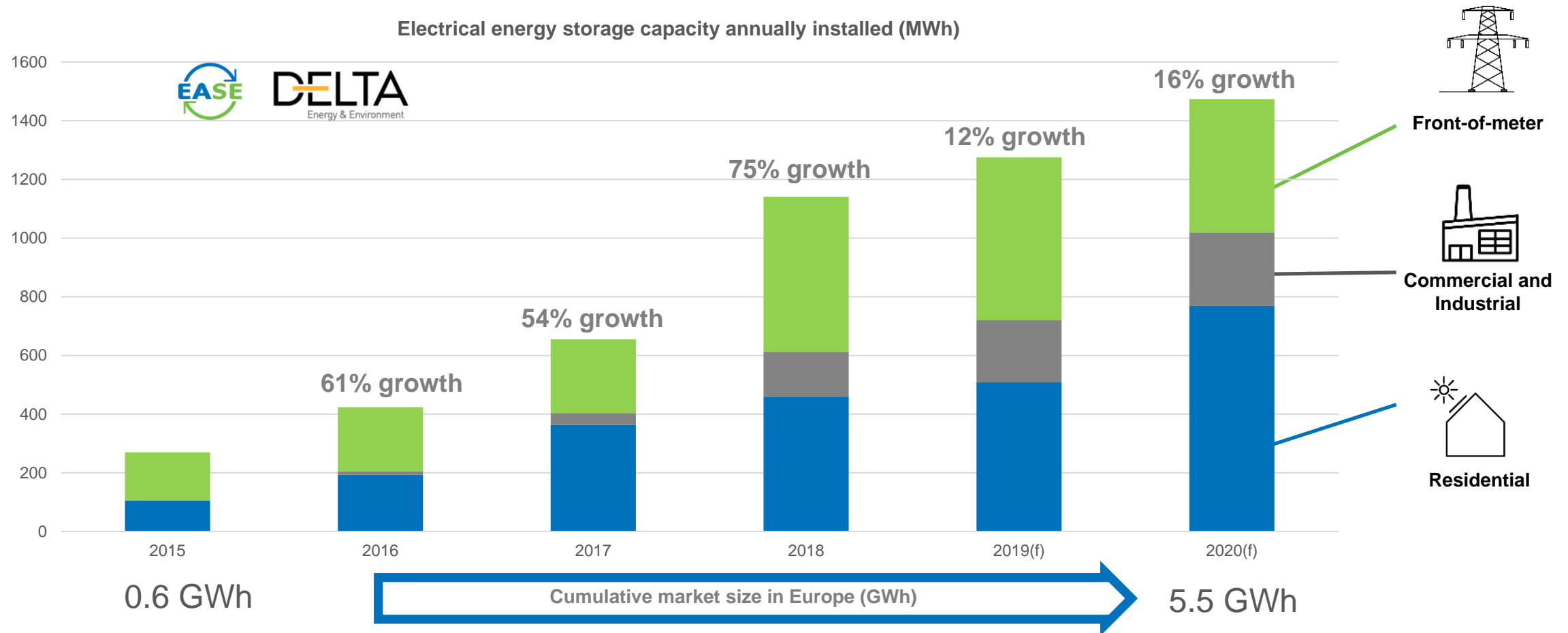
The package will have a significant impact on renewable energy transition, particularly in terms of market activity and capacity added.

**Enabling Smartness of Buildings.**

The package will have a significant impact on enabling smartness of buildings, particularly in terms of market activity and capacity added.

# EMMES 3.0\* Market figures and forecasts

## Electrical Energy Storage The analysis includes electrical, electrochemical and mechanical storage (with the exception of pumped hydro storage).



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