



An Outlook at the developments of the EU Storage Market

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EU Energy Storage Market Outlook

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1. **The different European states' energy storage markets are deeply influenced by European Union policies**
2. **The international political situation has a deep impact on European Union energy policies**
3. **Energy storage potential in Europe**
4. **Energy storage uptake in the different market segments changes dramatically from country to country**

1. European Union policies determine the rules of the game

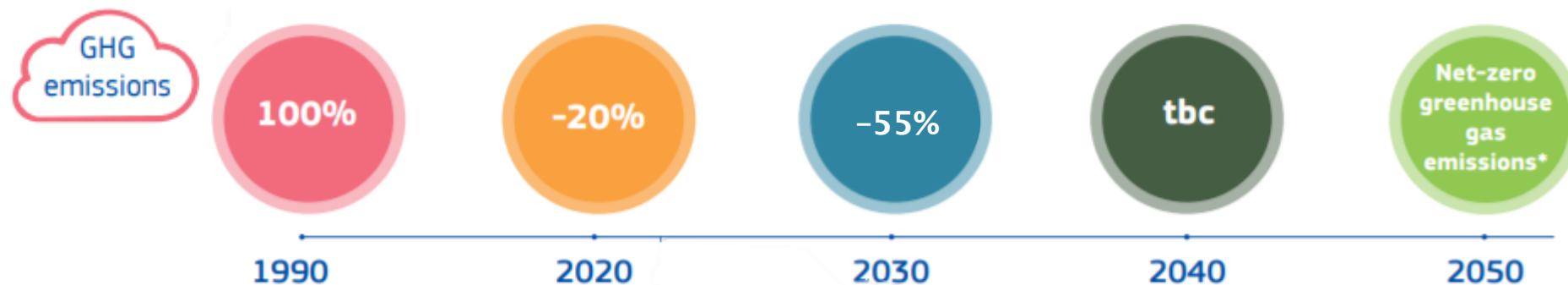
What is planned for 2030 and 2050

❖ EU Green deal– general goals

- ✓ 2030: reducing net GHG emissions by 55%
- ✓ 2050: becoming climate neutral

❖ Goals for energy sector

- ✓ 2030: At least 32 (or 40? Or 45?) % of its energy consumption comes from RES



Source: European Commission, 2019

2. Europe is not an island: international politics influence EU policies

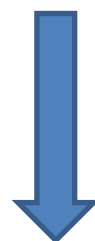
- ❖ **Russian–Ukraine conflict:**
 - ✓ Drastic increase in oil and gas prices because of market response to conflict and Western countries' reaction
 - ✓ Subsequent increase in electricity prices: the power sector heavily relies on gas-fired power plants
 - ✓ Raising awareness of the need to reduce dependency to Russian gas imports in Europe
- ❖ **General targets of REPowerEU:**
 - ✓ Reducing Russian gas imports, possibly phasing out of Russian gas imports by 2030
 - ✓ Accelerate the energy transition



2. Europe is not an island: international politics influence EU policies

In a nutshell, with REPowerEU:

- ❖ The EU has decided to commit to renewables, supported by hydrogen
- ❖ The EU is pushing for more decentralised energy production (e.g. solar+storage)
 - ❖ “The rule of the game” keep changing very fast



- ❖ **Problem: how will the EU address renewable energy inherent variability?**
 - ❖ **What will be the market developments for storage?**

3. Energy storage potential in Europe

What do we need to look at?

**Market
Forecast**

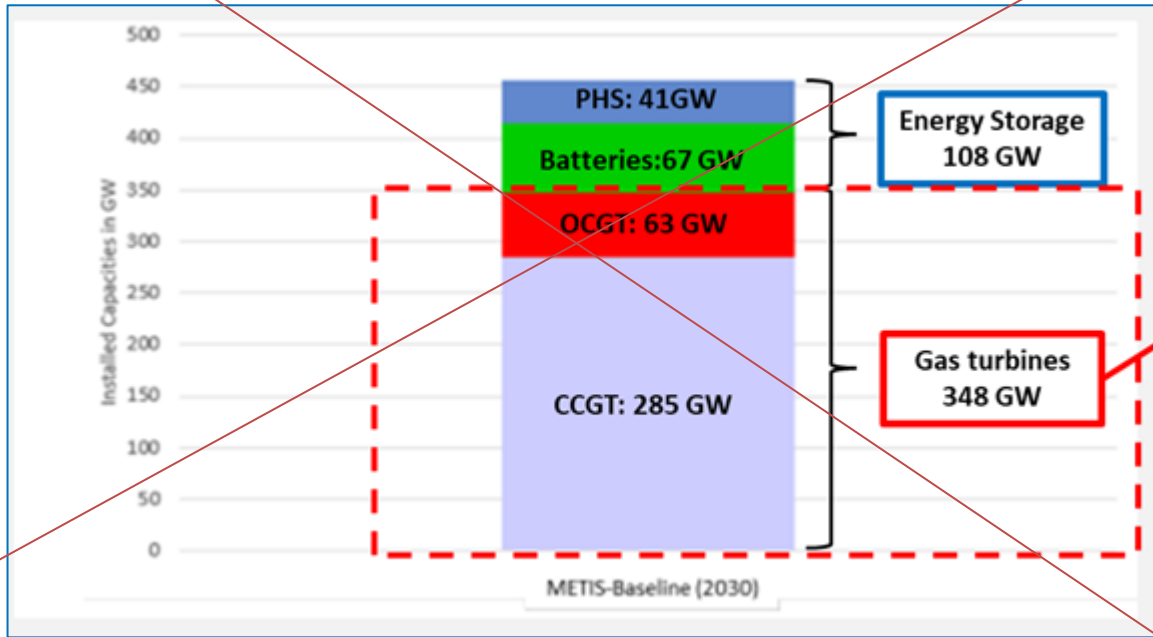


**Flexibility
needs?**



3. Energy storage potential in Europe

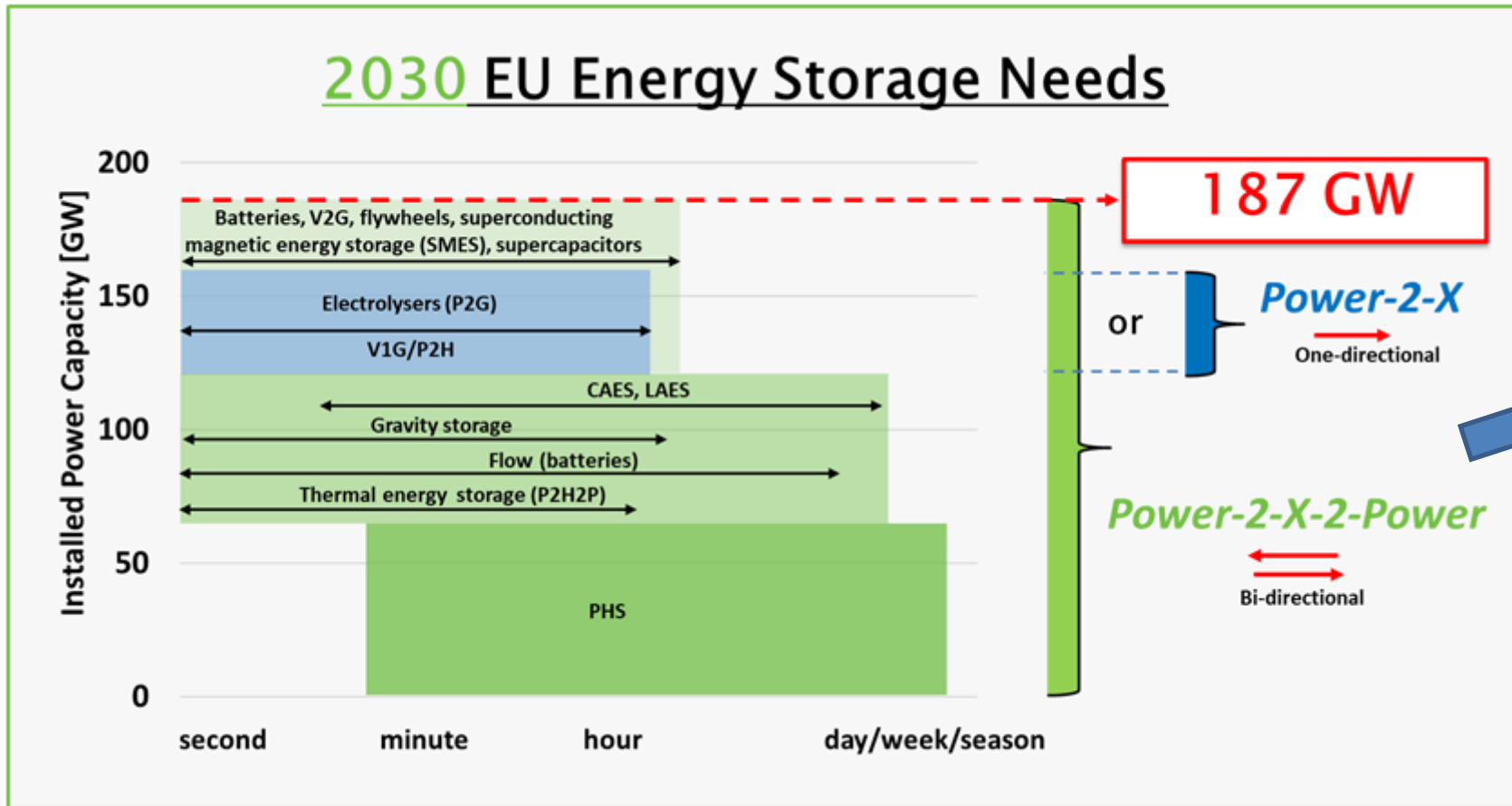
The key question is: what will be the flexibility needs?



There will be much higher energy storage uptake as fossil fuels generator will be less and less price competitive and socially acceptable

3. Energy storage potential in Europe

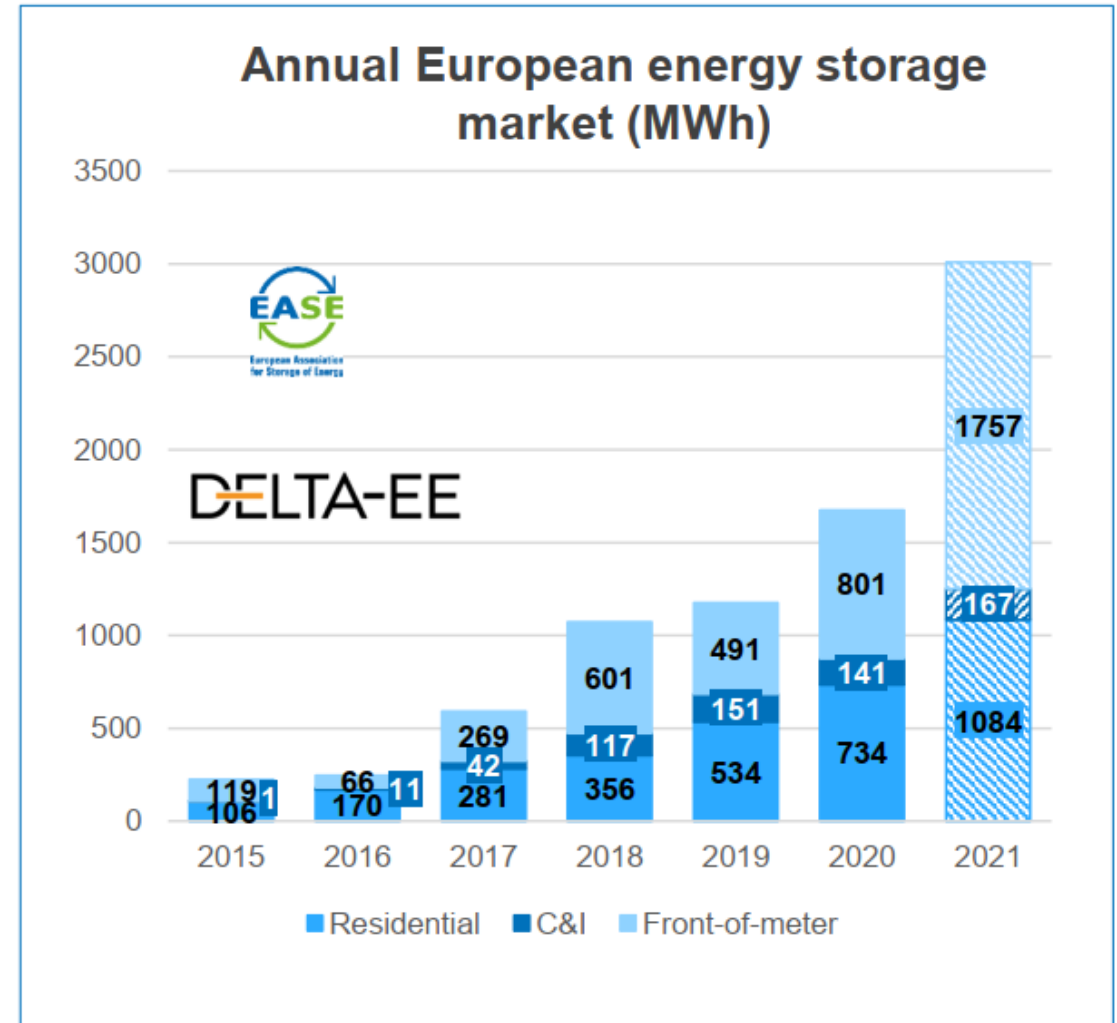
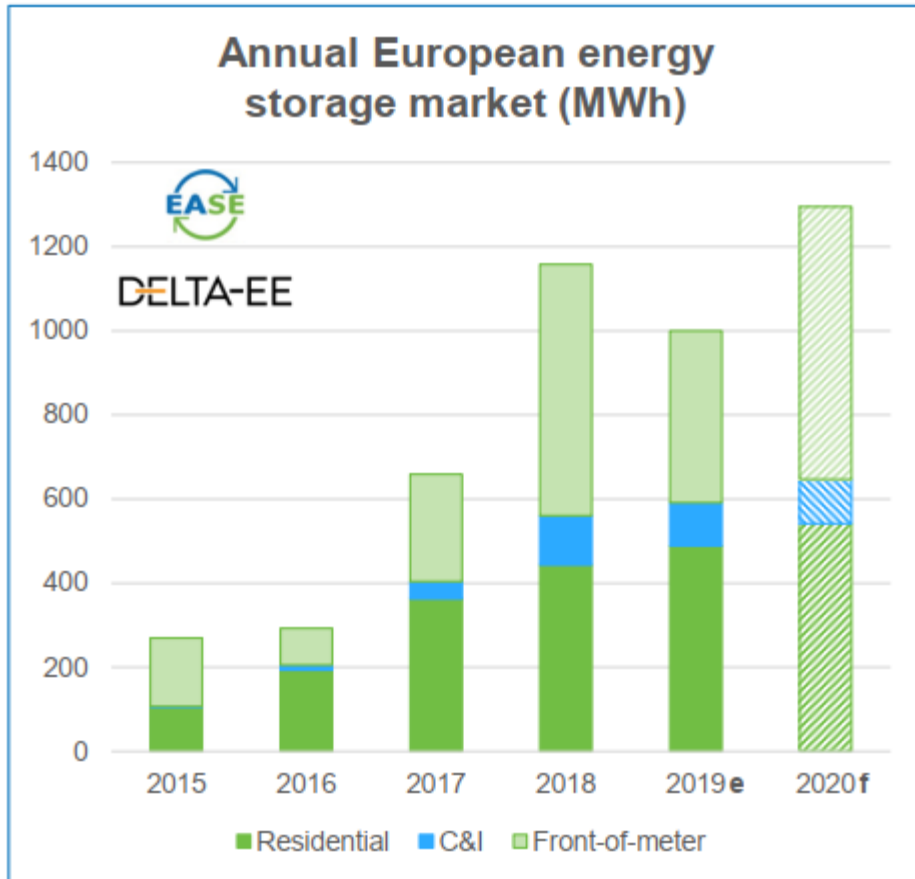
The key question is: what will be the flexibility needs?



Wide variety of solutions
- no absolute domination
of single technology!

3. Energy storage potential in Europe

What is the market forecast



3. Energy storage potential in Europe

Uptake is increasing dramatically, but still too slow!

**This means yearly uptake
needs to grow more than 10x!**

Need for investment signal



3. Energy storage potential in Europe

What will determine if uptake meet requirements?

Now?

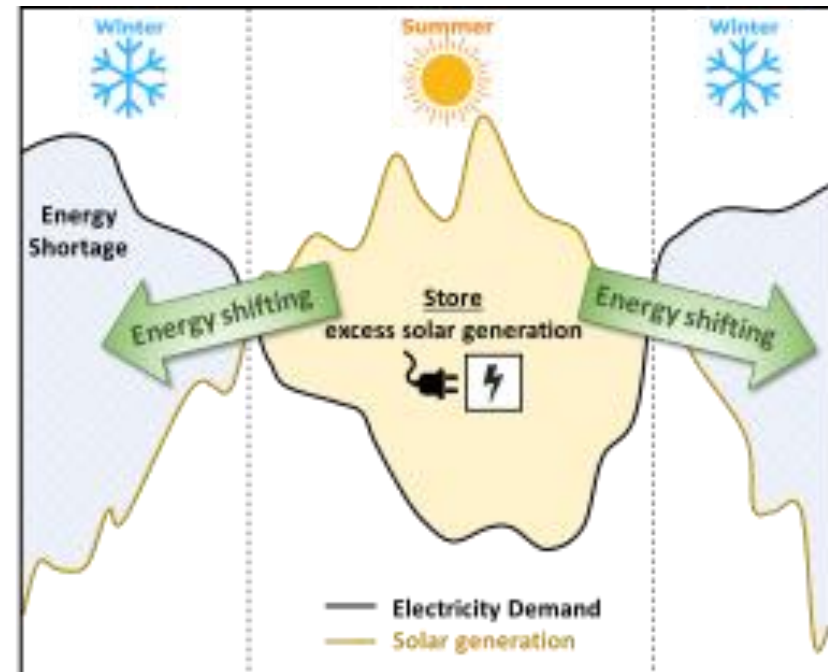
- ❖ The EU plans to reduce Curtailment
 - ✓ Energy storage absorbs the excess wind and solar energy that otherwise would be wasted;
 - ✓ Storage can therefore minimise curtailment by shifting and storing excess renewable generation and using it to cover energy shortfalls traditionally covered by fossil fuel gas generators.
 - ✓ Will new markets product for it be created? Unclear...

Now?

- ❖ The EU plans to reduce fossil fuel dependency
 - ✓ As said before, gas turbine still very strong
 - ✓ Will policies ensure that they are replaced? Unclear...

Wait – won't the EU just rely on demand–response?

- We cannot rely only on demand–response, because we need shifting as well:
- ✓ Demand–response aims to balance supply and demand on the grid
- ✓ Energy storage technologies allow to shift electricity by storing at times of surplus and releasing at times of deficit (“bidirectional”).
- ✓ We will see energy storage market increase dramatically

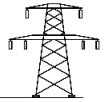


Wait – won't the EU just rely only on Hydrogen?

- Hydrogen is key for the energy transition, but it won't be the “silver bullet”
- ✓ Industry demand is extremely high
- ✓ Different energy storage provide different services at different timeframes
- ✓ We will not see a single technology dominating in Europe



4. Energy storage uptake in the different market segments changes dramatically from country to country



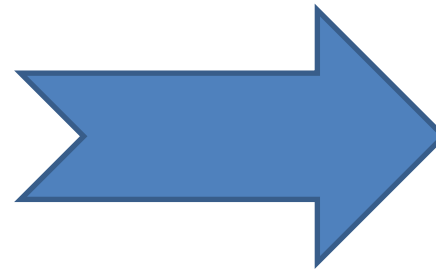
- Front of the Meter



- Commercial & Industrial



- Behind the Meter



National legislation determines how and where energy storage is deployed

4. Energy storage uptake in the different market segments changes dramatically from country to country

Generalising...

- **Front of the Meter**

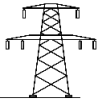
- ❖ Biggest segment and will continue to grow
- ❖ Lithium-ion dominates today but as the need for longer duration storage grows other technologies may emerge

- **Commercial & Industrial**

- ❖ Very low installed base today, high potential!
- ❖ Lithium-ion is used in majority of projects but flow battery and thermal storage have significant potential

- **Behind the Meter**

- ❖ Steady growth – evolution not revolution
- ❖ Cost reductions, emerging innovative business models and growing customer awareness all support continued growth across Europe



5. What is the EU's recipe? And what's missing?

1. Regulatory framework must be energy storage-friendly
 - a) Are there products that remunerate energy storage contribution to the grid?
 - b) Are there the right provisions that ensure that there is no fossil fuel lock-in?
2. Is there a strategy that leads the way and provides investment signals and reduces risks?
3. Is there solid R&I and public investments?
4. Is there a clear implementation of the rules at every government level, from EU to national to regional?

Conclusion

For a successful market development, there is a need for:

- ❖ Good Regulatory Framework
- ❖ A solid strategy
- ❖ Excellent R&I
- ❖ Coordination between different bodies

Otherwise:

- ❖ Uptake will not meet the needs



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