



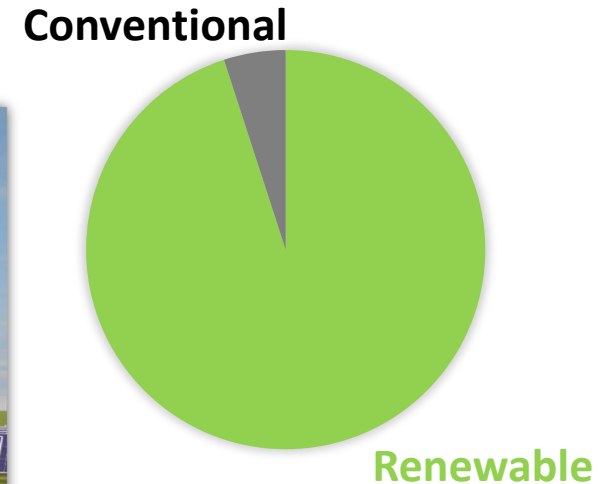
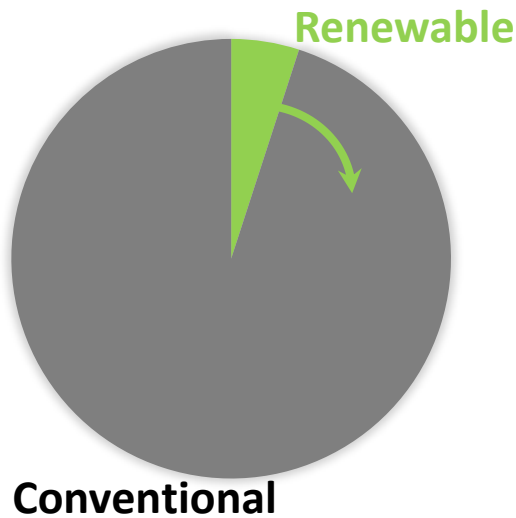
# KEMWATT

Your energy bank

**François HUBER - Co-founder - CEO**

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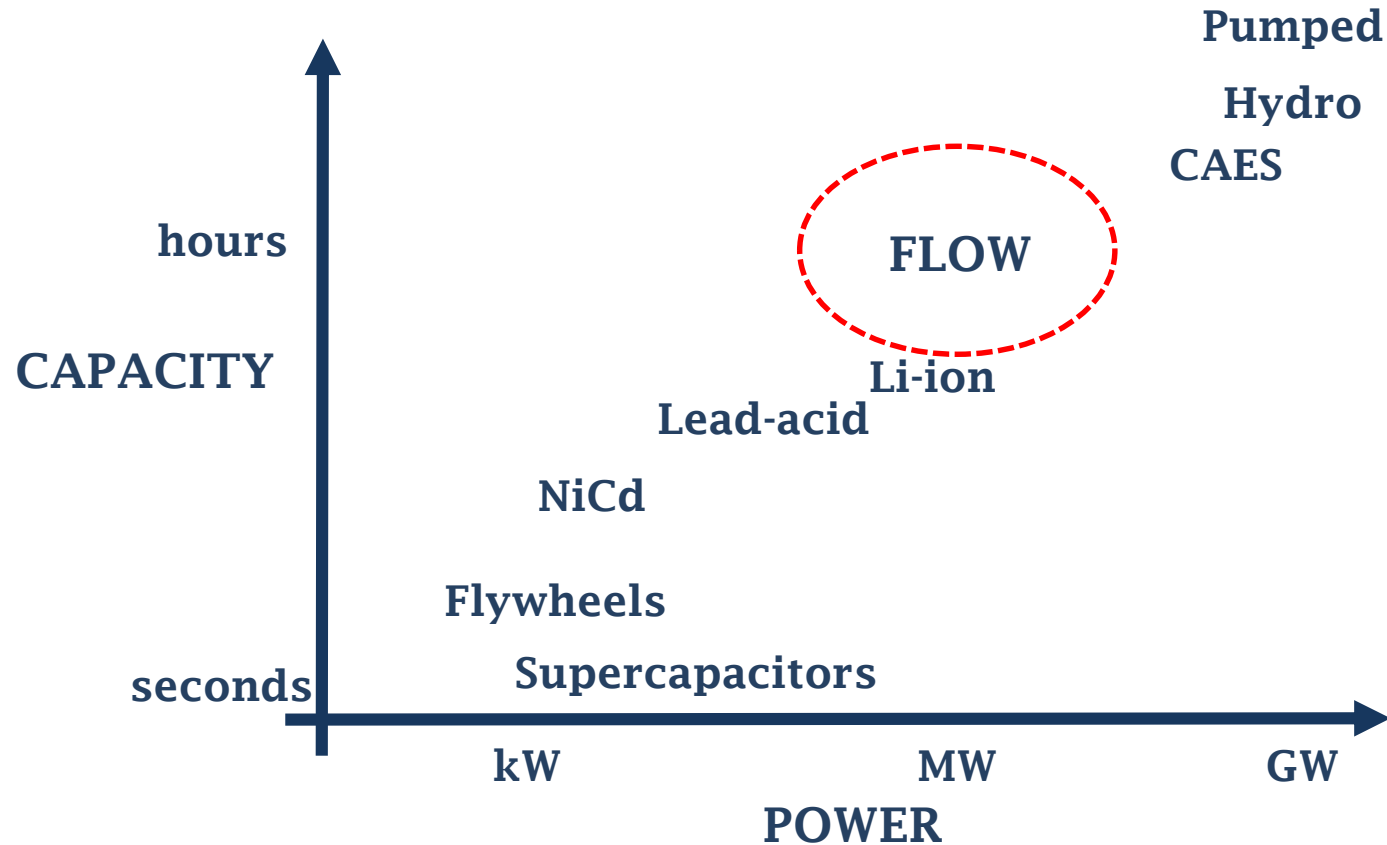
# BREAKING THE CLEAN ENERGY GLASS CEILING



Storing renewable energy is not about going from 6 to 7% of the energy mix

As renewables become competitive, it is about **enabling the new 95%**

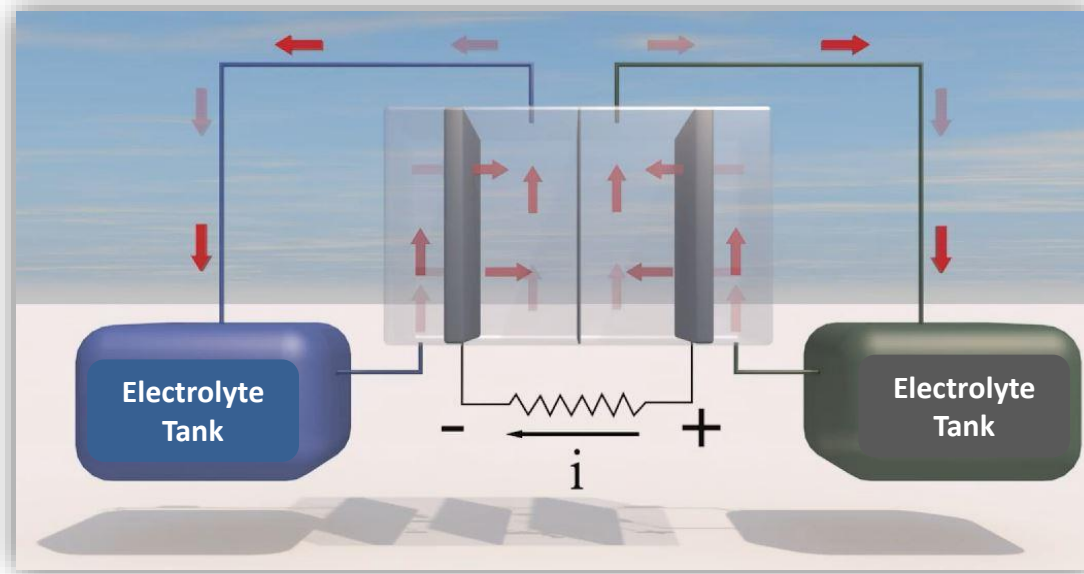
# THE RIGHT TECHNOLOGY FOR RENEWABLE ENERGY



Renewable sources typically produce in the **MW range for hours**

**Flow batteries are right in the sweet spot**

# STORING OUTSIDE THE BOX



Flow batteries store energy in **liquids**

The liquid chemistry allows **very long lifetimes**

# LOW CAPEX FOR LARGE CAPACITIES

1 MWh



Conventional batteries:

More capacity

=

More batteries



12 MWh

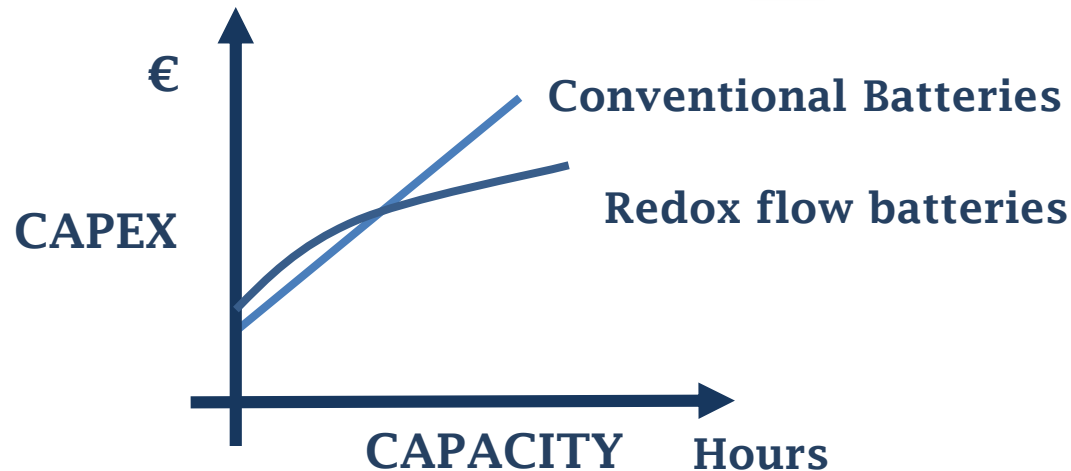
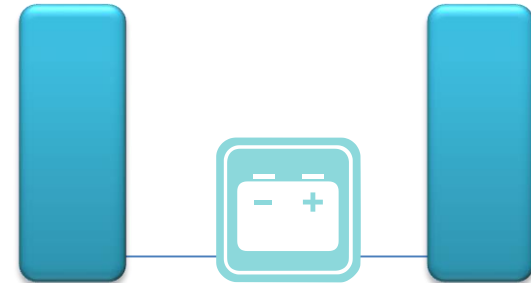
Redox flow batteries:

More capacity

=

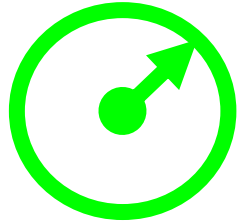
Larger tanks

1 MWh

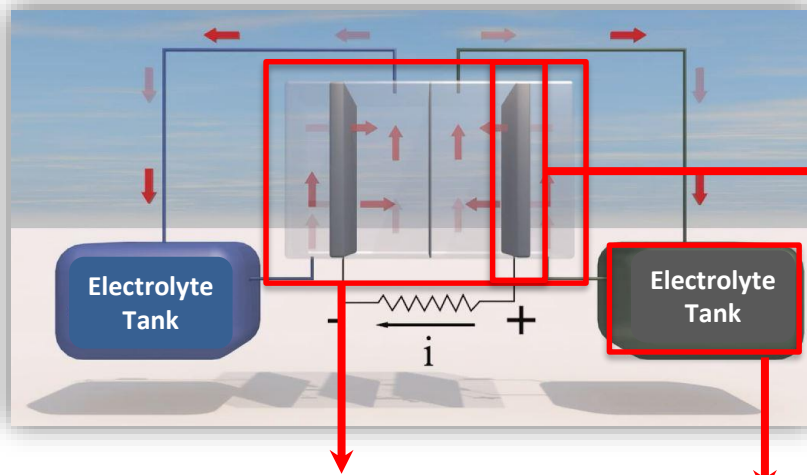


# KEY ADVANTAGES OF ORGANIC FLOW BATTERIES

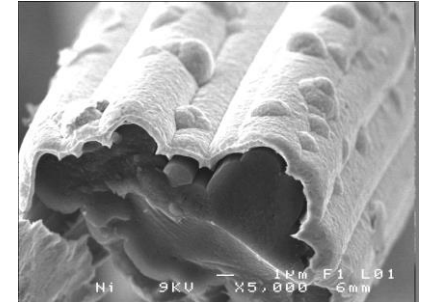
- Sustained performance over very long life (10+ years)
- No maintenance (reliability, safety, environmental) issues
- As a result, competitive capex and very low opex



# STORING OUTSIDE THE BOX



*Metal coated electrodes  
Not just graphite*



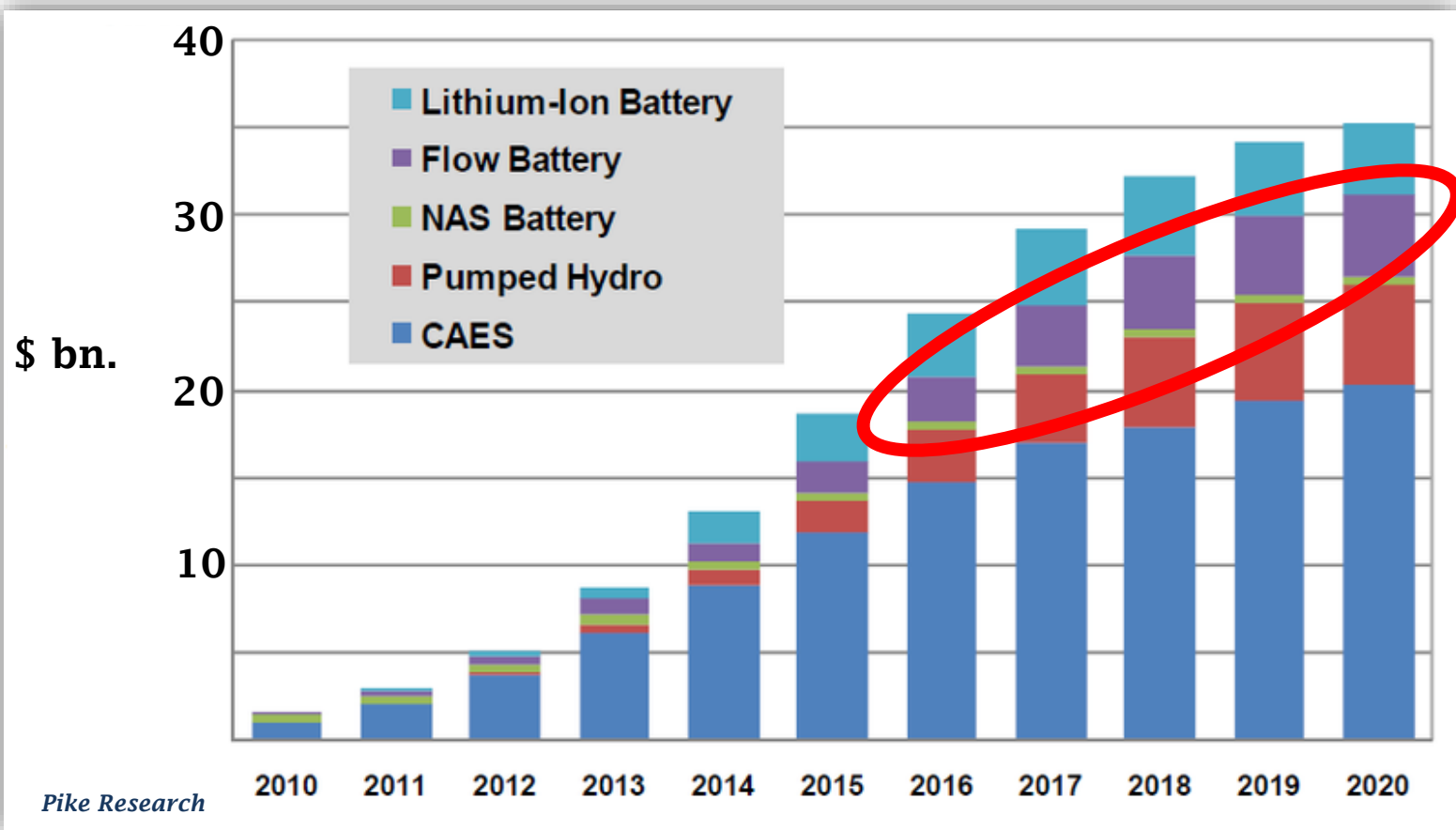
*Organic molecules in alkaline solutions,  
instead of corrosive, single chemistry,  
expensive metal based solutions*

*Advanced stack design*

**Cheaper, long lasting, safer, environmentally friendly**

**Protected by 4 granted patents, other patents pending**

# A BOOMING, GLOBAL MARKET

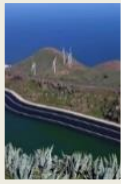


**Young, fast-growing, large industrial market**

**Early start and critical size** are key success factors



# MARKET ACCESS POINTS



Microgrids for  
remote areas  
(*islands, rural villages*)



Smart buildings



Communities



Large industrial  
business



Defense



Utilities



Grid operators



Renewable energy  
producers



Energy customers  
(*industry*)



Key areas  
(*hospitals, headquarters*)



Experiments

Selling to **global electrical integrators** for **off-grid** or **grid services**

# KEMWATT TODAY

- Kemwatt is the **world technological leader** with the **first industrial prototype** of organic RFB (10 kW)
- Founded in Rennes in 2014 further to years of research
- Raised €2 m. and secured €1 m. in grants & soft loans



- **Key partnerships** in France and the US



Lawrence Berkeley National Laboratory

- Team of 9 highly skilled, international specialists



CEO



CTO



Process



Electrical



Electrochemistry



Laboratory

# FAST TRACK TO SERVING THE MARKET

**Raised  
€ 0.8 m.**

**Grants  
€ 0.7 m.**

**Raised  
€ 1.2 m.**

**2014**

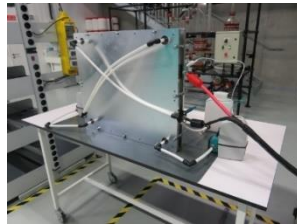
**2015**

**2016**

**Today**



**Monocells**



**Industrial  
stack**



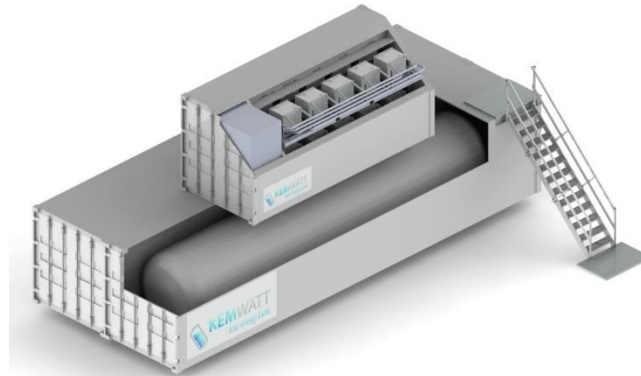
**Industrial  
10 kW prototype**



**Full-scale 20 kW  
demonstrator**

# NEXT STEPS

**Fundraising  
€ 5 m.  
for years 2017-2018**



**Large scale  
demonstrator  
( $> 100$  kW)**

**1<sup>st</sup> commercial products**

**Industrial upscaling**

**2017**

**2018**

**2019**

**2020**

**1<sup>st</sup> 20 kW system sale**

**1<sup>st</sup> large system sale**

**Sales to end users  
and experimental projects**

**Sales to  
large engineering companies**

# A FUTURE LEADER ON A BOOMING GLOBAL MARKET

## KEMWATT

- Disruptive technology for long duration energy storage
- 2<sup>nd</sup> generation redox flow battery
- Inexpensive, long lasting, safe, environmentally friendly
- Raised € 2m. with 2 VCs and individual investors
- Won national awards, secured € 1 m. in grants & soft loans
- First stages of industrial prototyping (20 kW)
- € 5 m. needed in 2017 to industrialize and commercialize