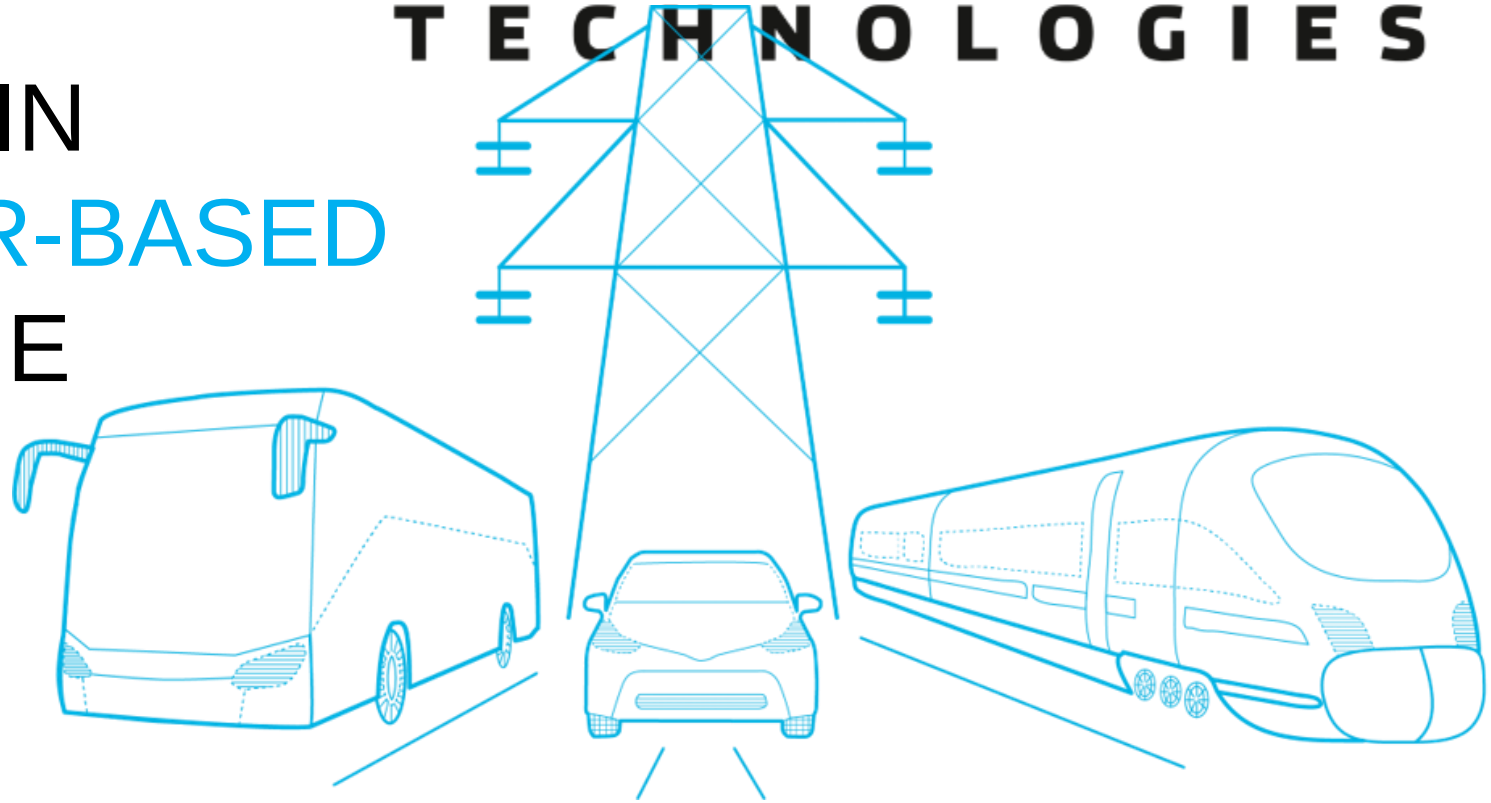
SKELETON TECHNOLOGIES

GLOBAL LEADER IN ULTRACAPACITOR-BASED ENERGY STORAGE



Potsdam
Nov. 6th 2019

FEATURED IN

Bloomberg CNBC FT FINANCIAL TIMES The Economist

NAMED IN

2018 Global Cleantech 100 TOP 100 COMPANY

Bloomberg New Energy Finance New Energy Pioneers 2017

WHAT IS AN ULTRACAPACITOR?

ULTRACAPACITORS: FAST ENERGY STORAGE

Ultracapacitors use an electric field to store energy

- ➕ Good power density (up to 14 kW/kg)
- ➖ Low energy density (up to 6 Wh/kg)
- ➕ Extreme cycle life (>1 million)
- ➕ Extremely fast charging in seconds
- ➕ Abundance of raw materials
- ➕ Easy to recycle

BATTERIES: SLOW ENERGY STORAGE

Li-ion Batteries use a chemical reaction to store energy

- ➖ Low power density (0.5 kW/kg)
- ➕ High energy density (205 Wh/kg)
- ➖ Limited cycle life (<3000)
- ➖ Slow charging in minutes or hours
- ➖ Scarcity of raw materials
- ➖ Difficult to recycle

Skeleton's fully integrated model enables it to be in full control of pricing and enjoy higher margins...

Tallinn, Estonia

+ Electronics Engineering
+ IT Development
+ Application Engineering
+ Module & System Development

Berlin, Germany

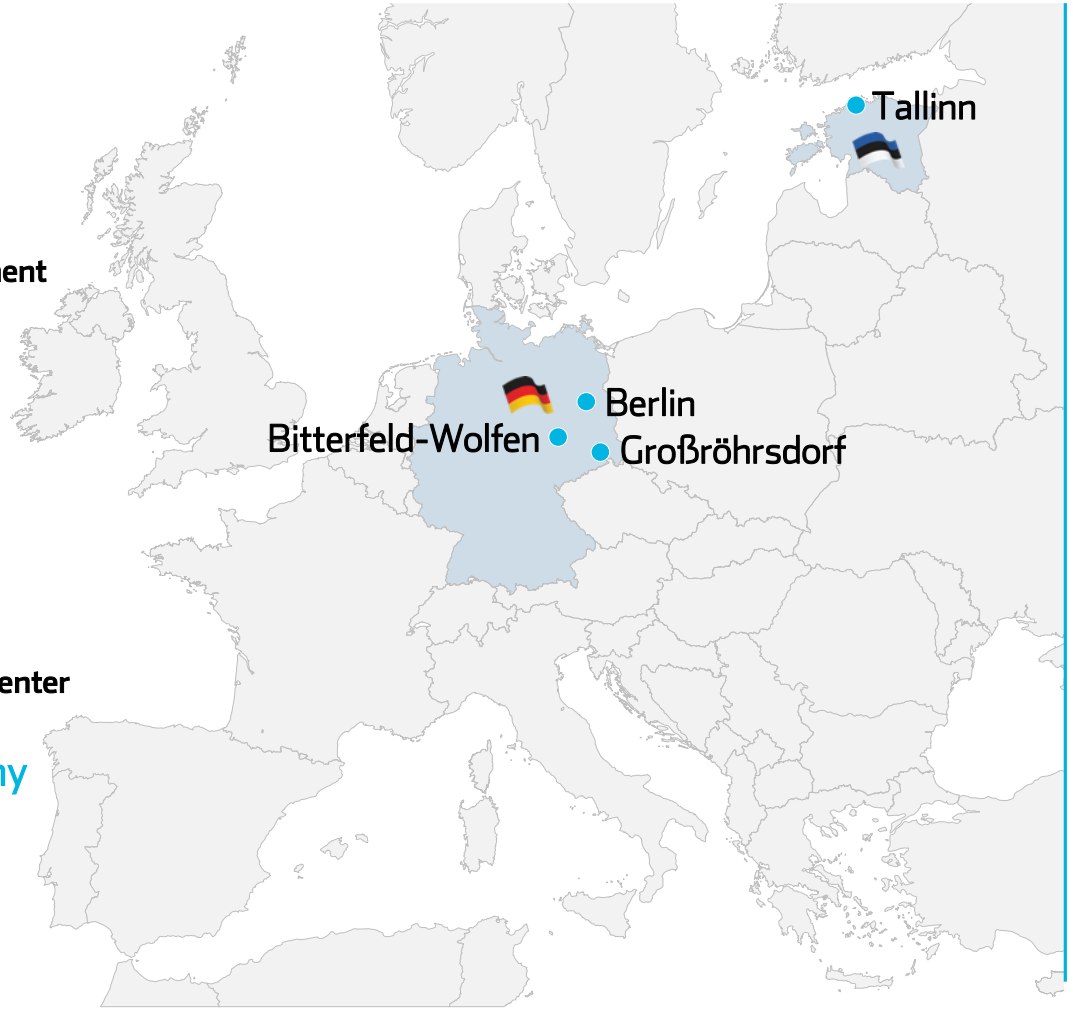
+ Management

Großröhrsdorf, Germany

+ Industrial scale ultracapacitor manufacturing
+ Ultracapacitor development center

Bitterfeld-Wolfen, Germany

+ Graphene research and manufacturing



MATERIALS

Curved Graphene

OUR PATENTED RAW MATERIAL

CELLS

SOLUTIONS

Modules

Systems

Li-ion + UC Hybrids

Skeleton competitive advantage
the highest power density cells on the market

SKELETON TECHNOLOGIES

Mechanical design advantages provide SkelCaps lower resistance / higher power, which leads to:

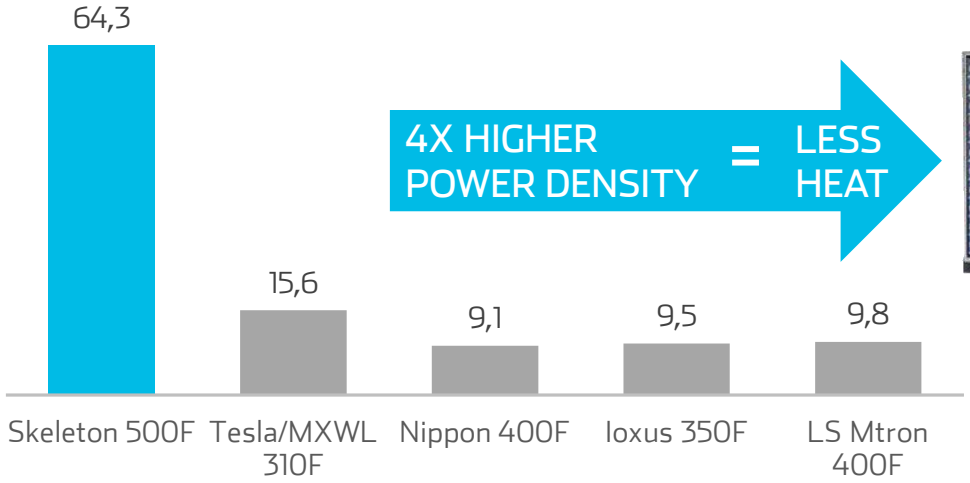
+ Higher efficiency
+ Less thermal loss
+ Longer application lifetime through decreased self-heating

15 years of lifetime

in Wind Turbine pitch control with no maintenance, lower size and no fire or safety hazard

50% less cells used

Skeleton was chosen by a major US system integrator for a power conversion project due to cost savings



Skeleton's solutions meet the needs of a wide variety of industries with a large portfolio of products

SKELE+ON TECHNOLOGIES

AUTOMOTIVE

- Combustion engine
- Hybrids
- Electric Vehicles

TRANSPORTATION

- Bus
- Truck
- Marine
- Rail
- Heavy machinery

GRID & RENEWABLES

- Wind energy
- Solar energy
- Grid stability
- Power quality systems
- UPS

INDUSTRIAL EQUIPMENT

- Hybrid excavators
- Cranes
- Materials handling

CURRENT PRODUCTS:

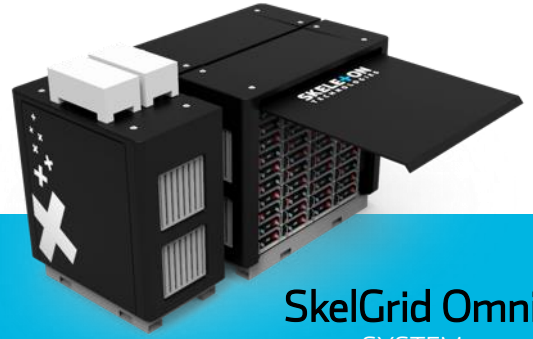
SkelCap
ULTRACAPACITORS

51V
MODULE

170V
MODULE

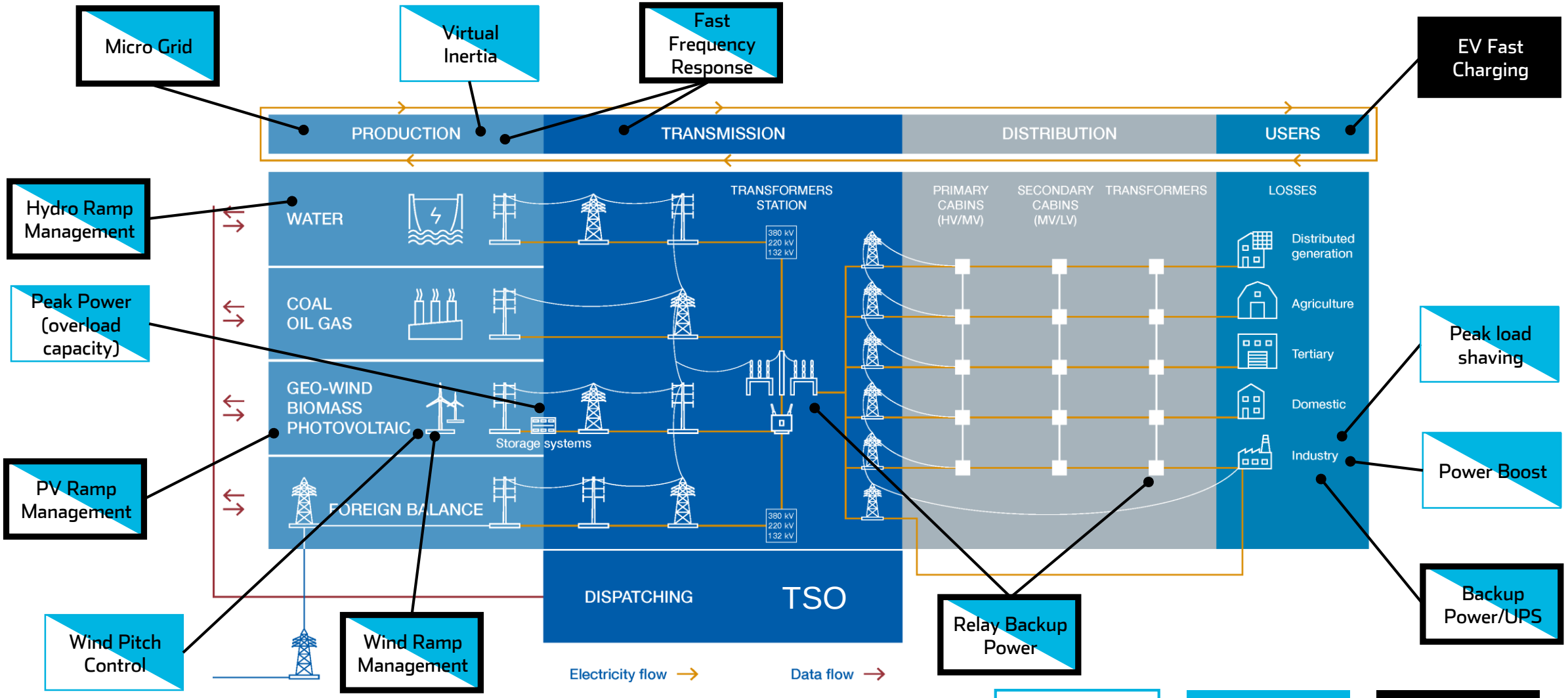
SkelStart
MODULE

SkelPack
WELDED PACKS



SkelGrid Omni
SYSTEM

Skeleton offers 13 different solutions to cover the Electrical Grid challenging needs



Skeleton'solution for Pitch Control meets requirements of all the main wind-mill manufacturers

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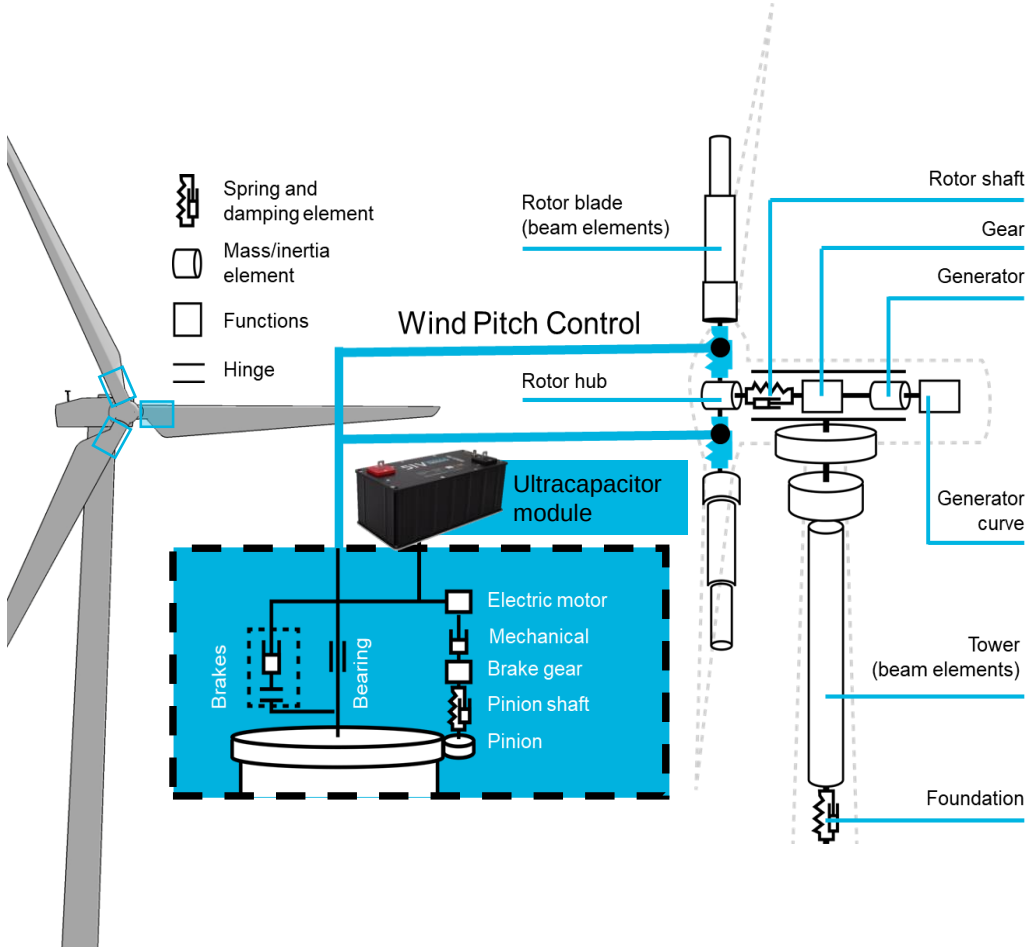
Explanation:	+	Pitch control enables blades to rotate towards a neutral angle of attack with respect to the airflow.
Challenge:	+	Turbine must stop rotating in case of power failure or unsafe wind speed. The back-up energy storage must be 100% reliable.
Solution:	+	Skeleton Ultracap modules reduces risk of collateral damages, with longer life & zero maintenance.
Consequences:	+	Ultracapacitors do not leak, -40C to +65C operating temperature range Easy discharge for safe maintenance works.
Advantages	+	Increased safety & reliability... less maintenance (€34k cost saving / turbine after 10 years) Pitch check operation frequency reduced 1 million cycles as a minimum (15 to 20 years life),



Wind Pitch Control

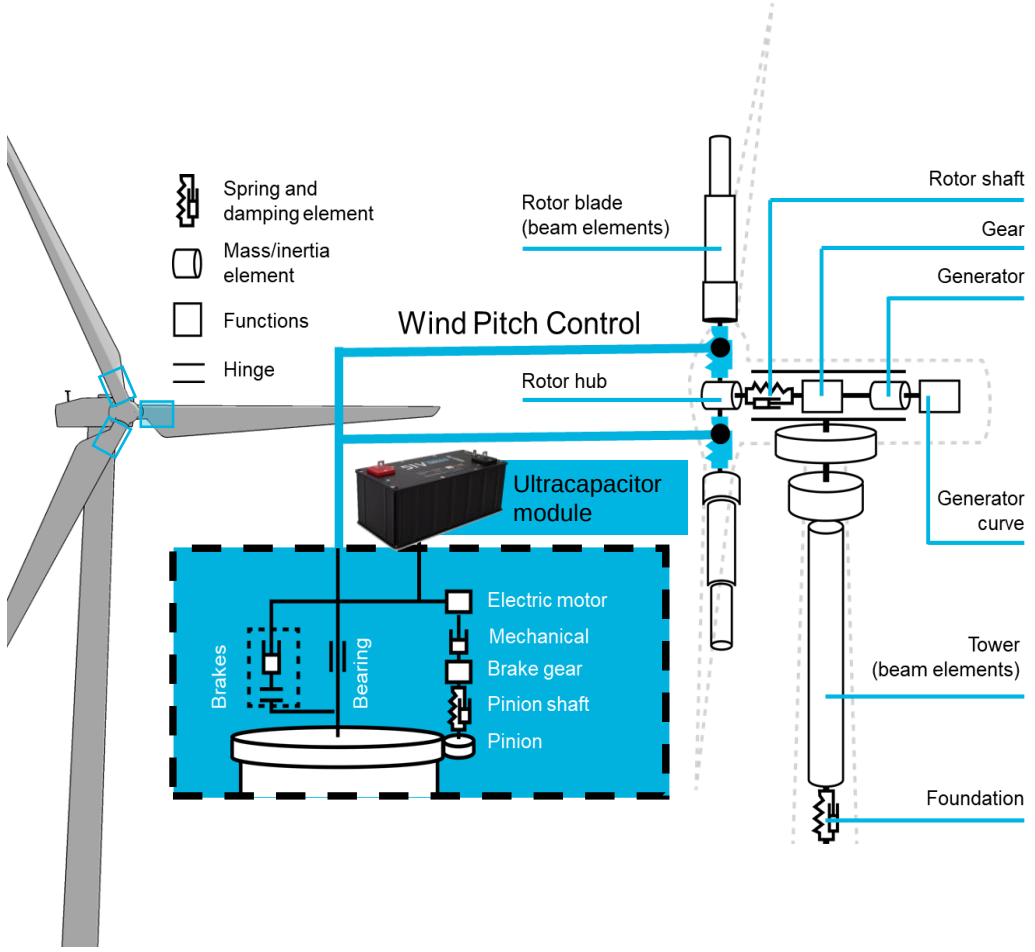
SkelGrid supports electrical equipment with power for overload capacity

Explanation: + Pitch control enables blades to rotate towards a neutral angle of attack with respect to the airflow.

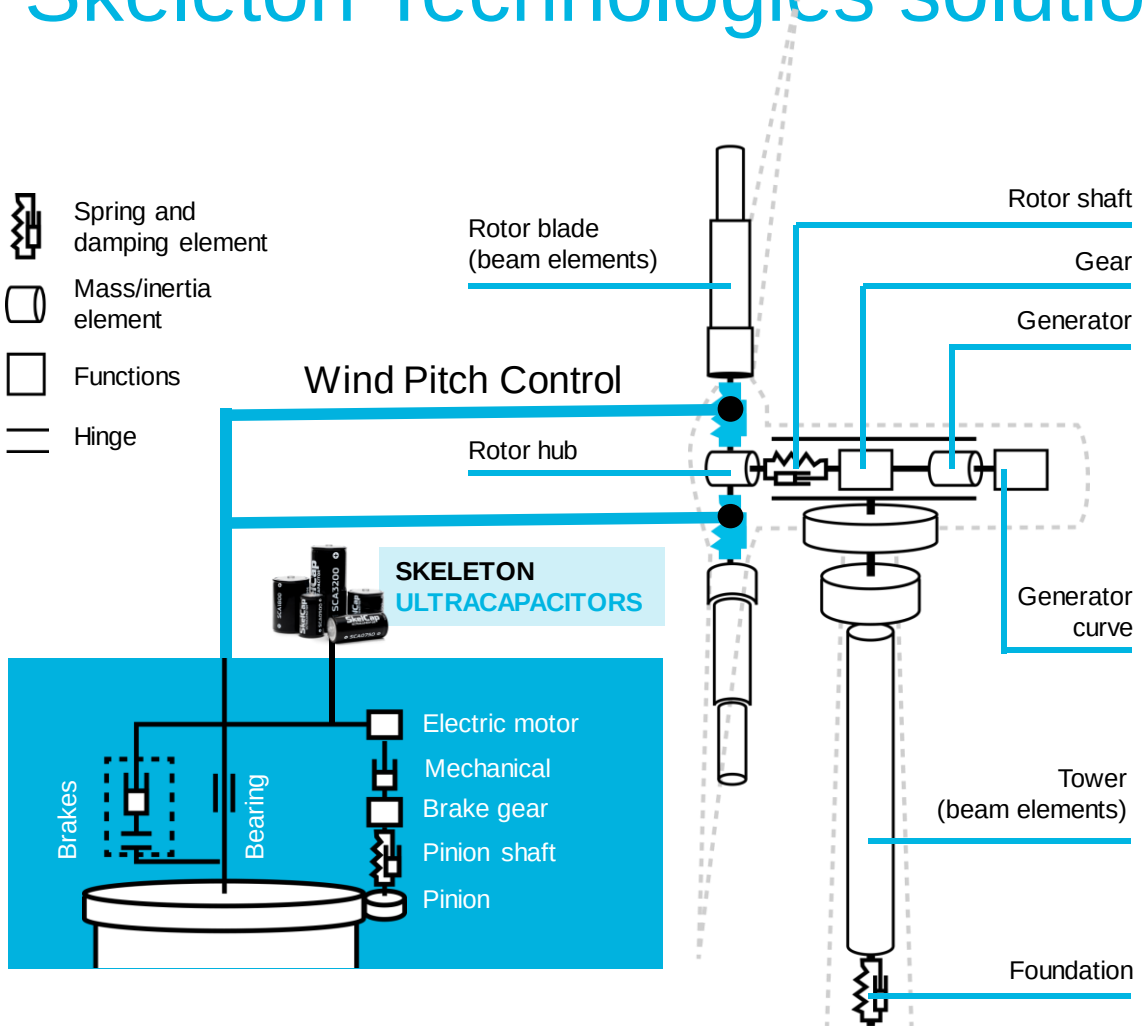
Challenge: + Turbine must stop rotating in case of power failure or unsafe wind speed. The back-up energy storage must be 100% reliable.

Solution: + Skeleton Ultracap modules reduces risk of collateral damages, with longer life & zero maintenance.

Gen 1	Gen 2	Super Battery
✓ Up to 30 sec	✓ Up to 30 sec with half footprint	No use, due to decreased power density



PITCH CONTROL
Skeleton Technologies solution



Ultra capacitor offers:

+ Fastest reaction, longer life & zero maintenance

Consequences

+ Ultracapacitors do not leak
+ -40C to +65C operating temperature range
+ Cconsiderably lighter than batteries.
+ Easily fully discharged for safe maintenance works.

Advantages

+ Increased safety & reliability… far fewer maintenance (€34k cost saving / turbine after 10 years)
+ Pitch check operation frequency reduced
+ 1 million cycles as a minimum (15 to 20 years life), this is crucial in blade oscillation damping situations.

SKELETON TECHNOLOGIES

"SKELETON TECHNOLOGIES' ULTRACAPACITORS ARE THE BEE'S KNEES"

THE ECONOMIST

NAMED IN

2018 Global Cleantech 100 TOP 100 COMPANY Cleantech Group

Bloomberg New Energy Finance New Energy Pioneers 2017 Cohn Reznick Capital Cycle Capital Management

FT FINANCIAL TIMES 100 Europe's Digital Champions

WINNER OF

Start Up Energy Transition Innovation Mobility Award

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