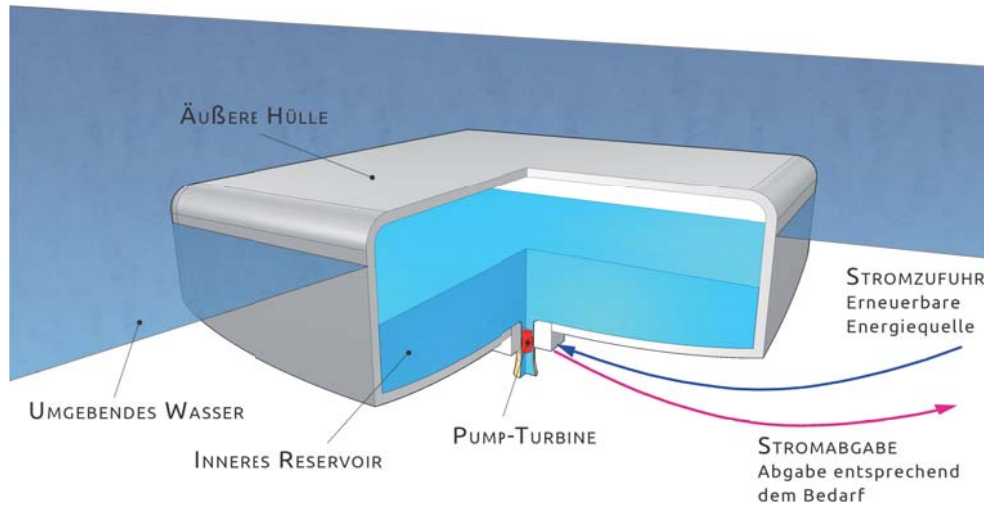
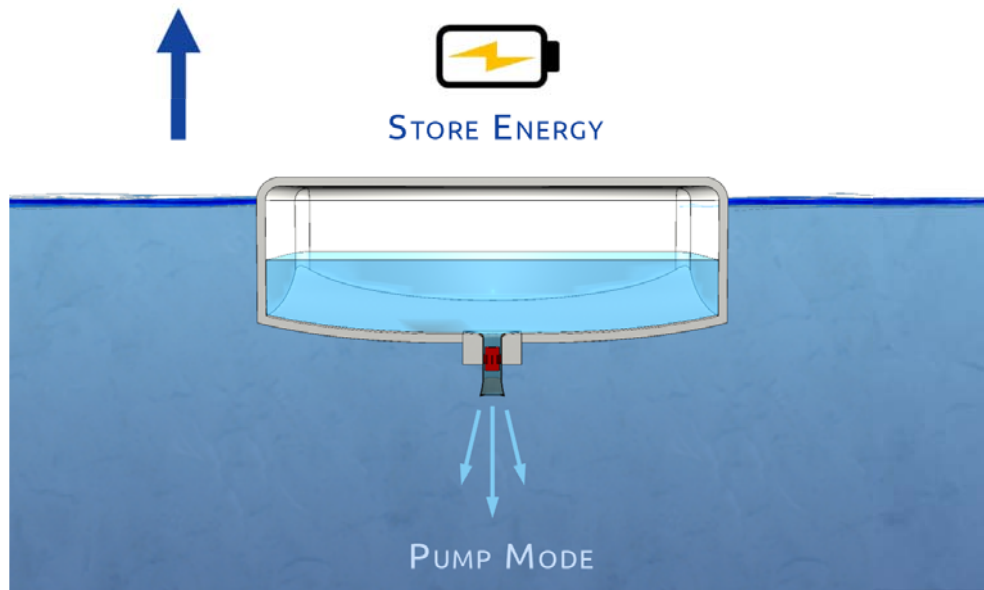




BUOYANT ENERGY _ KOMPONENTEN



Buoyant Energy: Energy storage in form of Potential Energy $E = m \cdot g \cdot h!$



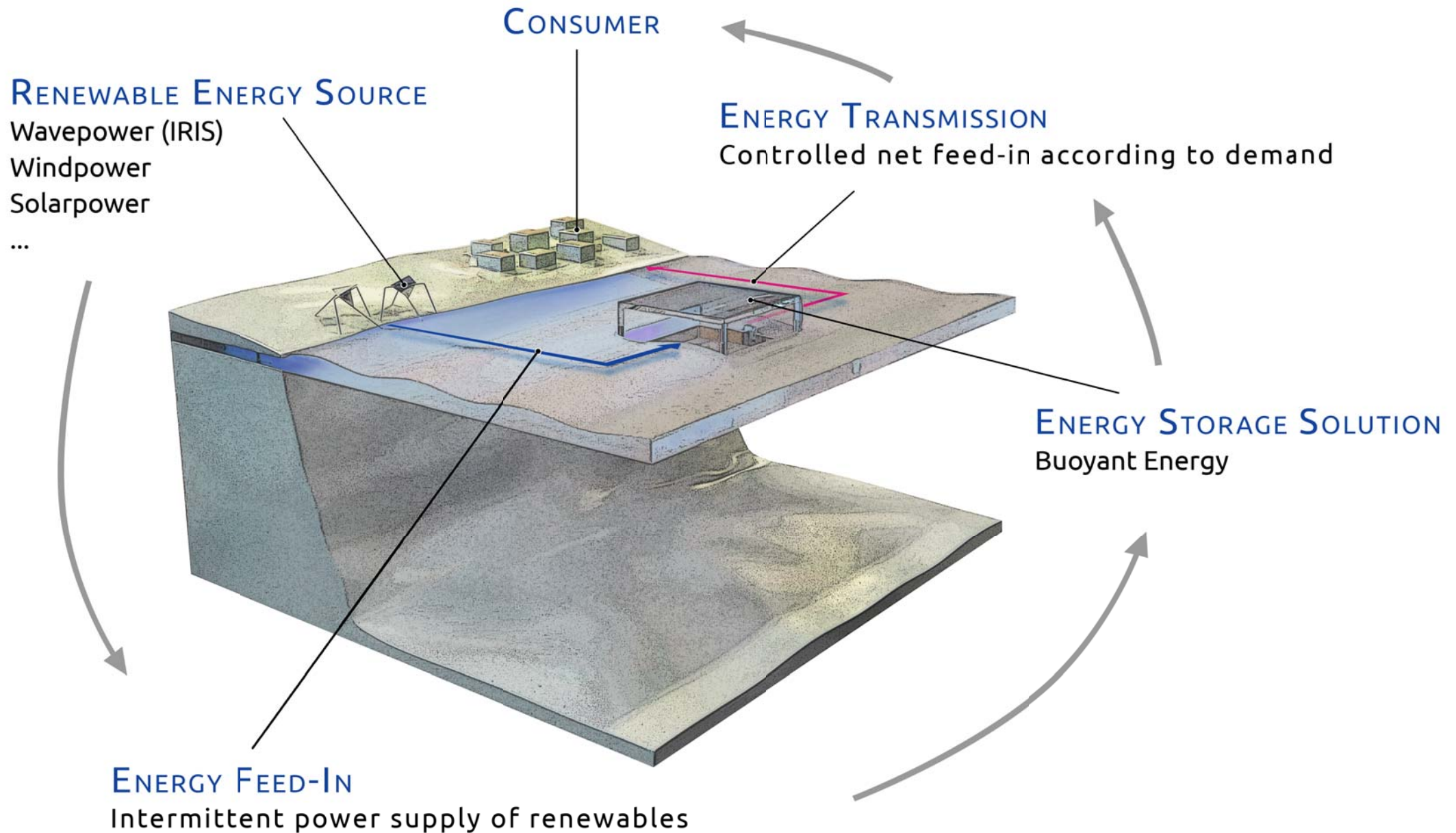
Buoyant Energy - Floating pumped-storage hydropower

We Store Electricity Offshore in Form of Potential Energy.

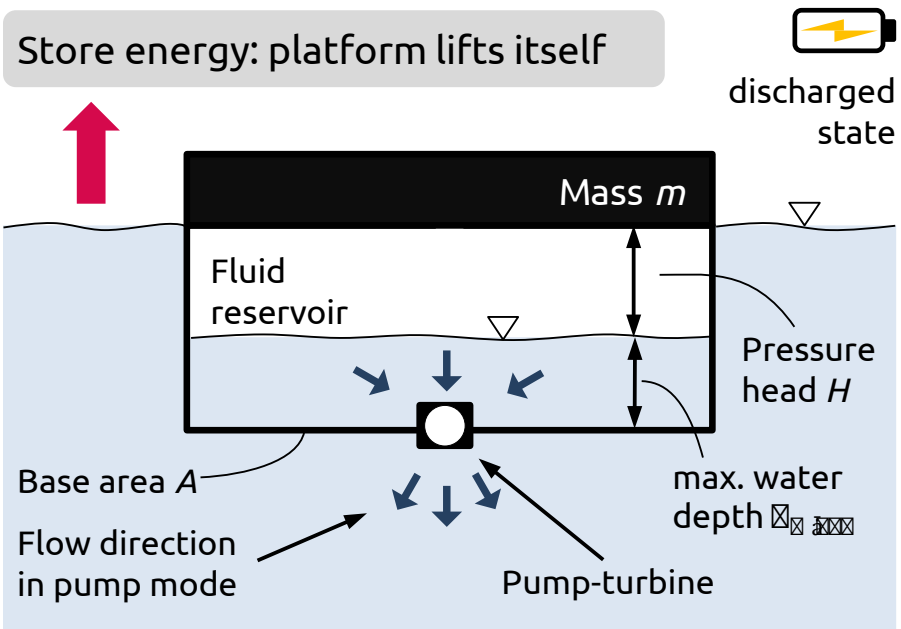
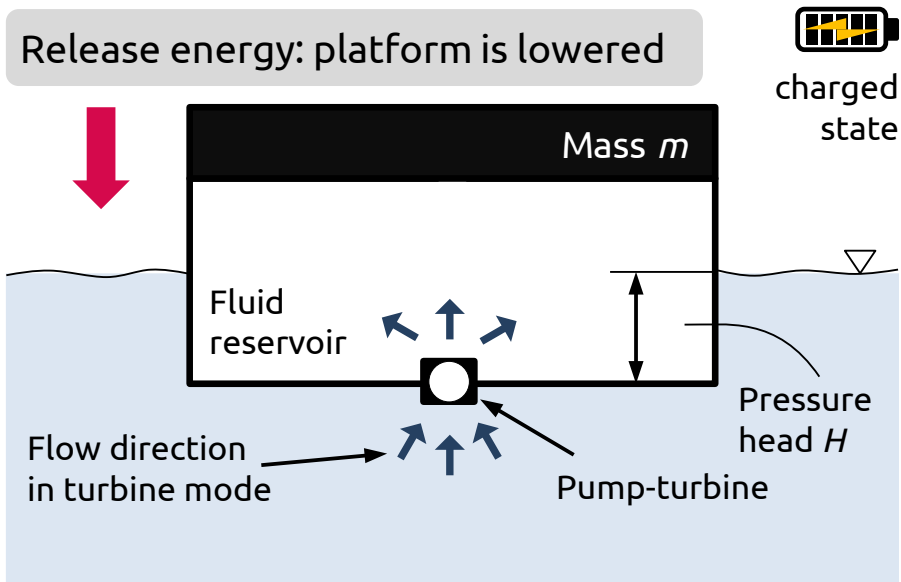
Buoyant Energy is an innovative concept for electrical energy storage directly on the water using floating platforms. The concept has the potential to contribute to decouple and balance electricity demand and supply of volatile renewable energy sources like wave and wind power in future power grids.



Buoyant Energy_Exemplary Value Chain



Description

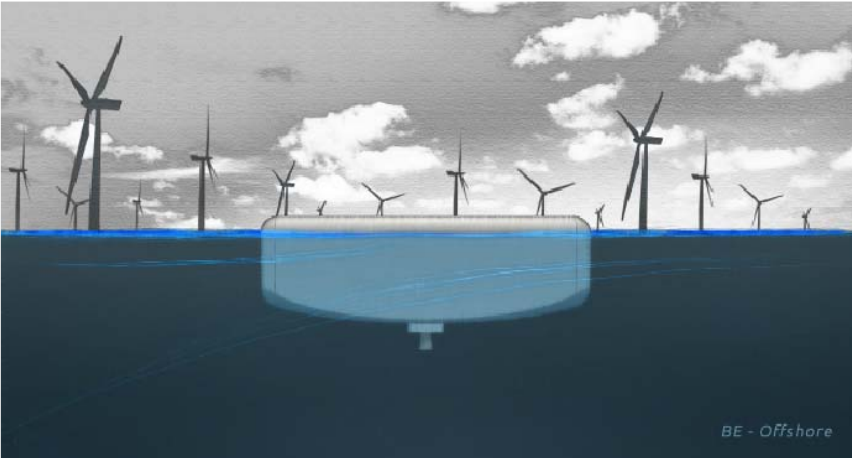


Energy storage and regulation becomes increasingly important in electrical networks with a growing share of renewable energies with fluctuating generator characteristic. Today, pumped-storage hydro-power (PSH) plants store electrical energy almost exclusively (over 99 % worldwide). When used onshore, this well-established technology has outstanding features, but is restricted to mountainous regions.

Buoyant Energy transfers the PSH key features to an offshore environment. The core idea is described well as "floating pumped storage power plant". In essence, Buoyant Energy consists of a large and heavy floating reservoir and hydraulic pump-turbine/motor-generator systems for energy conversion. To store energy water is pumped from the inside space of the structure to the sea. In consequence, the structure becomes more buoyant and moves up. Electrical power is converted to gravitational energy. Allowing water to flow back into the structure drives the turbine, lowers the structure and releases the stored energy again.

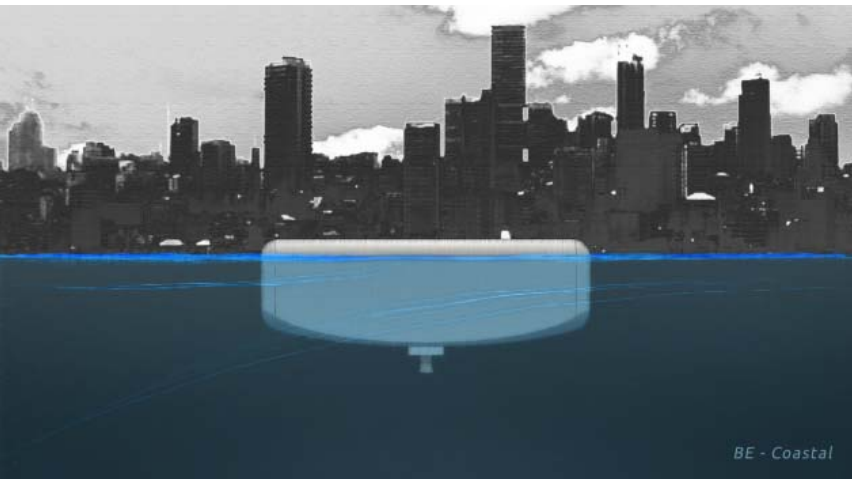
Buoyant Energy benefits from its simple architecture and high adaptability to local boundary conditions. It provides unlimited number of load cycles, short response times, high operation efficiency and multi-use space on the platform roof and inside the structure for e.g. wind farm operation, transport, industry, leisure, accommodation or aquaculture.

Application possibilities



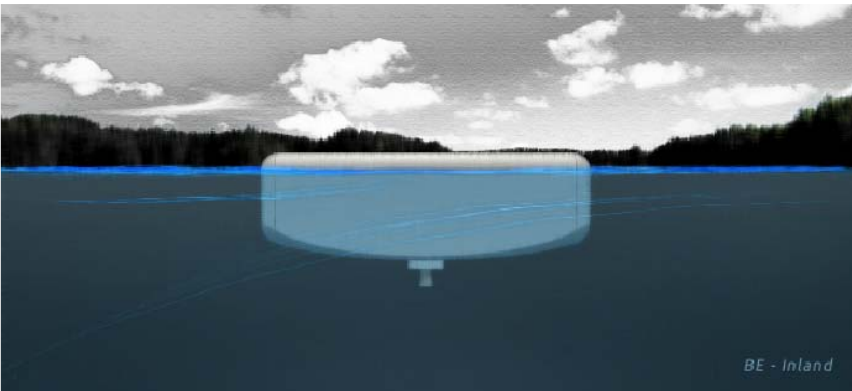
BE - Offshore

- Combination with renewable energy sources (offshore wind, ocean current and solar power)
- Realtime operation management
- Improved power quality



BE - Coastal

- Multi-use platform (floating hotels, container ports, commercial/leisure/residential/industrial infrastructure, aquaculture)
- City expansion



BE - Inland

- Situated in e.g. Artificial lakes like decommissioned opencast mines
- Microgrid scenarios