Buoyant Energy Storage

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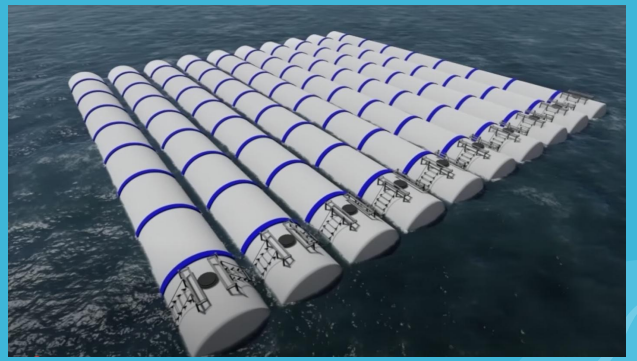
What is it?

Analogy

- Imagine pushing a beach ball underwater
- Air pressure < water pressure

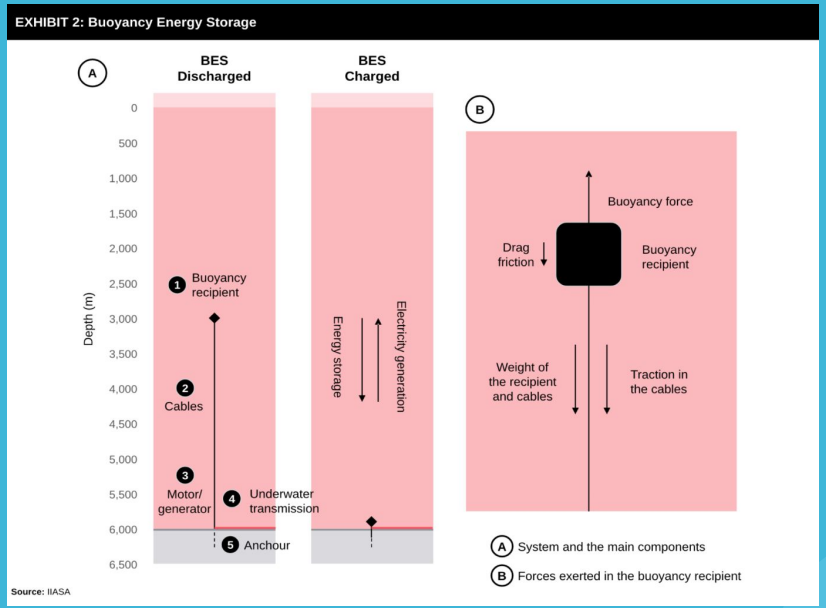
Application

- polyethylene pipes pushed under water
- Large scale platform (100m x 100m)



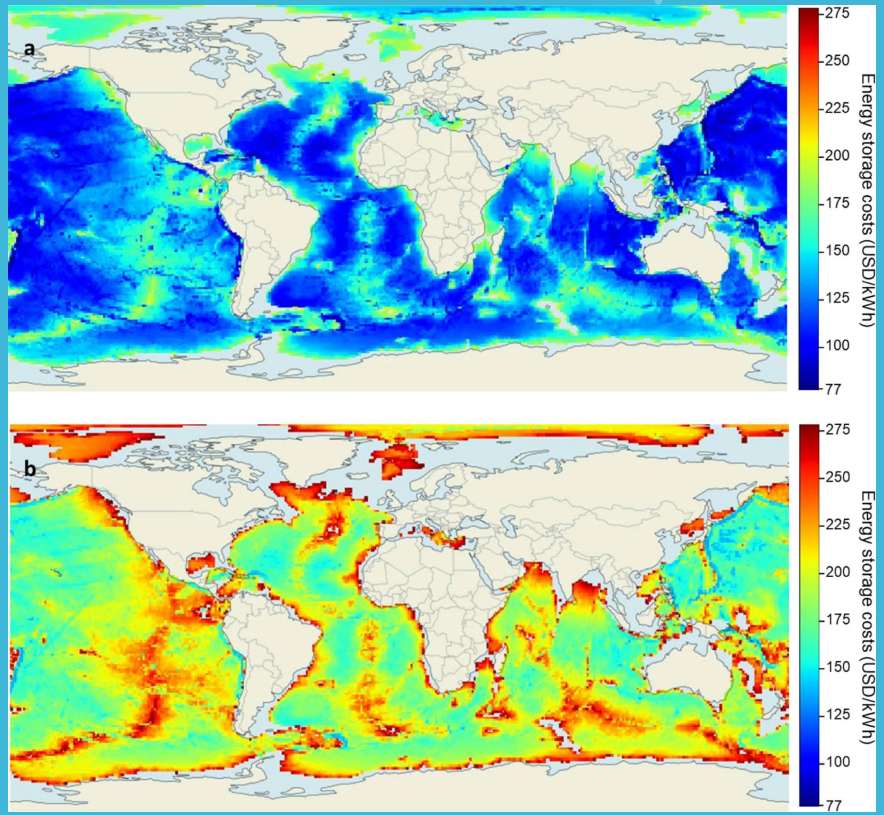
How it works

- Pipes filled with compressed gas
- 10m of water = 1 atm (or 1 bar)
- Built in conjunction with offshore wind and solar
- Energy produced from turbines/ panels runs a motor pulling the platform down
- Intermittent potential energy is stored
- When platform rises back up, motor works in reverse to put energy into grid
- Works well in theory, up to 85–95% efficient



Where could it work?

- Coastal regions
- Oceanic islands



- Deep water
- Flat topography

Pros and Cons

Pros

- Useful with offshore storage
- Less environmental impact
- Cheaper LCOE ($50–100/MWh)
- Higher capacity than Li-ion batteries

Cons

- Less efficient than batteries
- More expensive installation (4–8 Million USD)
- Need a “goldilocks” location
- Environmental challenges

Why do we need this?

- A step to solving the energy storage issue
- Cost-competitive
- Cost- reduction potential

Thank you! Any questions?

Sources

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