

# On flywheel batteries

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## PROJECT DESCRIPTION

This project consists of a literature study as well as a parameter study on flywheels as an energy storage system. Due to its unique characteristics, the flywheel could be an interesting implementation to the existing energy system. We would like to investigate the flywheel's practicability in different scenarios. We would also explore the general value and uses of the flywheel as it is a relatively new technology when used as an energy storage system. In addition, we will also investigate the safety issues and cost connected to FESS.

## PROJECT GOALS

- Describe and research design of FESS
- Identify and assess possible applications
- Use simulations to visualize applications of FESS in different scenarios

## SIMULATIONS

Two simulated scenarios are displayed in figure 1 and 2.

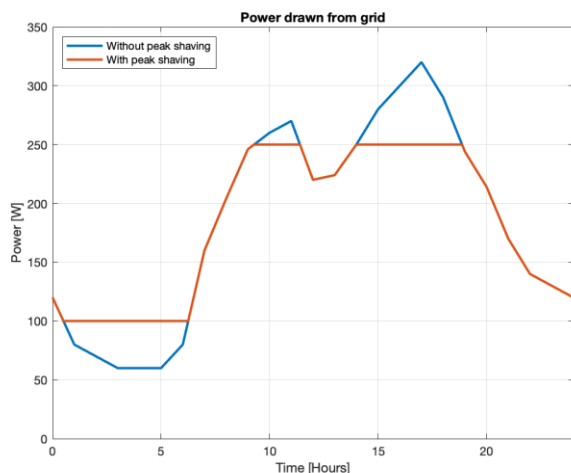


Figure 1: FESS used for peak shaving

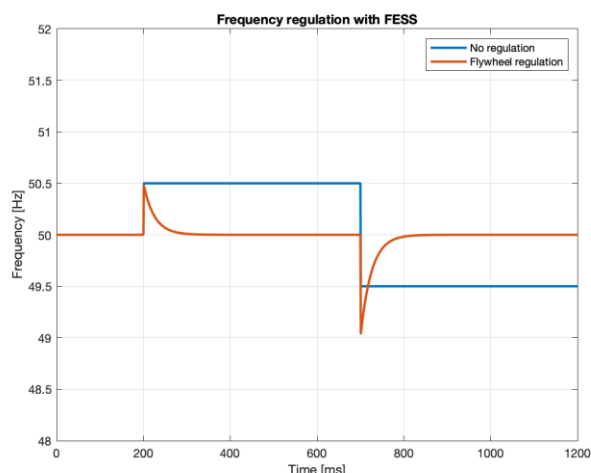


Figure 2: Comparison of frequency with and without FESS regulation

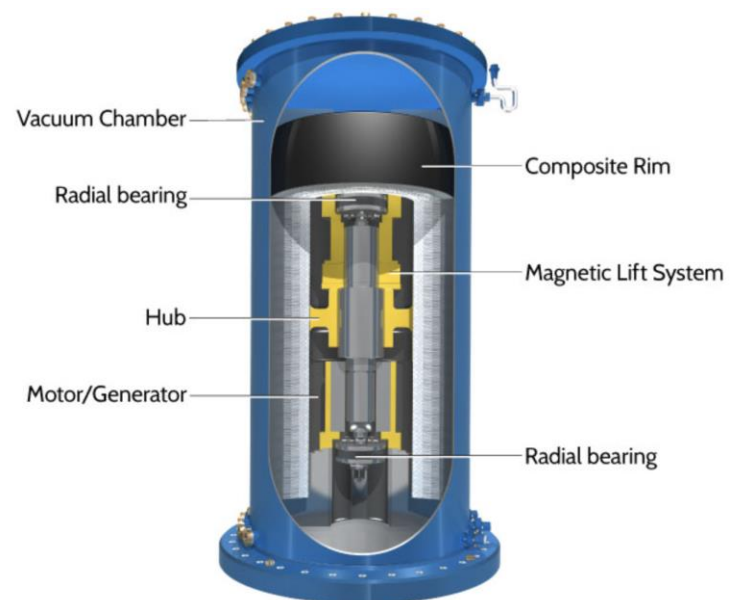


Figure 3: Illustration of modern flywheel [1]

## CHALLENGES

- Few commercial facilities
- Little real-life data available
- Relatively new technology when used as an energy storage system

## REFERENCES

- [1] Beacon Power. (2018). *Beacon Power Flywheel diagram*. [Illustration].  
[https://beaconpower.com/wp-content/uploads/2014/03/flywheel\\_cutaway.jpg](https://beaconpower.com/wp-content/uploads/2014/03/flywheel_cutaway.jpg)