**Advantages of FESS**

1. High power density
2. High energy density
3. The life time of the flywheel is almost independent of the depth of the charge and discharge cycle
4. No periodic maintenance is required, easily and inexpensively maintained
5. Short recharge time
6. Flywheel systems are not sensitive to temperature since they are operating in a vacuum containment [6 – link 2 – slide 17] **See Fig. 2.**
7. Unlike conventional coal and gas generators, which have an efficiency ratio of 35-40%, the flywheel operates at upwards of 85-90% efficiently.

 [6 – link 3 – para. 4 for efficiency]

1. Flywheels are highly reliable, safe, long life, energy efficient and non-polluting
2. The increasing focus and intermittent nature of renewable sources increases the demand for energy storage, such as flywheels
3. The power output from solar photovoltaic (PV) depends on the strength of sun rays, which vary according to the time of the day and the amount of cloud cover. Managing this variability can be overcome by the use of flywheel technology, which can stabilize frequency and voltage based on requirement. [6 – link 10-para.2] [6-link 11]
4. Much higher charging and discharging rate
5. Able to cyclic discharge to zero energy without degrading
6. High power output
7. Large energy storage capacity
8. Less overall cost
9. Power compensation is very effective [6 – link 8 – Slide 14]
10. The system cost can be kept minimum by optimum use of small capacity flywheel energy storage system. [6 – link 8]
11. “Technavio expects the flywheel energy storage market to grow at a CAGR of almost 20% during the forecast period. The two major factors impacting the growth of the market are intensive industrial development and growing populations. Both these factors have significantly increased the global demand for power. In developing nations, the demand-supply gap of energy frequently leads to power shortages, leading to greater demand for power backups.” [6 – link 9]
12. There is a retailer for flywheel energy storage, which did not exist, even one during my PhD study [1990-1994]: [6 – link 16]

Please contact me for links to figures.