Overview
The project was meant to show how well a mechanical energy storage system could compete with a battery-based system for a house using renewable energy sources for its energy needs. The purpose of mechanical energy storage vs. battery storage is to provide a lower environmental impact. This would be due to the lack of hazardous chemicals required with battery systems.

Objectives
The objective was to design, construct, and test a working prototype of a mechanical energy storage system that could be scaled up for use at a residential scale and was robust enough for commercial sale. Calculations showing what would be needed for a full scale model were also requested by Boeing.

Approach
- Brainstorm about the problem to be solved
  - Come up with various approaches to solve the problem
  - Calculate data to determine the scale of each possible solution
  - Arrive at a compressed air system as the solution
- Research existing work with compressed air systems
  - Ensure that no patents exist which would be violated
  - Use the experience of others to aid our progress
- Construct the key component of the system: the Tesla turbine
- Recycle our electrical engineer’s lab equipment to measure data such as turbine speed, etc.
- Testing and collection of data

Outcomes
The project was determined to be feasible, however many improvements to the design must be made in order to improve efficiency if the design is to compete with the industry standard battery systems.
- Better material selection for turbine
  - Lighter, stronger discs for greater efficiency
  - Higher precision machining techniques should be used
  - Injection nozzles that provide airflow between all disc pairs
- Better regulation of airflow would provide a higher efficiency as well

Conclusion: The turbine built by the team is not feasible as it was constructed, but given greater resources the design could prove to be competitive with battery systems.