The goal of this research project is to investigate alternative propulsion technologies for the Aerospace industry. There will be a detailed analysis of three different kinds of propulsion technologies and fuels. The technologies to be examined are fuel cells, bio-fuels and synthetic gasoline. I will be using key elements of the life cycle analysis to determine the potential of these technologies for the aerospace industry. The challenges include the current requirements that the propulsion technologies must meet in order to be efficient and safe for modern day aircraft. The next key component is the current production methods that will allow the aircraft industry to implement large scale manufacturing. My research will address the issue of finding a future source a clean alternative energy for the aerospace industry.