I have always had a warm spot in my heart for aviation. Three years ago I began my education in Commercial Piloting and have since achieved my rotor-craft Private rating (helicopters) and am well on the way to achieving my Instrument rating. While I am lucky to have my education paid for by Uncle Sam, the costs are astronomical. In some cases it can cost more for a piloting degree than it does to become a brain surgeon. Some may be shocked at this but the real question is why is it so expensive? The answer is the shear cost of operating and maintaining the aircraft you will be flying.

So if we just look at air transportation for starters, which has had the most effort put into efficiency out of any other markets in aviation. I found a chart that spells out the different costs associated with operating a commercial airline.

![Total Operating Costs Chart](chart.png)
Three main components — aircraft ownership, fuel and maintenance — account for more than half of an airline’s operating expenses. While they are not entirely controllable, it is essential to factor them into the fleet-planning decision.

From this chart we can see that the highest costs involve fuel. So it’s pretty simple to understand that if we increase the efficiency of the powerplants on any particular aircraft that we can quickly reduce the overall cost of air travel.

But why stop there? Why not remove fuel totally from the equation? Well a Solar Impulse has accomplished this with their latest all-solar powered aircraft.