

Electric aircraft

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[Flea Hop HB SIA Solar Impulse.jpg](#) [c/cc/Flea_Hop_HB](#) One thing we thought as impossible when we wrote our [book](#) was the idea of electric aircraft. This was for one very good reason. The weight of the batteries would preclude (with a conventional aircraft design) anyone getting in the aircraft as well as the batteries. After all kerosene has a much higher energy density than batteries. Up until now the only electric aircraft has been the [solar impulse](#). This aircraft can hardly be described as a future passenger aircraft design. Its really a solar demonstrator. However it really looks like this might be about to change (or at least start changing). Battery technology is currently dominated by Lithium ion technology. This type of battery is found in all the devices you probably use, plus electric cars. This technology is rapidly improving but suffers from a couple of problems. The first is that the energy density is relatively low. The second is the electrolyte is flammable (hence the problem with certain phone manufacturers phones blowing up). This second problem need not preclude Li ion batteries being used on aircraft (after all kerosene is highly flammable) but the first drawback does. To have true electric aircraft you would need a lighter more energy dense battery. There is a contender, Lithium sulphur. These currently have about 3 x the energy per unit weight compared to their Li ion cousins, but could be 10 x as high. This apparently makes the problem less insuperable and one airline is saying they could have electric short haul aircraft flying within a decade. This still raises some issues for me. Firstly electrifying all the economy is in one way easy. All the infrastructure already exists. Or almost all of it. The electricity still has to come from somewhere. The second is that aircraft cause nuisance to those who lave around airports, although much of this nuisance is noise which presumably would not be a problem with electric aircraft. Neil

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