

NASA tests a tiny nuclear reactor to power human life on Mars



NASA is currently working on developing a teeny tiny nuclear power system under the agency's Kilopower project, dedicated to power human life in future space missions.

All human eyes are on Mars, well, not all but a lot of them and we oh-so-desperately working on how to make the extremely arid unsustainable neighbour planet Mar, a little human friendly. The climate here on Earth is getting worse and we all know we might have an apocalypse sooner or later - and will to survive is basic humanly characteristic - hence, we are looking for a new home, or at least a backup just in case. However, Mars isn't exactly very welcoming for humans and absolutely not suitable for human survival - which means, we can't just rocket off from Earth and land on the red planet and live happily ever after. It is a challenge and we got to do something to make it suitable for living - hence NASA.

Recently, NASA has begun testing for compact nuclear power system under the project named 'Kilopower'. Now it is nothing but a coffee can sized bucket filled with, well, what else but Uranium. Can you imagine depending on a can-sized bucket for survival on a place that is over 225 million kilometres from our home? You got to, if you want to live on that crazy red planet. So about the nuclear reactor, NASA is working with the US Department of Energy and the National Nuclear Security Administration to test a nuclear fission system to provide power to habitats for running life support equipment or for systems that could convert in-situ resources to water or fuel. The reactor has the delightful acronym of KRUSTY (Kilopower Reactor Using Stirling Technology) and could provide 40-50 kilowatts of power.

The Kilopower project tests were initiated in November 2017 and after a couple of months' testing, NASA believes that it could be the source to provide safe, efficient, and plentiful energy needed for future space missions. What makes it so special is the size - even with its shielding and detectors, the device is still no larger than a wastepaper basket; making it extremely space-travel-friendly. Unlike the nuclear batteries used by Curiosity rover or New Horizons rover which uses the energy generated from natural decay of plutonium, Kilopower's system uses a fission reaction, splitting uranium atoms to release energy that is then converted into electricity by attached engines - which means, a little goes a really long way.

Also, the reactor is very easy to predict, easy to operate, and in fact can control itself so it's not like we would be carrying a death-bomb with ourselves and we are certainly not risking a nuclear meltdown on Mars. Once successful, it would have tremendous impact on enabling missions that really aren't achievable with what is currently available. Who knows KRUSTY could be it, a fuel that fuels a dream of an off-world future for humanity.