

Electricity too cheap to meter!

Liquid Fluoride Thorium Reactor (LFTR)

1. A cubic meter of dirt contains about 2 cubic centimeters of Th90 which can produce enough electricity to supply a single person with 10 years of electricity.
2. Cure cancer with Bismuth 213 through Targeted Alpha Therapy. Attached to an antibody, Bismuth 213 goes right to the tumor killing it and then disappears with a short half life. It even cures leukemia in the same way. Bismuth 213 can now only be obtained in a nuclear accelerator in very small quantities. Alternatively, it can be extracted from the decay chain of U233 in a LFTR.
3. Other medical isotopes for imaging etc., can also be obtained from a LFTR. Now we can only obtain them from reactors outside our country which will soon be decommissioned.
4. LFTR's use up the current nuclear waste (270,000 tons world wide) as fuel reducing the waste that is left over to a half life of only 300 years instead of 200,000 years, providing the world with enough electricity for 72 years.
5. Create rare earth elements for the chip industry and lithium batteries which we used to buy from China who have the policy of not selling them to us any more.
6. LFTR's do not run with high pressure like light water reactors which run at over 150 atmospheres of pressure. Therefor LFTR's do not require massive containment buildings.
7. LFTR's have "Freeze Plug Safety". If there is a power failure, back up generators for water cooling is not necessary. A cooling fan blows on a drain pipe between the reactor and a sump. The liquid fluoride salts solidify in that pipe until there is a power failure. The fan stops, the fluorides melt and the reactor dumps into the sump and shuts down. Also if by chance there is a leak anywhere in the entire system, the fluoride salts immediately freeze and plug the hole.
8. They can be mass produced off site, scaled to any size necessary, put on a flatbed truck and taken to the necessary location. Every community can have its own power supply drastically reducing the need for our failing transmission infrastructure.
9. No need for the expensive processing of Th90 like U238 to obtain something like U235 for fuel. It is fertile as it is and tons are already available at mining sites.
10. Make Plutonium 238 from the decay cycle of U233. Plutonium 238 is the favored isotope for RTG's (Radioactive Thermal Generators). It is no longer available for deep space probes in this country. Beyond Mars there is not enough solar energy to power our spacecraft.
11. From the high temperature left over after making electricity you can:
Purify sea water and waste water to make potable water for one tenth of the human population which do not have safe water. There are 22,000 children who die daily from dysentery. Remove CO2 from the air and sea economically creating useful industrial products. For instance dimethyl ether, a carbon free diesel fuel. Make fertilizer from the nitrogen in the air (Haber-Bosch process). And others....

For more information see the Thorium Energy Alliance (T.E.A) on the web. Feel free to contact me as well at fwstress@gmail.com.