

Nuclear Fission Fuel is Inexhaustible

Home

Up

Services

Contacts

Commentary

Letters

Fora Input

Publications

GHG Emissions

Guests

What's New

Contents

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Abstract: Nuclear fission energy is as inexhaustible as those energies usually termed "renewable", such as hydro, wind, solar, and biomass. But, unlike the sum of these energies, nuclear fission energy has sufficient capacity to replace fossil fuels as they become scarce. Replacement of the current thermal variety of nuclear fission reactors with nuclear fission fast reactors, which are 100 times more fuel efficient, can dramatically extend nuclear fuel reserves. The contribution of uranium price to the cost of electricity generated by fast reactors, even if its price were the same as that of gold at US\$14,000/kg, would be US\$0.003/kWh of electricity generated. At that price, economically viable uranium reserves would be, for all practical purposes, inexhaustible. Uranium could power the world as far into the future as we are today from the dawn of civilization—more than 10,000 years ago. Fast reactors have distinct advantages in siting of plants, product transport and management of waste.

Keywords: breeder, fission, fusion, inexhaustible, nuclear, plutonium, reactor, renewable, thorium, uranium

1.0 Background