

# Thorium: the Solution to the Energy Crisis

Fossil fuels are problematic, how will this be mitigated?

## Abstract

Energy security is essential to a country's national security and growing economic development. Thorium molten salt reactors have the potential to provide sustainable energy for nations seeking cleaner energy options without compromising energy security. Current nuclear reactors struggle in these areas. Discovered during the Manhattan project in 1944, it did not get developed further because it lacked nuclear weapon potential. There is renewed interest in this technology for countries like India, China, and United States, nations that are heavily reliant on hydrocarbons for energy. Thorium provides the potential to reduce fossil fuel dependency and reduce total carbon emissions.

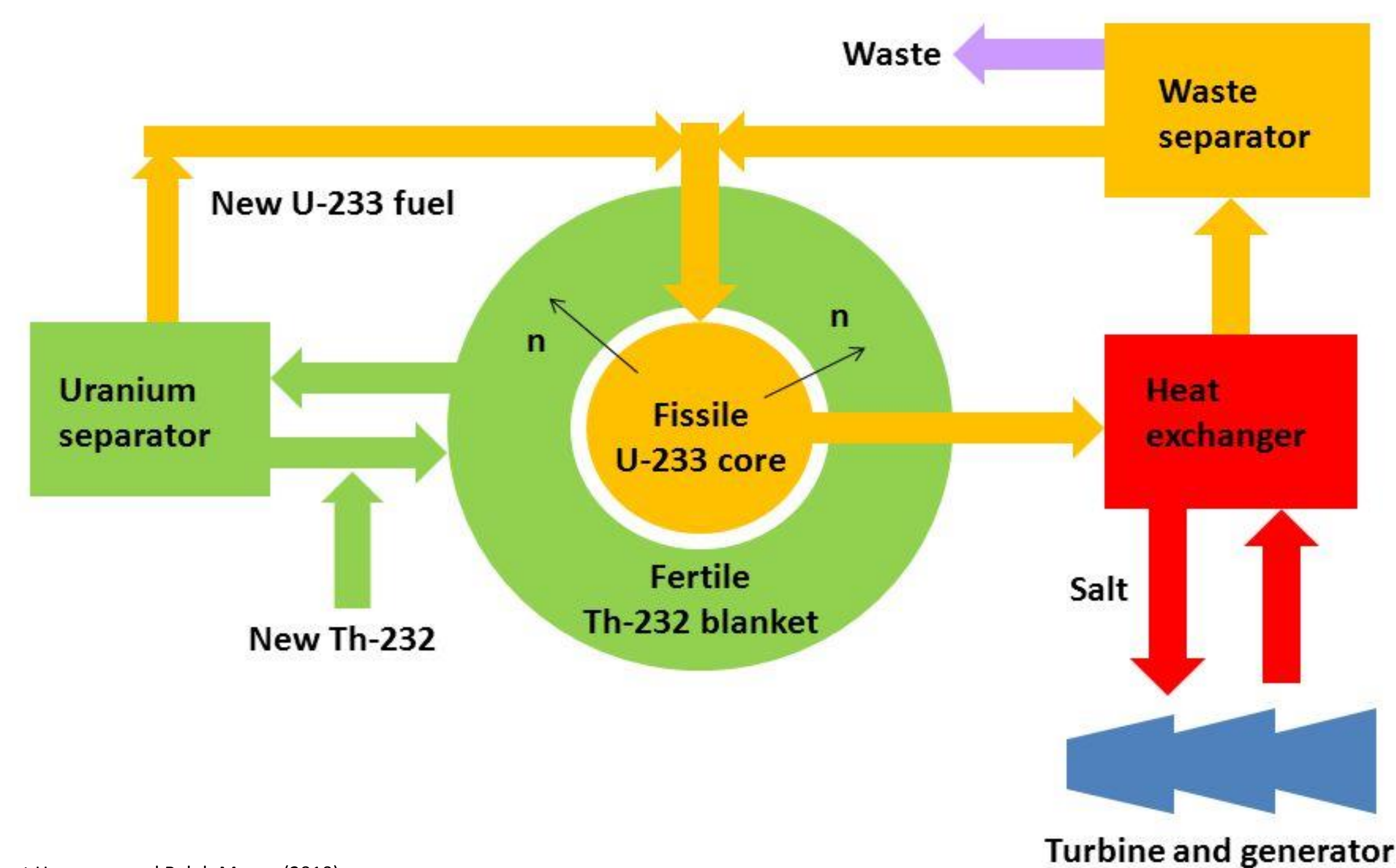
## Thorium Energy Density vs Uranium and Coal



## Thorium Benefits

- It's safe, energy efficient, and compliant with nuclear nonproliferation
- The reactor operates without pressurization, a key problem that caused the Fukushima disaster
- It can't be used in nuclear weapons because it may fission and explode prematurely
- There are plentiful thorium deposits worldwide
- Energy extraction is more efficient than current nuclear reactors today

## A Liquid Fluoride Thorium Reactor (LFTR) makes thorium into uranium.



Robert Hargraves and Ralph Moore (2010)

Jared Listek

Global Studies and Maritime Affairs  
California Maritime Academy, 2018

## Potential Thorium Uses

- Provide societies with a sustainable, carbon free energy source
- Potential for carbon neutral transportation with synthetic fuels
- Promote water security for regions that suffer from drought and famine
- Provide energy security for China and reduce their problematic Malacca Dilemma
- Provide clean energy for India's growing and developing population
- Provide the world with a plentiful, low cost source of energy