

## Rulemaking1CEm Resource

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**From:** RulemakingComments Resource  
**Sent:** Tuesday, December 17, 2013 11:59 AM  
**To:** Rulemaking1CEm Resource  
**Subject:** FW: Proposed Rule - Waste Confidence

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**TITLE:** Waste Confidence—Continued Storage of Spent Nuclear Fuel

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**From:** Steve Brown [[mailto:steven\\_brown@verizon.net](mailto:steven_brown@verizon.net)]

**Sent:** Monday, December 16, 2013 2:54 PM

**To:** RulemakingComments Resource

**Cc:** [Membership@CASEnergy.org](mailto:Membership@CASEnergy.org)

**Subject:** Proposed Rule - Waste Confidence

While I support nuclear energy in general, I believe a nuclear technology exists that is superior in many ways to the solid-fuel, high-pressure, light water-cooled reactor (LWR) technology in current use. I refer to the molten salt reactor (MSR) operating in the thorium fuel cycle, designed and successfully prototyped at Oak Ridge National Laboratory in the 1960s. A problem with the LWR is that fuel rods have to be removed from the reactor core after only about 3% of the fissile material is fissioned, leaving 97% of the valuable fissile material in the spent fuel rod, which is regarded to be radioactive "waste" to be disposed of. Not only is that a terrible waste of valuable fissile material, the amount of waste that has to be disposed of is far greater than it needs to be. The MSR does not create that problem, as it fissions 100% of its fuel, leaving only fission products whose total mass is always less than that of the fuel consumed, and a small fraction of the mass of spent fuel rods from a LWR.

Besides creating dramatically less waste, the MSR has many advantages over the LWR that make it a logical choice for nuclear energy production. The core consists of molten fluoride salt in which the fuel is dissolved and which serves as the coolant and heat transfer medium for power generation. It is not pressurized but operates at atmospheric pressure, so there is no danger of explosion, as there is with a LWR in the event of the loss of active cooling, as happened at Fukushima. In that scenario, the total loss of active cooling, the core of a MSR simply melts a freeze plug and flows into a drain tank whose geometry prevents criticality and dissipates decay heat. It shuts itself down into a safe configuration without human intervention.

There are many other compelling reasons to replace conventional LWR with MSR technology, which the Nuclear Regulatory Commission needs to consider, so as to allow that technology to be implemented on a scale what will provide low-cost energy to enable domestic manufacturing to be globally competitive, creating millions of jobs in the domestic economy. Energy from the MSR fueled by thorium can also be used to synthesize fuels for transportation, ending our reliance of imported oil.

So as we consider how best to deal with nuclear waste, it behooves us to consider an alternative nuclear technology that minimizes the amount of radioactive waste, enables far more efficient utilization of valuable fuel, and ensures dramatically safer operation. More information about MSR technology is available at [energyfromthorium.org](http://energyfromthorium.org), and [thoriumenergyalliance.org](http://thoriumenergyalliance.org).

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Millville, NJ

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