

Doubts raised on nuclear industry viability

November 19 2009, by Lin Edwards



(PhysOrg.com) -- The investment in nuclear power has been growing around the world over the last few years, being viewed as a means for countries to control their energy security, avoid the price fluctuations of other energy sources, and reduce their carbon dioxide emissions, but concerns are now being raised.

A scientist from the Swiss Federal Institute of Technology predicts that supplies of [uranium](#) are running out and countries relying on imports of uranium may face shortages by 2013, while a *New York Times* journalist suggests new nuclear power plants are an "abysmal" investment that will never pay for itself without government financial support.

Dr Michael Dittmar, a physicist with CERN (the European Organization for Nuclear Research), said in the fourth and final part of an essay on the world's nuclear industry published this week that civilian stockpiles of

uranium could be depleted by as early as 2013.

According to Dittmar civilian and military stockpiles and re-enriched or reprocessed uranium sources contribute 25,000 of the 65,000 tons of uranium used globally each year. The rest is mined directly, but Dittmar claims nobody knows where the mining industry can find enough uranium to make up the shortfall, and disputes the Nuclear Energy Agency's estimates of reserves of Uranium.

Dittmar is unconvinced that fission breeder reactors can provide a solution, saying that their inefficiency, high construction costs and poor safety mean they are unlikely to become commercially viable alternatives. He considers [nuclear fusion](#) even less likely to provide the needed energy.

New York Times energy reporter Matthew Wald, writing in *Technology Review*, said new reactors would be unable to pay for themselves because of the massive cost of construction and competition from emerging alternatives that could affect the energy price. Wald compared the costs per kilowatt of capacity of nuclear (\$4,000), coal (\$3,000) and natural gas (\$800), which makes the nuclear option a big financial gamble. The future cost of fossil fuels is unknown, and could also affect the nuclear industry's viability.

More information:

- Chapter I: Nuclear Fission Energy Today, arxiv.org/abs/0908.0627
- Chapter II: What is known about Secondary Uranium Resources? arxiv.org/abs/0908.3075
- Chapter III: How (un)reliable are the Red Book Uranium Resource Data? arxiv.org/abs/0909.1421
- Chapter IV: [Energy](#) from Breeder Reactors and from Fusion? arxiv.org/abs/0911.2628

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Citation: Doubts raised on nuclear industry viability (2009, November 19) retrieved 20 March 2024 from <https://phys.org/news/2009-11-nuclear-industry-viability.html>

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