From: Rainer Schottlaender[SMTP:RAINER.SCHOTTLAENDER@WEB.DE]
Sent: Saturday, October 23, 2010 7:11:31 AM
To: Frazier, Tim; BRC; BRC; BRC; john.rowe@exeloncorp.com; Joyce, Lauren; David@Arendale.org; president@messages.whitehouse.gov; Secretary Chu; kromm@rff.org; Peterson@nuc.berkeley.edu; ejmoniz@mit.edu; amacfarl@gmu.edu; seisenhower@eisenhowerinstitute.org; ei@eisenhowerinstitute.org; acarnesale@ucla.edu; oecc@who.eop.gov; lee.hamilton@wilsoncenter.org; Hamilton, Lee; mary.woollen@blueribboncommission.net; correspondence@blueribboncommission.net; Nora.Coulter@wilsoncenter.org; susan.burns@wilsoncenter.org
Subject: IS FUSION AMERICA´S NUCLEAR FUTURE ? ...Attention: BRC and DOE
Auto forwarded by a Rule

Good morning Dr. Chu:
Do you know that world´s Lithium-6-resource - needed for tritium breeding - is only 4 ppm ?
Sorry if I wake up somebody from the nice UNLIMITED-FUSION-ENERGY-DREAM.
Because of the resource situation - there is not more Li6 in our earths´s lithosphere than U238 - only D-D-reactors would make sense.
There is with 150 ppms enough Deuterium in the oceans.
But the 500-million-Celsius D-D-plasma is much harder to tame than D-T.
I do not expect a working commercial fusion reactor in this 21. century.
I hope my proposal to bury Nation´s nuclear waste deep in the earth magma is by far more realistic than today´s fusion dreams.

Please answer.

Von: "Rainer Schottlaender" <rainer.schottlaender@web.de>
Gesendet: 22.10.2010 09:58:31
An: annette.schavan@bmbf.bund.de
Betreff: Schavan/ Huthmacher/Vierkorn-Rudolph/Stupp... BMBF-Milliarden...EU-Fördergelder...Fortsetzung....

The letter of the BMBF/Dr.Vierkorn Rudolph von the 3.12.2004 lies ahead of me.
Ich tagesaktualisiere :

Tritium production / tritium breeding

The nuclear regulatory Commission (NRC) has extended the license for Watts bar in September 2002 the TVA may use special fuel for the production of tritium. The tritium was produced for the Department of energy (DOE) Department national nuclear security. The license allows the use of up to 240 of this fuel. It is planned to extend the license so that up to 2304 fuel can be used in Watts Bar-1.[3]

The TVA began irradiation of bars in October 2003. The staffs were removed in spring 2005. The DOE the bars then drove to the tritium extraction to South Carolina to the Savannah River site. The TVA receives the costs for which irradiation replaced and a bonus for each fuel. The contract has a duration of 30 years and also applies to Sequoyah Nuclear power plant.[4][5] It is expected a production of 1.5 to 3 kg tritium. TVA will receive this $10 million.

Based on these figures, I mutmaße tritium production of 100 grams per year at full load with 1.2 Gigawattjahren subject.

The comparative calculation below in this EMail shows that even with a tritium production of 1 kg / year - CANDU needs 5 Gigawattjahre for 1 kg T - still 15 neutrons per tritium Atom are required.
The BMBF continued writing: "Essential is that the neutrons released in the D-T fusion reaction is first multiplied by suitable materials" this also very nice fairy tale beryllium looks like this:
$9Be + n = 2 He4 + 2 n$

I think the forward to:

1. You would then begin taxes with ITER/DEMO/PROTO for estimated additional 50 billion euro equal to evaporate with CA. 5 ppm quite scarce world beryllium reserves.

But paper money is ´s Yes enough - I can comment as only with unfortunately more than legitimate cynicism.

2. I dispute your existing only on paper tritium breeding from Lithium6 is realistic.
3. The necessary rare isotope Li6 is by no means only about 4 "inexhaustible" ppm in earth crust
In contrast to the what - is repeatedly claimed as an anti-subsidy significant argument - a benefit of nuclear fusion.
Copyright: Rainer Schottlaender, Dipl.-Phys.

Von: "Rainer Schottlaender" <rainer.schottlaender@web.de>
Gesendet: 21.10.2010 15:13:13
An:
Betreff: Lithiumreserve.. Huthmacher/Vierkorn-Rudolph/Stupp... BMBF-Milliarden...EU-Fördergelder...Fortsetzung....

Nur D-D-Fusionsreaktoren machen Sinn.

Only a D-D-fusion-reactor makes sense.

(Copyright: Rainer Schottlaender, Dipl.-Phys.)

Wegen der Rohstoffreserven:

Lithium happens ppm weighting according to the wiki in the Earth case with 60

the isotope 6 Li but with only 4 ppm.

It is similar to beryllium 5 ppm.

This corresponds to approximately the U238 reserve.

Said so far none of it.

Education is not expected by the fusion lobby that tagträumt in all media of an "inexhaustible" energy source.

If that ever know know better...http://de.wikipedia.org/wiki/Blanket :

In the blanket you give off their kinetic energy by bumps incurred neutron nuclear fusion reaction of tritium and deuterium in atomic nuclei. This effective energy increases in the newer Blanketkonzepten (s. u.) by 25% by the energy profit of breeding reaction on the Li-6. The heat is dissipated by a coolant and such as in a conventional steam circuit with turbine and generator used to generate electrical energy.

Tritiumbrüten [Bearbeiten]

The second task of the blanket is Erbrüten tritium from lithium. The Brutreaktor concept offer for fusion reactors, because fusion fuel tritium (3 h) exists as a natural resource. It is however win from the common element lithium by neutrons. The necessary neutrons are anyway after delivering their power as "Waste" of the fusion reactor available. For a fusion energy production in the great "Brooding" is even imperative because there is no other way to create the necessary quantities of tritium.

Breeding reactions occur at two lithium isotopes, rarer Li 6 (7.5%) and the more frequent Li 7 (92.5%):

$$^{6}\mathrm{Li} + \mathrm{n} \rightarrow {}^{4}\mathrm{He} + {}^{3}\mathrm{H} + 4{,}8\ \mathrm{MeV}$$
$$^{7}\mathrm{Li} + \mathrm{n} \rightarrow {}^{4}\mathrm{He} + {}^{3}\mathrm{H} + \mathrm{n}' - 2{,}5\ \mathrm{MeV}$$

The endothermic (see nuclear reactions) response to the Li-7 has the advantage that the neutron is not consumed, but with reduced energy again released (due to its reduced energy there is in the formula n ' referred to the difference between the original neutron n). It is therefore in principle for a second reaction on Li 6. However, the disadvantage of the Li 7 reaction is their high energy threshold. This has the effect that the Li 7 breeding reaction plays only a minor role in the realistic, reasonable safety construction because of the energy spectrum of neutrons in the blanket. Therefore is made Li-6 enriched lithium for

example 50%. The exothermic and possible with slow neutrons breeding reaction on Li 6 has the side effect of a considerable energy profit of 4.8 MeV, which added to the fusion energy efficiency.

Neutronenvermehrung [Bearbeiten]

With the fusion neutrons alone a tritium breeding with surplus which could cover the inevitable neutron and processing loss is not possible because the fusion reaction provides only 1 neutron per consumed tritium atom. Therefore, the neutrons in the blanket around 30% must be increased to 50%. Beryllium or lead, as the (n, 2n) suitable-Kernreaktion in these materials has relatively low energy levels.

Von: "Rainer Schottlaender" <rainer.schottlaender@web.de>
Gesendet: 21.10.2010 11:33:45
An: karl-eugen.huthmacher@bmbf.bund.de
Betreff: Huthmacher/Vierkorn-Rudolph/Stupp... BMBF-Milliarden...EU-Fördergelder...Fortsetzung....

A wasted research billion euros approximately 80,000 3% p.a. per day.
Ein hübsches Sümmchen.
I couldn't Mr ask Stupp under 0228-9957-3045 today, whether it has the research read and understood.

Mrs four grain Rudolph is on foreign travel.

That is good!

If it is in this moment before ITER, the right is after a short check of this EMail on accuracy:
Baustopp.

Von: "Rainer Schottlaender" <rainer.schottlaender@web.de>
Gesendet: 20.10.2010 15:33:00
An: beatrix.vierkorn-rudolph@bmbf.bund.de
Betreff: Ich verschärfe meine Frage... BMBF-Milliarden...EU-Fördergelder...Fortsetzung....

You must verballern not more tax billions. A simple experiment is enough to solve one of the many issues where ITER could fail and is: How many neutrons is required to erbrüten a tritium atom from a lithium Atom? I do not believe the official story of neutrons doubling by beryllium. I had ever tried to clarify this question years ago and at that time came on at least 13 neutrons per Li atom. I'll try again:
http://de.wikipedia.org/wiki/Tritium :

"Tritium can be prepared in nuclear reactors by reaction of 6Li with neutrons:"

$$^{6}\mathrm{Li} + \mathrm{n} \longrightarrow {}^{4}\mathrm{He} + \mathrm{T} + 4{,}78\ \mathrm{MeV}$$

"In the same way the tritium in the blanket of core fusions reaktoren required for nuclear fusion energy will be coming." That sounds like quite prima...allerdings...:

Whether and how this works depends on including from how great the impact section - measured in barn - competing neutron capture reaction 6Li + n = 7Li is. I don't know that today yet, am but sure know that at least 100 nuclear physicist. I soon, it costs me time and money.

Ich lese weiter:

In moderated with heavy water reactors (see for example CANDU) tritium in a lot of about 1 kg per 5 GWa (Gigawattjahre) electrical energy produced as inevitable by-product is and can be obtained by extraction from the cooling water.

I expect to: A Uranatom provides about 200MeV 2.4 neutrons Division.

5 Gigawattjahre include 5 x 10 ^ 9 Watt x 3 x 10 ^ 7 sec / year = 1,5 x 10 ^ 17 Wattsekunden = joules

1 eV are 1.6 x 10 ^ 19 Wattsekunden 200 MeV so 3.2 x 10 ^ 11 WS

You need therefore to produce of this a kilogram tritium at least 1.5 x 10 ^ 17 WS divided by 3.2 x 10 ^ 11 WS per Uranatom, so 0,46875 x 10^28 = ca. 5 x 10^27 Uranatome. 1 Mol tritium weighs 3 grams.

In this a produced kg T T are so 333 mol.

(Avogadrozahl/Loschmidtzahl) are about 6 x 10 ^ 23 atoms per mol x 333 mol = 2 x 10 ^ 26 atoms of tritium.

Above 5 x 10 ^ 27 uranium atoms provide 2.4 neutrons per Division therefore 1.2 x 10 ^ 28 neutrons.

You need also this way - so in the CANDU reactor - 1.2 x 10 ^ 28 neutrons divided by 2 x 10 ^ 26 atoms of tritium = 60 neutrons. Before the BMBF issues only a further tax euro you must first prove me that this devastating poor Neutronenbilanz I here kurzmal - undeservedly have vorgerechnet you free of charge, not from the outset makes impossible the realisation of ITER/DEMO.

Von: "Rainer Schottlaender" <rainer.schottlaender@web.de>
Gesendet: 20.10.2010 13:36:33
An: beatrix.vierkorn-rudolph@bmbf.bund.de
Betreff: BMBF-Milliarden...EU-Fördergelder...Fortsetzung....

Best we ask but times Mr Stefan Stupp and his Chief wife Dr. four grain Rudolph as the go to from a neutron fusion reaction D + T = he + n to create more than a T.

Von: "Rainer Schottlaender" <rainer.schottlaender@web.de>
Gesendet: 20.10.2010 11:19:21
An: holger.schacht@berliner-kurier.de
Betreff: BMBF-Milliarden...EU-Fördergelder...Fortsetzung....

The BMBF claims: "after it with JET (joint European Torus;)" (Standort:_Culham,_UK) succeeded very close to a burning, i.e. their own self-sustaining fusion plasma ignition conditions to come... " How close to...? "...besteht worldwide consensus that the next step must be an experiment that created more Fusion performance as for the heating of plasma is required." With JET, duration of 16 MW a peak was realized in pulses of approx. 2 sec, what about 62 % "Meets the established power."
Ich rechne:

2 s x 16 MW = 32 MJ th 9 kWh th market price = 54 cents according to my gas bill

After only 54 (2006 minus 1952) years research! Estimated EUR 54 billion tax dollars later....

I read more at *de.wikipedia.org/wiki/**ITER :*** "500 MW" continuous output will be announced.
Anyone who thinks ´s is blessed...My vastly needs for 10 kWh about 1 m ^ 3 gas per hour.
Large strong ITER so for the 500 MW dreamed the tritium equivalent of 50,000 m ^ 3 natural gas/h approx. 70,000 kg = coal/h representing approximately 10 grams tritium/h. Taking tritium, so 3 h as for the naturally occurring deuterium (2 h, 0.01% in water) even higher temperatures are required...
Let's see what re-emerge http://www.iter.org/ from original fairytale source: Taking now 18 superconducting magnets (when the JET consumed more power than delivered fusion)
I look at further the beautiful colorful images and celebrates texts me....Well, here is yet:
"But for DEMO - oh God, this is already planned... - the next step - so the second before it went first - on the way to commercial fusion power, about 300 g of tritium will be required to produce per day 800 MW of electrical power." As I was but not so bad with above Gasrechnung assessment...
Currently buying the outrageously expensive tritium from special T production reactors...
Makes long term zero sense, so the reactor would hatch, what also here
http://www.iter.org/mach/TritiumBreeding
angekündigt wird:
Best we ask but times Mr Stefan Stupp and his Chief wife Dr. four grain Rudolph as the go to from a neutron fusion reaction D + T = he + n to create more than a T. A copy of this Email goes to the EU top strategists Dr. Sabathil, ignored my CO2 research for years.

Von: "Rainer Schottlaender" <rainer.schottlaender@web.de>
Gesendet: 20.10.2010 10:05:13
An: holger.schacht@berliner-kurier.de
Betreff: Hallo Holger...betrifft. BMBF-Milliarden

I have sent to "Governmental" Director Stefan.Schnupp@BMBF.bund.de below EMail.

He financed the most expensive bulb of the world (Copyright Schotti) Me and comes to mind that good 100-watt bulbs because EU climate cow now have sales ban. I wanted to buy one for my living room, but there is no more. As at that time in the "D" D R...EARLY SOCIALISM - NOW SOLARISMUS WE SAVE THE WORLD - EAT IT WHAT IT WOOL. We are back on the today's issue of ITER. I am already looking forward to the next tale minutes I just experience at the Googling:

QED 2010 - lost researchers in the GDR: Schottlaender 06.10.2010...

*He was probably the verlorenste researchers. ... Therefore appears...*www.inforadio.de/programm/schema/.../148849.html -

Sorry, that was my father at the desk I am sitting here today. I am now a lost researcher in the "R" B D.... The official current state propaganda sounds: BMBF › research › ITER ITER provides... ITER is a decisive step towards a commercial a global project where many large industrialized nations... www.bmbf.de/de/2270.php-.

I read ITER – the way. Too bad I can not Latin as my father of 9 languages in Word and writing dominated. WHAT YOU ERERBT OF YOUR VÄTERN - ACQUIRES IT TO IT TO HAVE knew even Goethe and I was just one that I inherited Yes Papas German-Latin school dictionary.Seite 587:

FUNDULA - DIE SACKGASSE....

Sechsspurig !

Von: "Rainer Schottlaender" <rainer.schottlaender@web.de>
Gesendet: 19.10.2010 10:04:29
An: kontakt@pm-magazin.de
Betreff: PM...Chefred Sprado...CvD Hörnemann

Fusion is the energy of the future - and will remain so.
With this touch black humor I need your item sunny fire on the Earth in issue 11 / 2010 p. 36 ff correct. Mr Sprado and your PM staff make you describe something too much praise "California physicists" just like you: You tell a beautiful colorful exciting story and get money for it. As shown in the book market - E.g. Grimm's fairytale, Harry Potter... - true stories are rather be bad for business. Since ignition of the hydrogen bomb in 1952, so for 58 years, tells the fusion lobby soon ready to be.Them also, Mr Sprado: Asked world saver Wonterghem - photo on page 39-
-how much energy it needs for its 7680 Flash lamps - how much 1 kilo tritium costs? -how much effort faces how much income? "This is however not the task of the NIF" - plain text: liability zero - then quote Bruno van Munchhausen on page 41.

The then unwisely dichtet continued: "We want to simply prove that nuclear fusion can have a positive energy balance" that already my physics teacher told me 49 years ago. Well then we expect doch mal:

4 billion USD investment written down to 15 years are approximately $1 million per day. Nice that struck you, PM, it brings NIF - like a normal man - only on a shot per day. While this can produce healthy baby at least one, we expect to just briefly https://lasers.llnl.gov/science_technology/ based on the original source: 1.8 megajoule, so a half kWh-th, market price 3 cent happy times your erträumter factor 20 on page 41 yields 60 US cents / day.

A million dollar depreciation per day. Nice day yet!

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