Betreff: Re: question on ITER power
Von: "Zohm, Hartmut" [redacted]
Datum: 9/6/2017 13:23
An: "Steven B. Krivit" [redacted]

Dear Mr. Krivit,
from my discussions with some of the ITER team members, I learned the following:

At the Q=10 operation point, ITER will produce 500 MW of fusion power. The magnet system will require about 80 MW of electrical power and the heating systems about 150 MW. Add to this an overall consumption of the site of around 100 MW (for all subsystems needed to run the whole plant), we would have about 330 MW of electrical power needed to run the machine in this state.

So, Pfus/Pin,el is still bigger than one, but of course if that input power would have to be generated from the fusion power (which essentially is thermal power), it would not be possible to do this completely since typical thermodynamic efficiencies are around 35% (ITER does not plan to generate electrical power anyway).

I hope this the answer to the question you had - if not, feel free to contact me again, also via phone.

Best regards, Hartmut Zohm

10/12/2020
Zohm advised that magnet system power is reactive power and will be recovered. This brings Zohm's estimate to 250 MW (150 NBI/RF +100 BOP)

Am 9/3/2017 um 01:31 schrieb Steven B. Krivit:

> Dear Prof. Zohm,
>
> I am told by Laila El-Guebaly (who was very helpful to me when I was the Editor-in-Chief of the Wiley Nuclear Energy Encyclopedia) that you are an expert on tokamak reactors and might be able to help me with information for an article I am writing.
>
> Could you please tell me how much total electrical input power (not just the 50 MW plasma heating power) will be required for all systems on ITER, during its peak fusion power production of 500 MWt?
>
> Thank you sir,
>
> Steven B. Krivit
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