

Re: Solar breakthrough – when?

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From: Don Lancaster (don_at_tinaja.com)

Date: 08/19/04

Date: Thu, 19 Aug 2004 09:21:54 -0700

"Fred B. McGalliard" wrote:

>
> *"Don Lancaster" <don@tinaja.com> wrote in message*
> *news:41241C97.AED09444@tinaja.com...*
> ...
> > *The T's, of course, are ABSOLUTE TEMPERATURE. A 70 degree F source with*
> > *a 50 degree F sink would have a theoretical maximum efficiency of 1 –*
> > *523/543 or well under FOUR PERCENT. A real world system could not*
> > *possibly do this good.*
>
> *Perfectly true, except the high temp may be a bit closer to 80F during the*
> *warm summer and the low is a bit closer to 40F (just a bit above 4C I think,*
> *below which cold water rises instead of sinking..*
> *Also, the heat collector for this is pretty much free, so the only problem*
> *is how much it costs to make a turbine that will run with these low*
> *temperatures, and how much it costs to build the warm/cold water heat*
> *exchangers. The OTEC project has used some really bright ideas to reduce*
> *loss from heat exchangers and such. I saw the plant in Hawaii, just south of*
> *Kona on the big island. If I had had more time, I would have tried to get a*
> *tour. I don't recall if the plant is still operating but there are still*
> *folk there.*
>
> > *Before amortization and fully burdened cost accounting.*
>
> *AAAAARRRRRRRRGGGGG. Nuf said.*

The usual problem is the delta T's of the coupling heatsinks or mechanisms between ambient and the process. On both ends. It is tricky to get under 0.3 degrees per watt.

Forinstance, if you try running Peltier at more than a few watts, the delta T across your heatsink EXCEEDS your net cooling.

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Many thanks,
Don Lancaster

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