

Re: Hydrogen economy will never exist

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From: daestrom (*daestrom_at_NO_SPAM_HERE*twcny.rr.com)

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Date: Thu, 15 Jul 2004 00:38:21 GMT

"william mook" <william.mook@mokindustries.com> wrote in message
news:407c5321.0407130525.49ebbbbd@posting.google.com...

> *Fred Kasner* <fkasner@sdf.lonestar.org> wrote in message
news:<ccv183\$8ii\$4@chessie.cirr.com>...

>> *In sci.energy.hydrogen william mook* <william.mook@mokindustries.com>
wrote:

>>> *Fred,*

>>

>>> *Your objections are utter rot designed to let you make dismissive*

>>> *statements with no real analysis whatever.*

>>

>>> *Check it out.*

>>

>> ... *snip* ...

>>

>>>>>

>>>>> *daestrom*

>>>>

>>>> *Common error is to assume the feed water for a heating system is what
you*

>>>> *claimed as 22 deg C.*

>>

>>> *Its only an error if its wrong. In cases where the inlet temperature*

>>> *is 22 C – its not wrong. In cases where the inlet temperature is*

>>> *different, my method of calculation is shown, and easily adjusted to*

>>> *account for it.*

>>

>> *Then adjust it and stop generalizing so broadly.*

>> *FK*

>

> *Are you talking to me or daestrom? I agree if you're talking to*

> *daestrom – since that's exactly what I've said above.*

>

Well, since you guys seem to keep attaching my name to each others
arguments, I guess I'll just have to jump in here and repeat what I said
before.

Since Mr. Mook's design has to be forcefully cooled, I merely suggested that diverting the rejected heat to a home for some domestic use could be worthwhile. There are a few uses for 'low-grade' heat in the average home (space and water heating are two examples). Mr Mook countered with the costs of hot-water heaters and such tanks, saying the cost of the equipment outweighs the cost of the energy replaced. Fine. But since most homes in the US already *have* a hot-water storage tank, there may be situations where the PV 'coolant' can be used to heat an existing tank of water. Using the existing tank and just some additional fittings *may* lower the capital cost to a point where the future value of the rejected heat over the life of the equipment is positive. Without knowing more details of his current cooling system design, it is difficult to make any further analysis.

As far as 22C, *if* you use a closed loop system to cool the PV and circulate the heat into the home for space heating, the return temperature from the house could easily be in this range. Simply circulating the 'coolant' through the cold-air return of a forced air system would warm the air in the home and provide such a 'return' temperature to the PV cooler.

If you are using open-loop, such as domestic hot-water supply, then of course the inlet temperature would most likely be different.

But the specific heat capacity of water does *not* vary by much in the temperature range we're talking about. So the exact inlet temperature doesn't matter unless you want to completely replace the existing hot water heating system. If the waste heat is merely used to augment the existing system, then a colder inlet water will merely demand more of the existing water heater (the pre-heater outlet temperature will be correspondingly lower). The PV rejected heat will provide nearly the same temperature rise (22C to 82C, or 10C to 70C for Mr. Mook's example). So its economic benefit in replacing some of the energy needed to heat the incoming water is not changed.

I'm thinking of the waste heat being used in a preheater for domestic hot-water. In such a role, it would *not* matter what the inlet temperature is over a wide range. If the pre-heater outlet temperature is below the main water heater's set-point, then the energy savings of the pre-heater section would be about the same if the inlet is 22C or 5C.

daestrom