Re: Nuclear PBMR district heating

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- *From*: "Giuseppe" <pr@xxxxxxxxxx>

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"Alex Terrell" <alexterrell@xxxxxxxxx> ha scritto nel messaggio
news:1138826047.524911.307490@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

>>Giuseppe wrote:
>> I read something about these small "pebble bed" modular reactors to be
>> built
>> in South Africa.They are high temperature nuclear reactors,graphite
>> moderated and helium cooled.The core heats up helium from 500 to 900
>> °C,after that is discharged at 140 °C. Could it be possible to heat up
>> water
>> at temperatures high enough for district heating or district cooling in
>> the
>> hot months?
>Probably, but at 140 degrees you'd want to drive a steam turbine and
>generate more electricity.

Of course,I was refering only to district heating,not electric generation

>>Unless of course you have lots of reactors
>>and need to do something with surplus night time thermal energy.
>> Have you got any estimate about max water temperature achievable
>> with helium at 140 °C?
>Close to 140 C, but that would be inefficient. You'd probably want to
>heat the water to 80−90 degrees or so.

Only 80−90 °C?It's not so much....I'd like to read an accurate number about
this
You know,nuclear plants are not located near big town centers and usually
loses in district heating network are about 1 degree per km or something
higher.So,if we want to have a 40 km long DH network we must have at least
a 120 °C/60 °C feed/back water temperature.I suppose that nuclear thermal
plants are no more 10 km far from cities (so we early loose 10 degrees there
and back) and water temperature in the houses is at least 70 °C.
Questions and/or comments are welcome

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