

MPPTt is a patented technology which delivers high power in solar thermal systems. The technology is only available in Surface Power solar systems and can deliver up to 7 times the kWhr production of standard solar systems per sqm of collector space installed.



What is MPPTt ?

(Maximum Power Point Tracking - thermal)

MPPTt

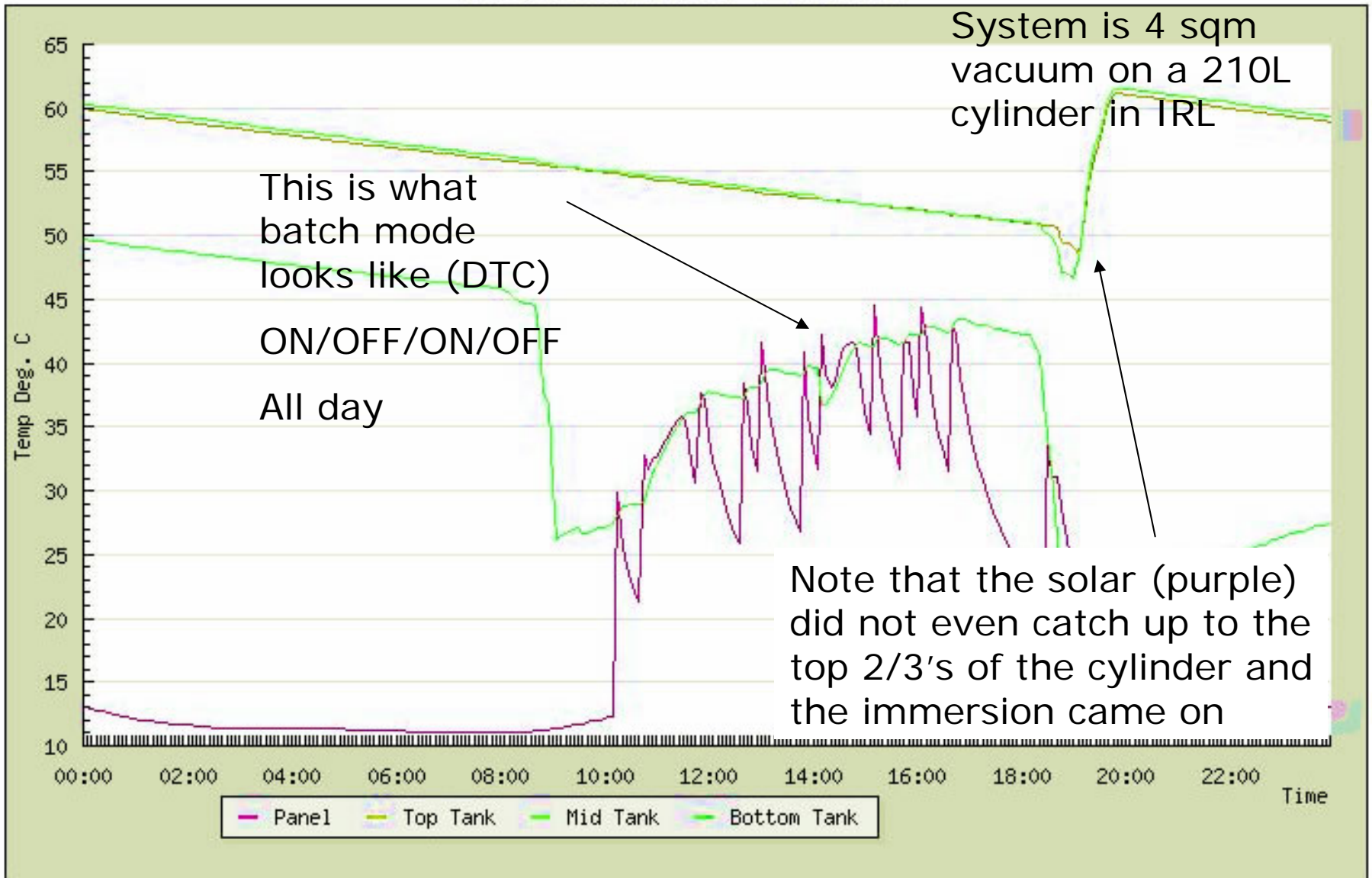
- ❑ MPPTt was developed over the last 8 years to allow much higher heat transfer (kWhrs) from solar hot water systems, it has many different elements
- ❑ This new science needed new types of solar technology such as thermodynamic laminar flow, anti stall technology and other significant modifications to the Physics of existing legacy solar hot water systems
- ❑ As such; existing solar hot system designs which can be traced back to 1890 can't work this way.
- ❑ Surface Power successfully developed and patented this technology and it is inherent in all our systems.

What do existing solar hot water systems use ?

- ❑ Existing solar uses a method called DTC (differential temperature control)
- ❑ This means a pump is turned on at a set temp (usually +7C) and then OFF again at (usually +3C)
- ❑ This means that legacy solar hot water systems operate in batch mode and low power with +7C max Delta T

WINTER

Temperature Data for 2-Oct-2010



So what is Delta T

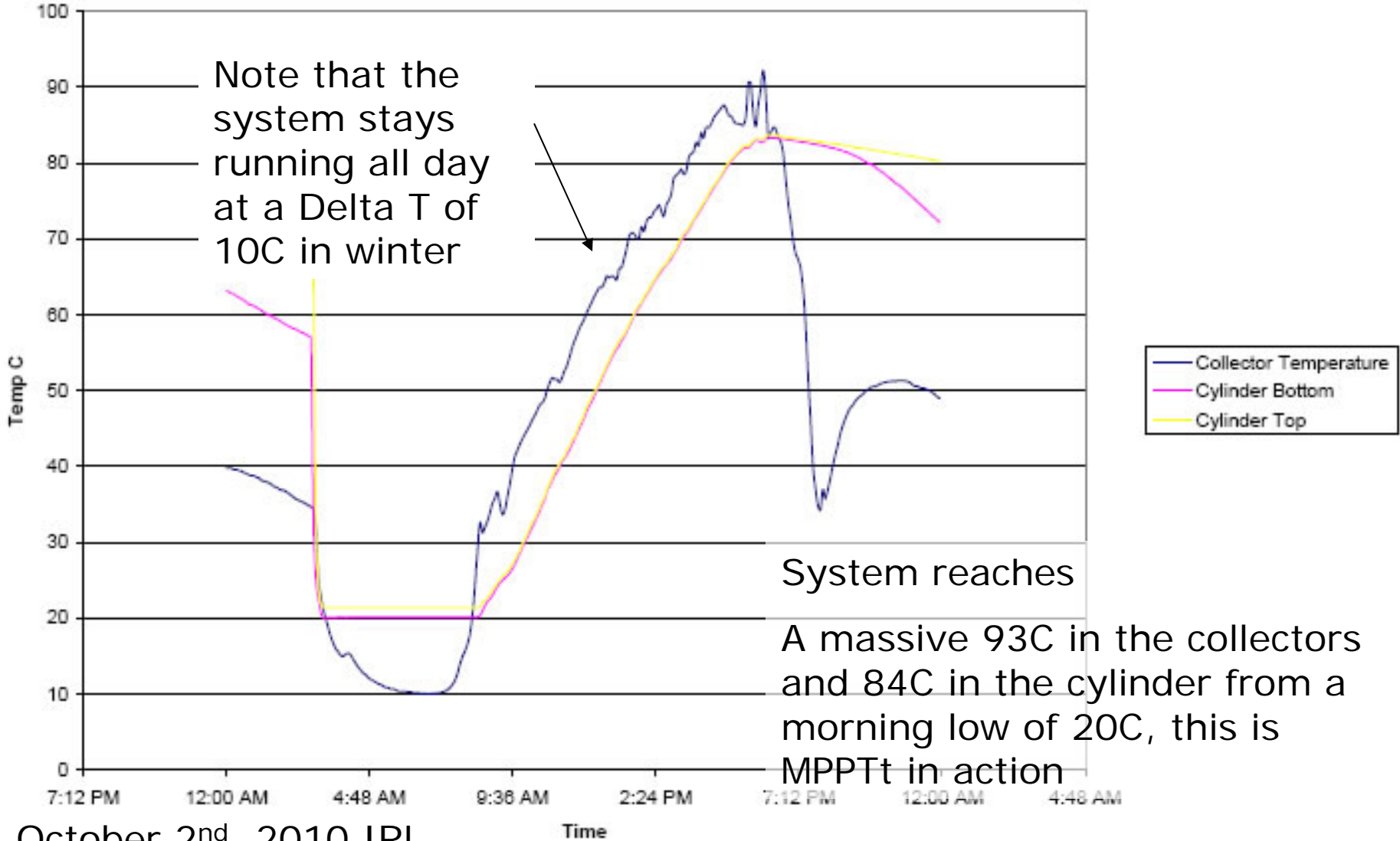
- In the most simple terms, this relates to the difference in temperature between your collectors (heated water) and your heat exchanger (the water you want to heat)
- The higher the Delta T, the more kWhrs that are being transferred
- DTC operates between +3C and +7C so the maximum Delta T is +3C to +7C typically
- MPPTt operates between +10C and +20C although it can operate up to +80C in recovery mode (or BOILER mode)
- *see our website for case study examples*

WINTER



2 Oct 2010

System is 4.75 sqm on a 300L cylinder in IRL



October 2nd, 2010 IRL

MPPTt performance example

- In the last slide, you have seen a Surface Power customer's system rise a 300L cylinder by 64C (20C to 84C) in one winters day in a system which is smaller than 2 flat plate collectors.
- This is MPPTt
- The thermodynamic solar laminar flow means the system barely used any electricity for pumping

Summary

- **This means either:**
- When you use our system's, you get much more power, we are currently trending over **810 kWhrs/m²/yr** on customer systems for solar hot water
- OR you install smaller systems, in commercial systems, you get the energy you need for less money

MPPTt

- ❑ MPPTt is the future of advanced solar hot water technology
- ❑ It produces multiples of energy versus old style DTC controllers
- ❑ It is subject to several Physics patents held by Surface Power
- ❑ *Note: it can't be applied to legacy solar collectors and systems as their science is old.*



Data gathered from our SMART grid command centre and published with kind permission of the householder