



Western Norway
University of
Applied Sciences

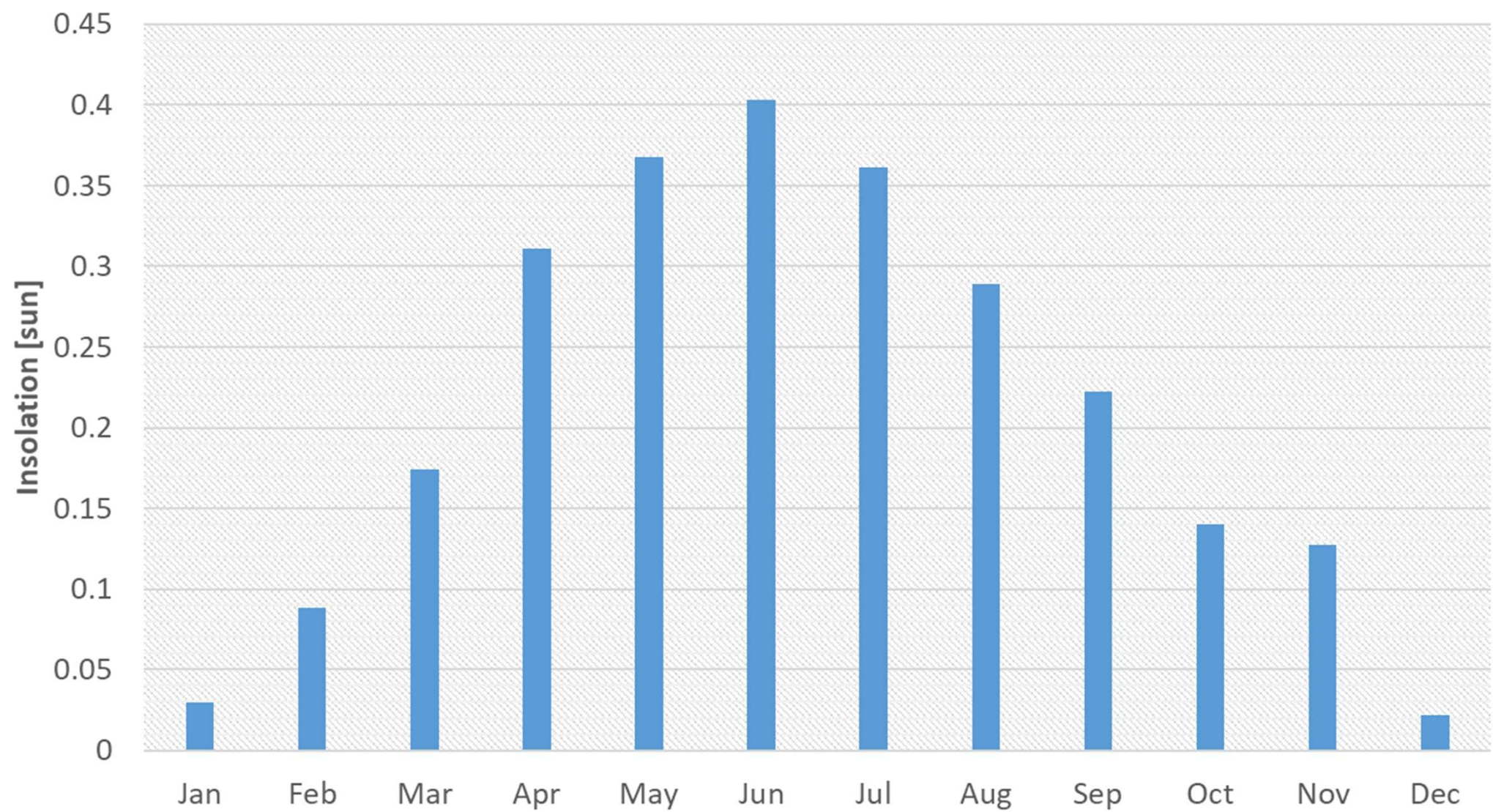
The solar collector facility

Energy Lab Meeting

Bergen 25th August 2020

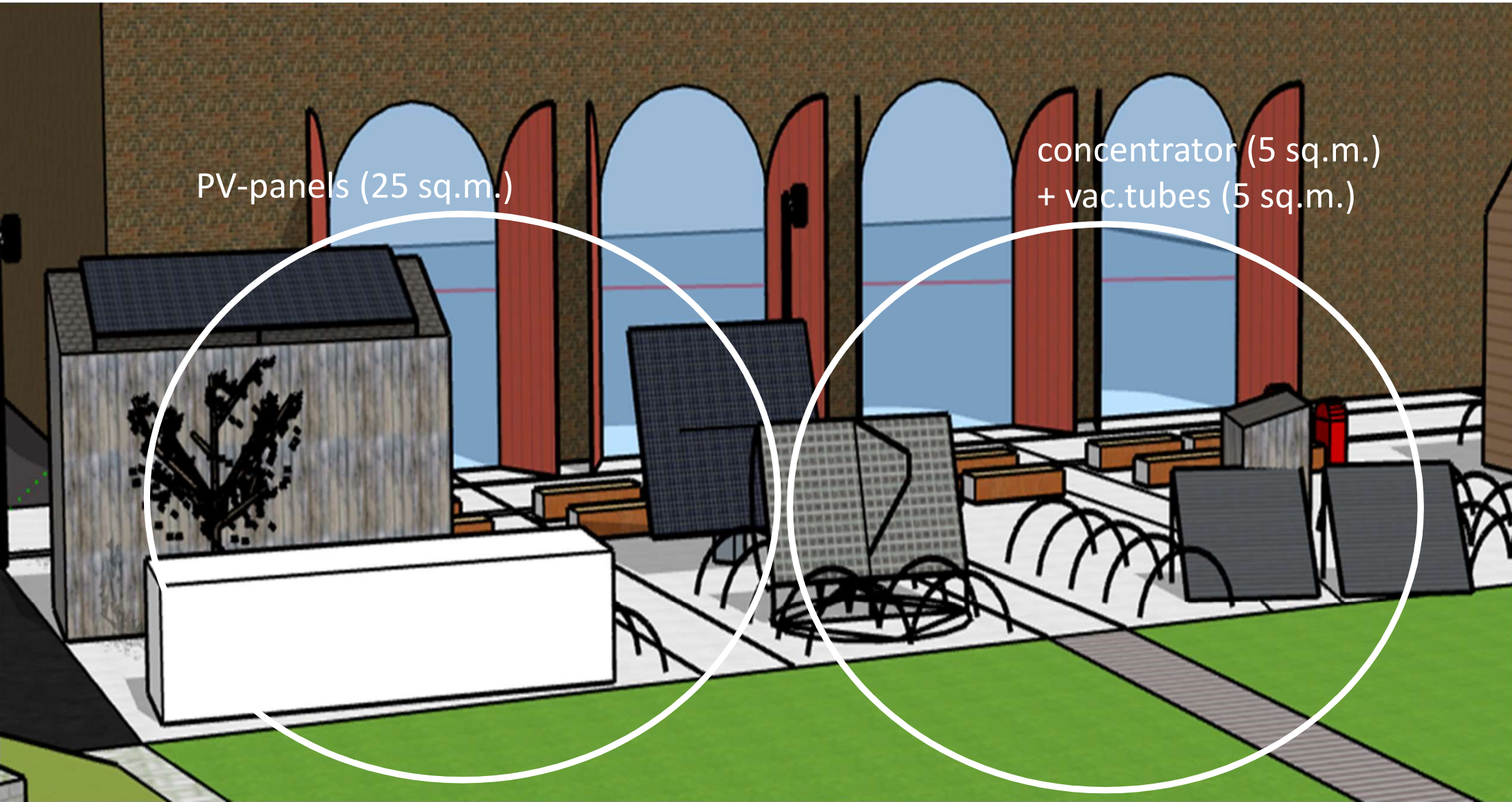
Boris Balakin

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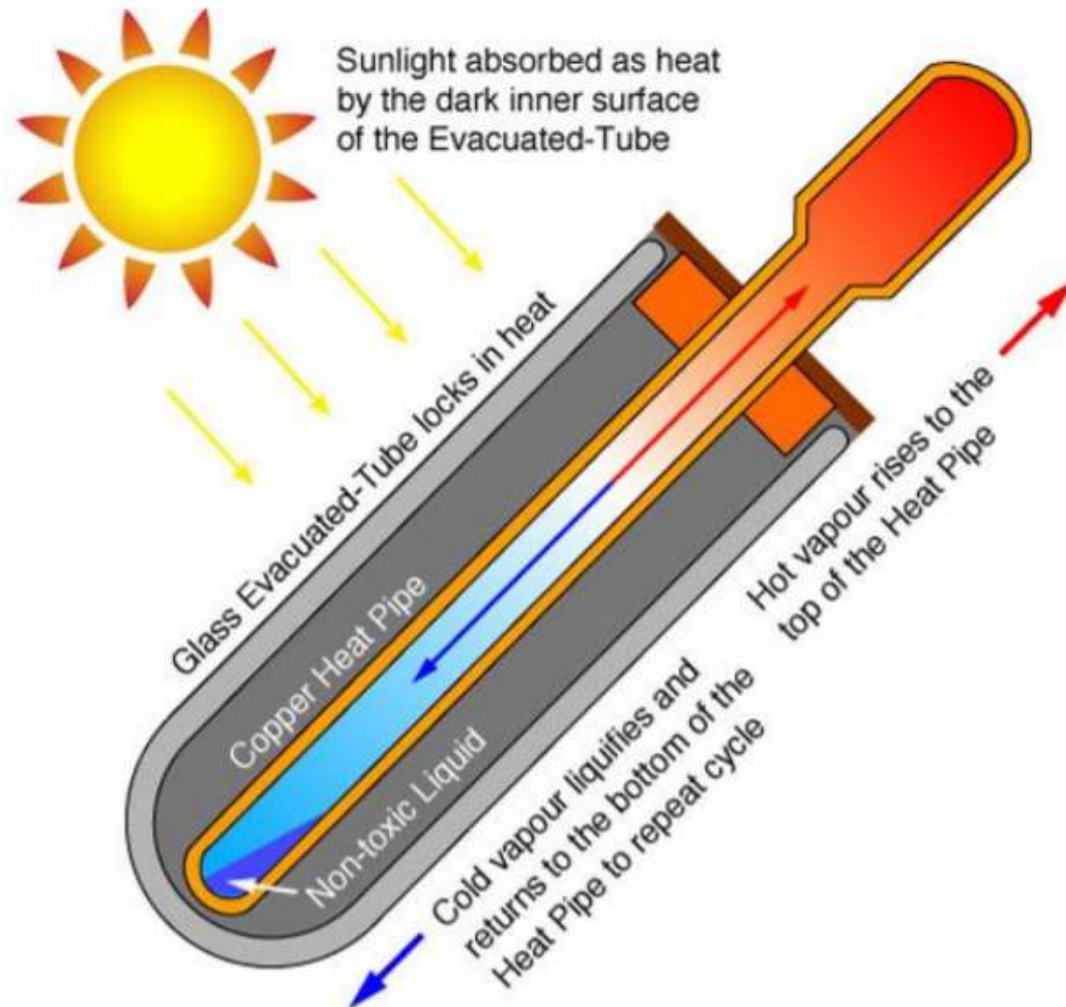


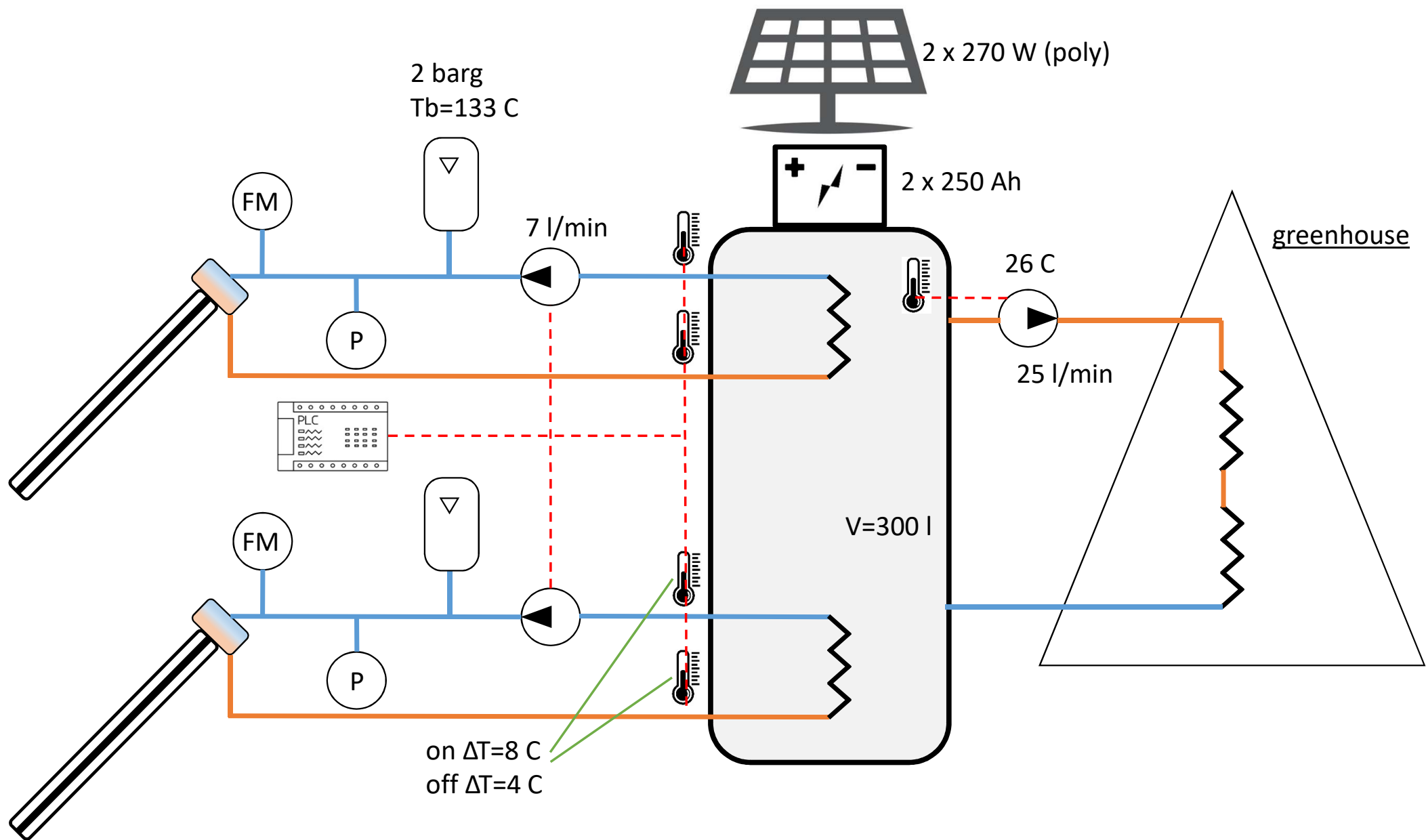
PV-panels (25 sq.m.)

concentrator (5 sq.m.)
+ vac.tubes (5 sq.m.)

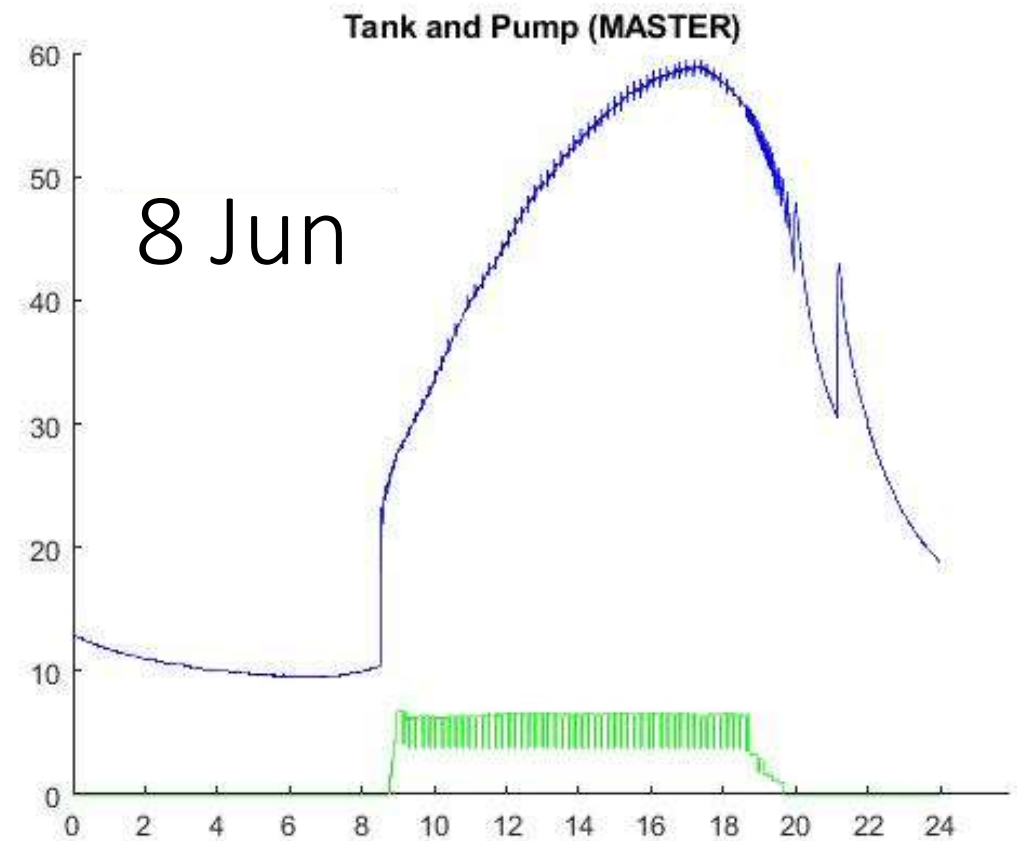
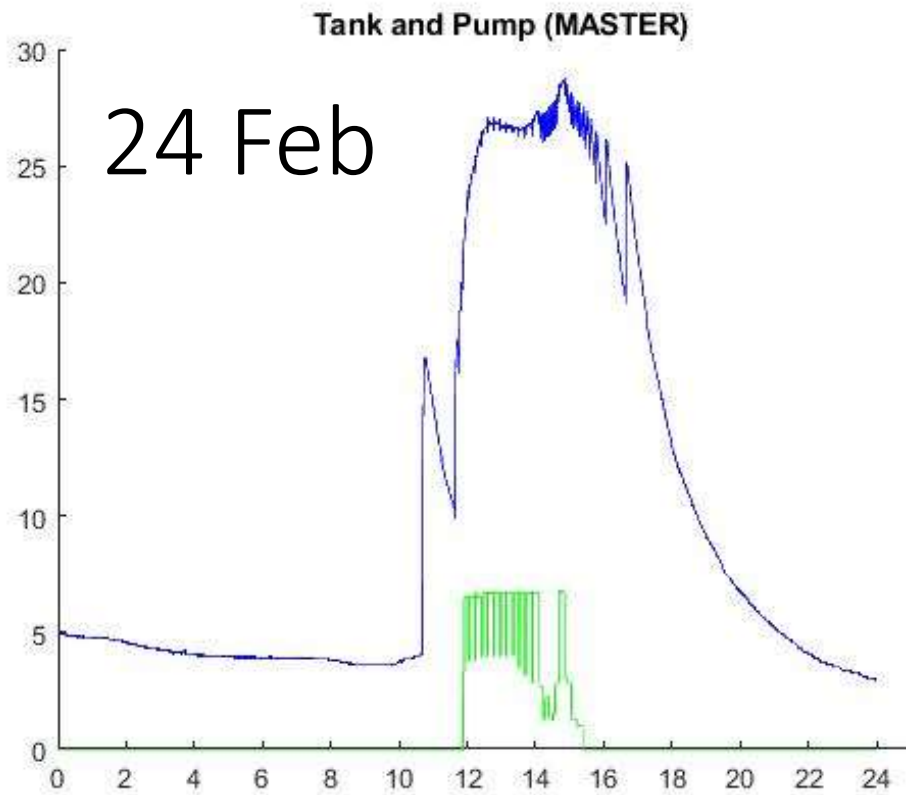


Vacuum tube

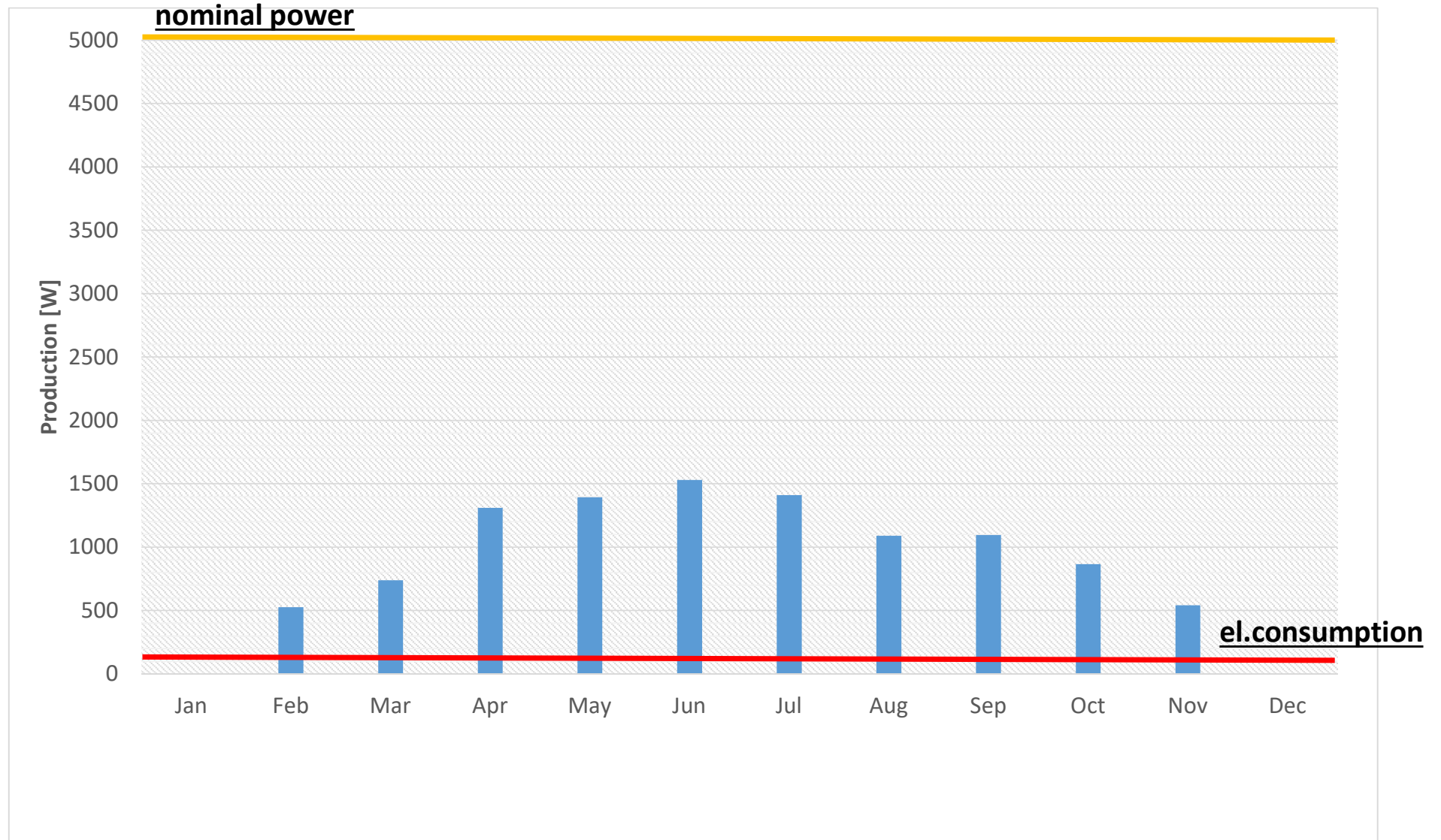




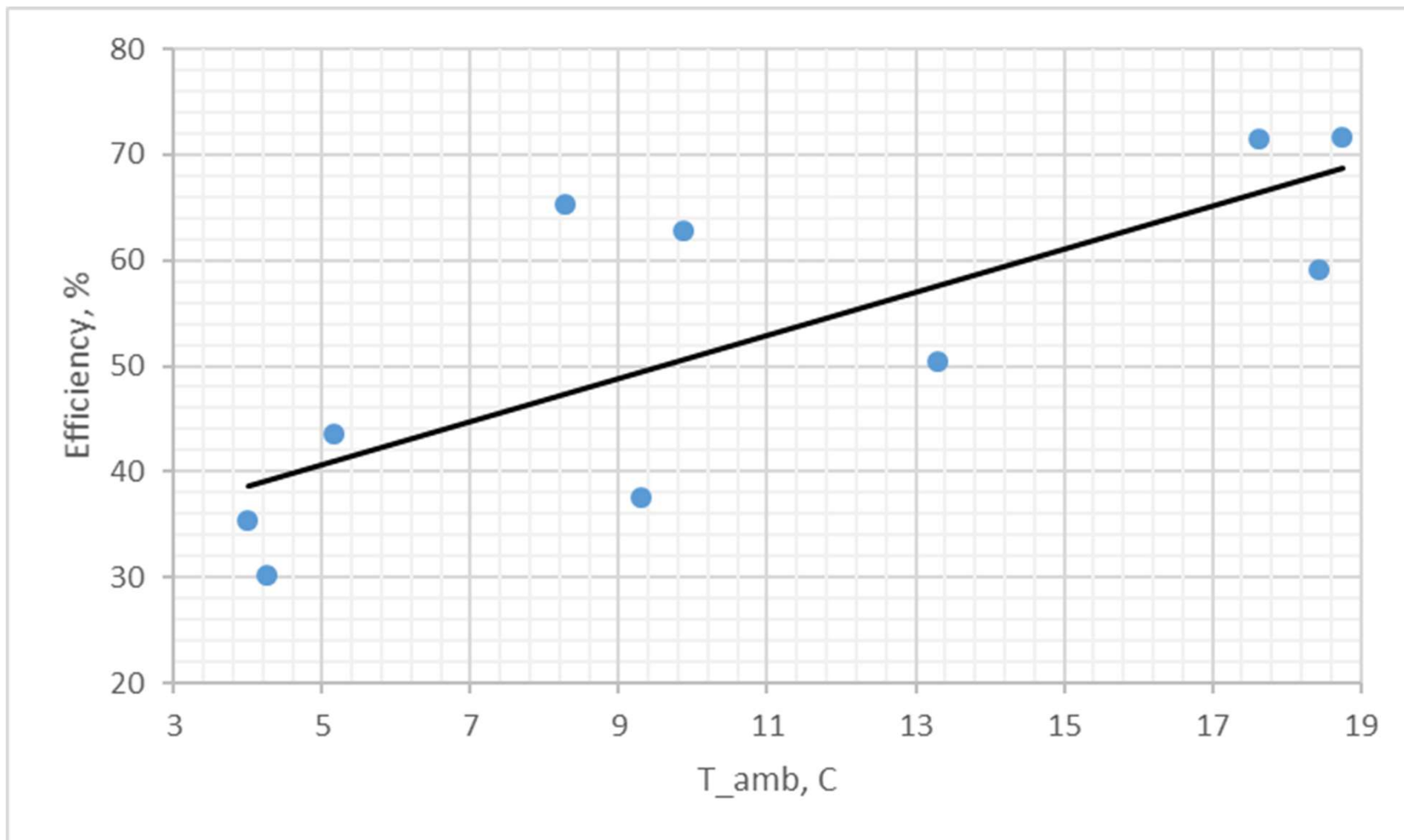
Operation: T_coll&Q



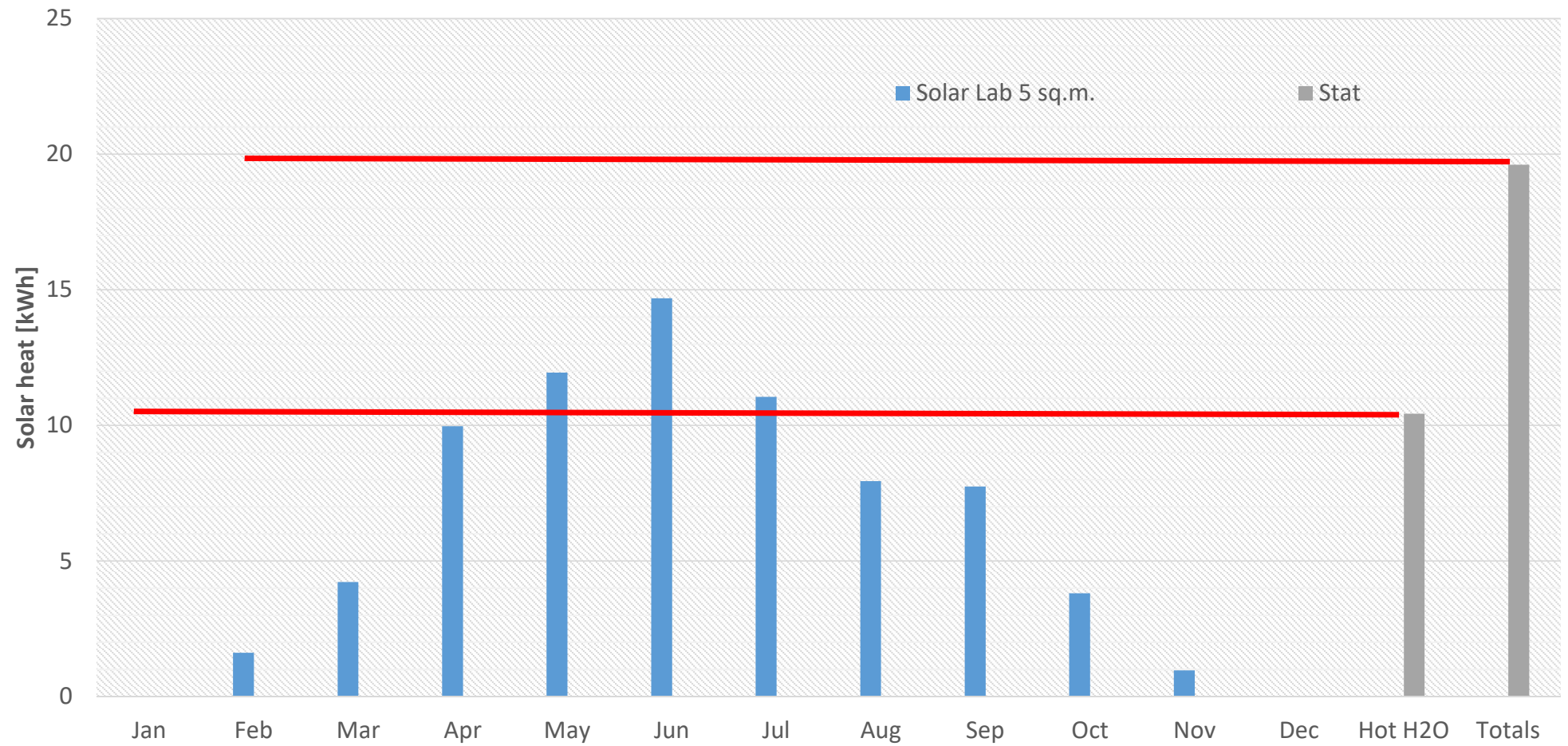
Production



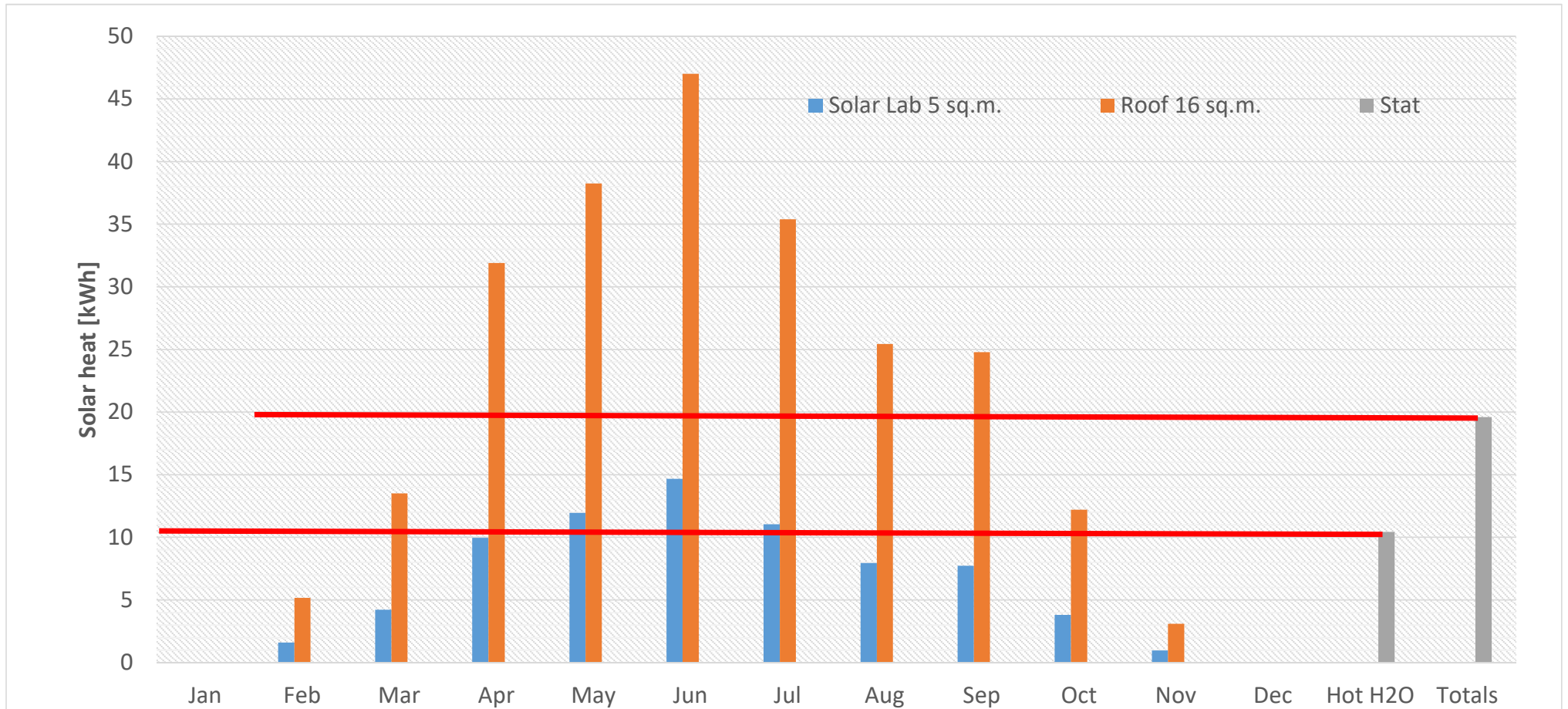
Efficiency



Heat



Upscale



* C. Good, I. Andersen, A.G. Hestnes. Solar Energy for Net Zero energy buildings – A comparison between solar thermal, PV, and photovoltaic-thermal (PV/T) systems. Solar Energy, 122, 986-998, 2015.

* D.A. Hagos, A. Gebremedhin, B. Zethraeus. Solar water heating as a potential source for Inland Norway energy mix. Journal of Renewable Energy Hindawi, ID 968320, 2014.

Summary

- > 30 sq.m. test facilities
- 400-days big data (1/10 min)

In Bergen possible

- >20 kWh/day for 6 months (heating needs)
- >10 kWh/day for 2 extra months (hot water)

Plans

- new type solar collector
- PV/T
- thermal accumulator

Thank you!