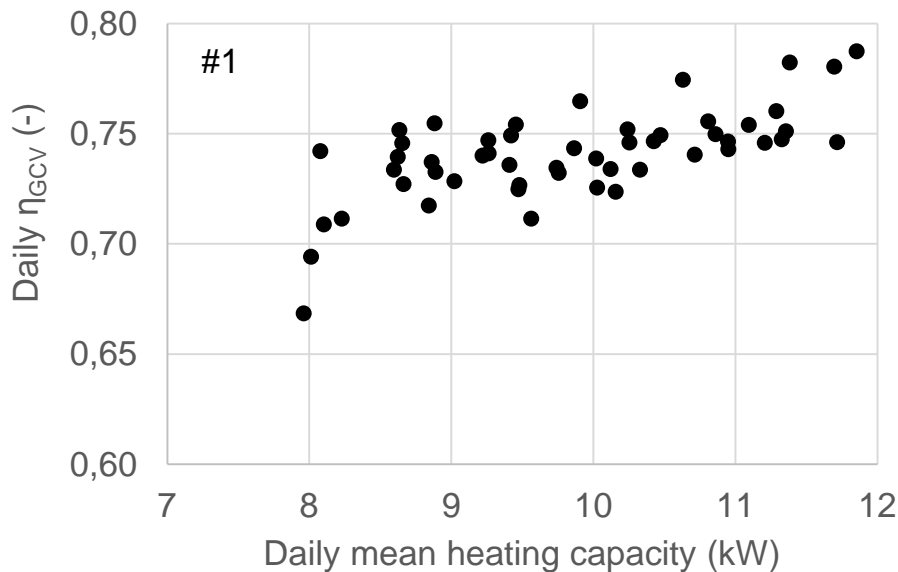


On-field monitoring of boiler-based domestic heating system

- 4 system monitored since November 2017
- All systems provide both DHW and SH

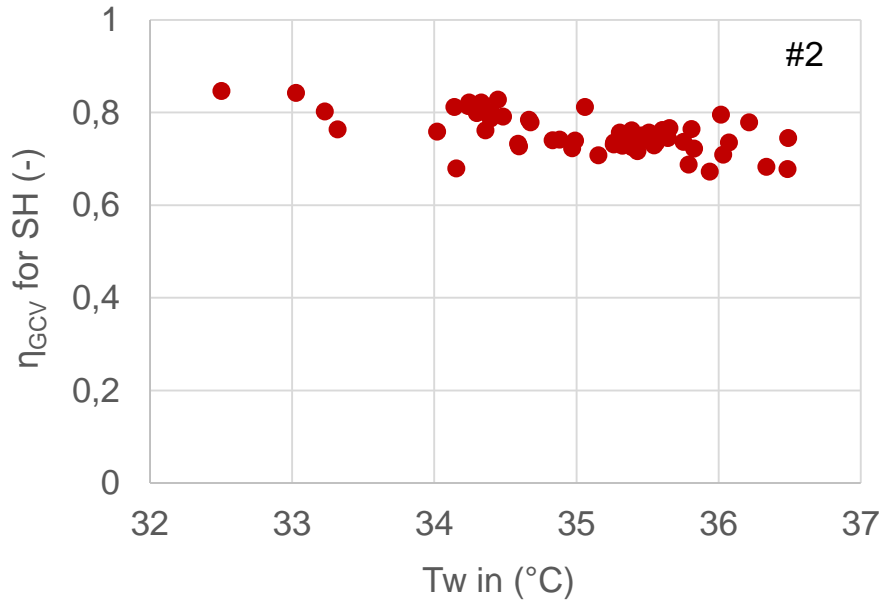
Plant	Boiler type	year	Emission system	Q_{nom}	$\eta_{average}$
#1	Condensing	2015	Radiators + floor	25	0.75
#2	Condensing	recent	Floor heating	20	0.74
#3	Traditional	2012	Radiators	33	0.67
#4	Traditional	old	Radiators	29	0.69



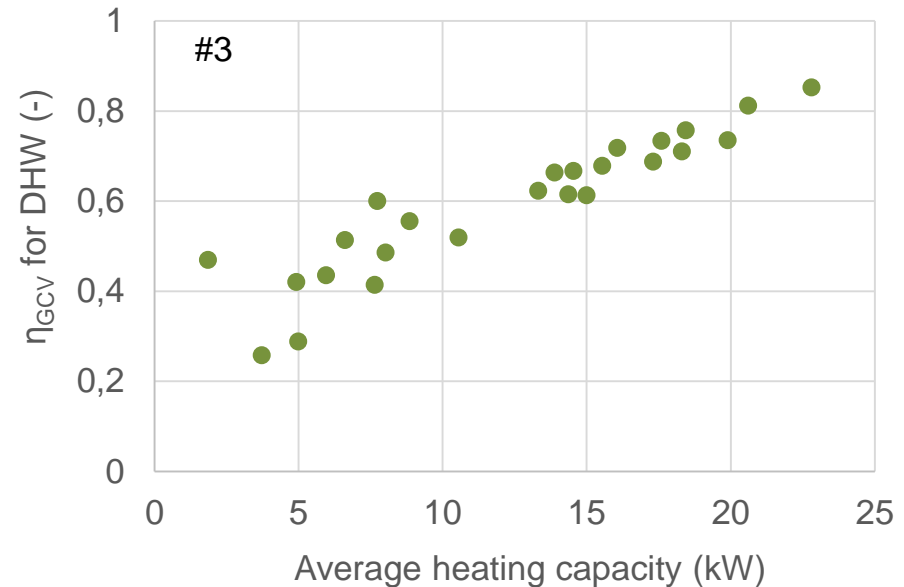
Poor efficiency over the heating season

Detailed analysis on daily basis
e.g. for some of the systems efficiency depends on mean heating capacity

Detailed analysis at on-off cycle level to understand the reasons for low efficiency



For a single cycle, the efficiency may depend on the average heating capacity delivered during on-period.



For a single cycle, the efficiency may depend on the return temperature to the boiler