

Benchmarking of space heating demand for a sample of foundries in Nordic climate

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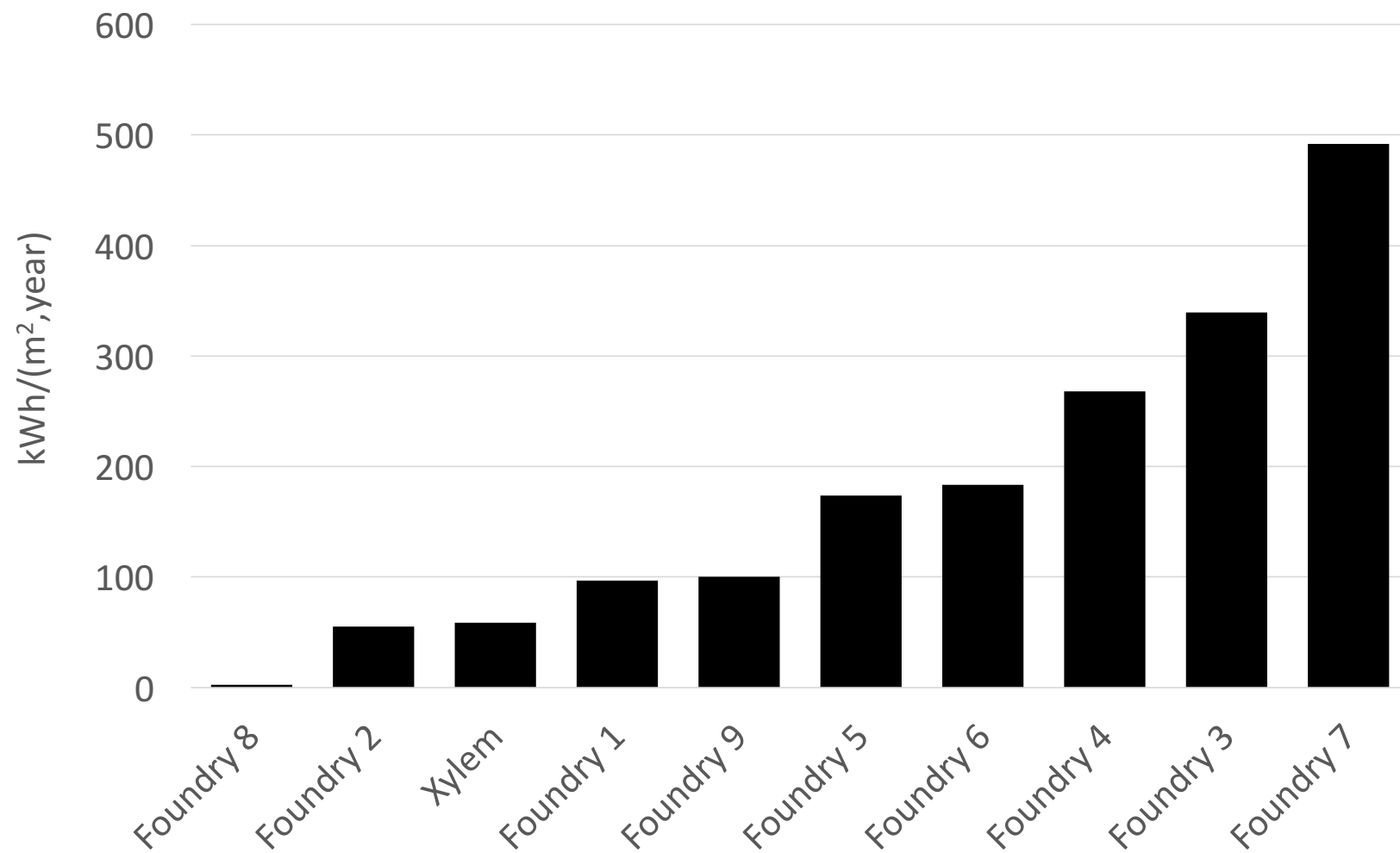
AIM

- To investigate if differences between well performing companies and less performing companies with regard to purchased energy for space heating can be related to certain energy saving measures
- To estimate the potential reduction in purchased energy for space heating for the less performing companies if they were to implement the measures used by the well performing companies

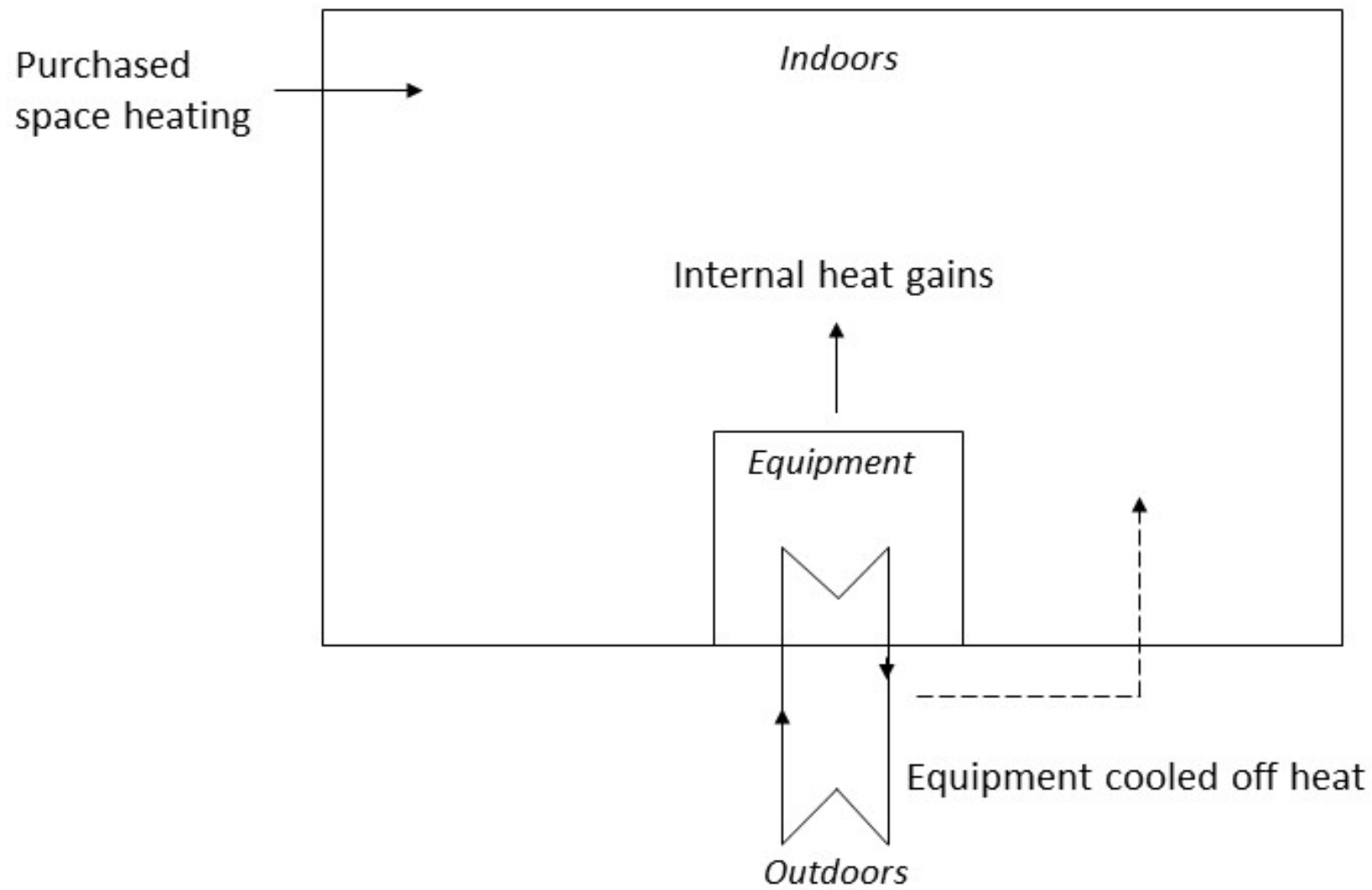
Parameters for comparison

Building envelope	Heat recovery	Energy storage	HVAC control system	Heating system/energy carrier
Poor/Ok/Good	No/To small degree/To high degree	Yes/No	Yes/No	E.g. fuel burned in boiler or direct electric heating

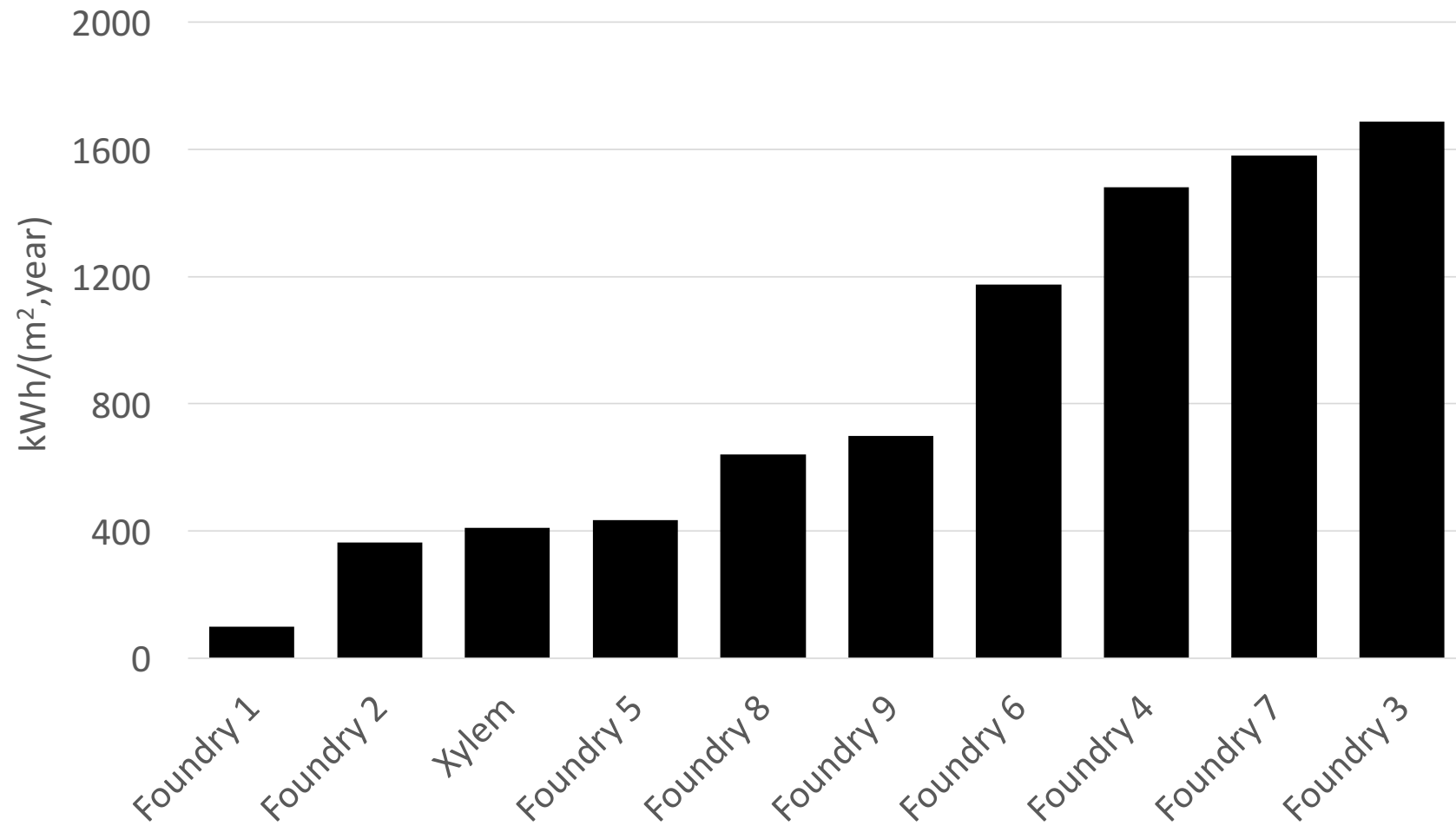
Annual purchased space heating



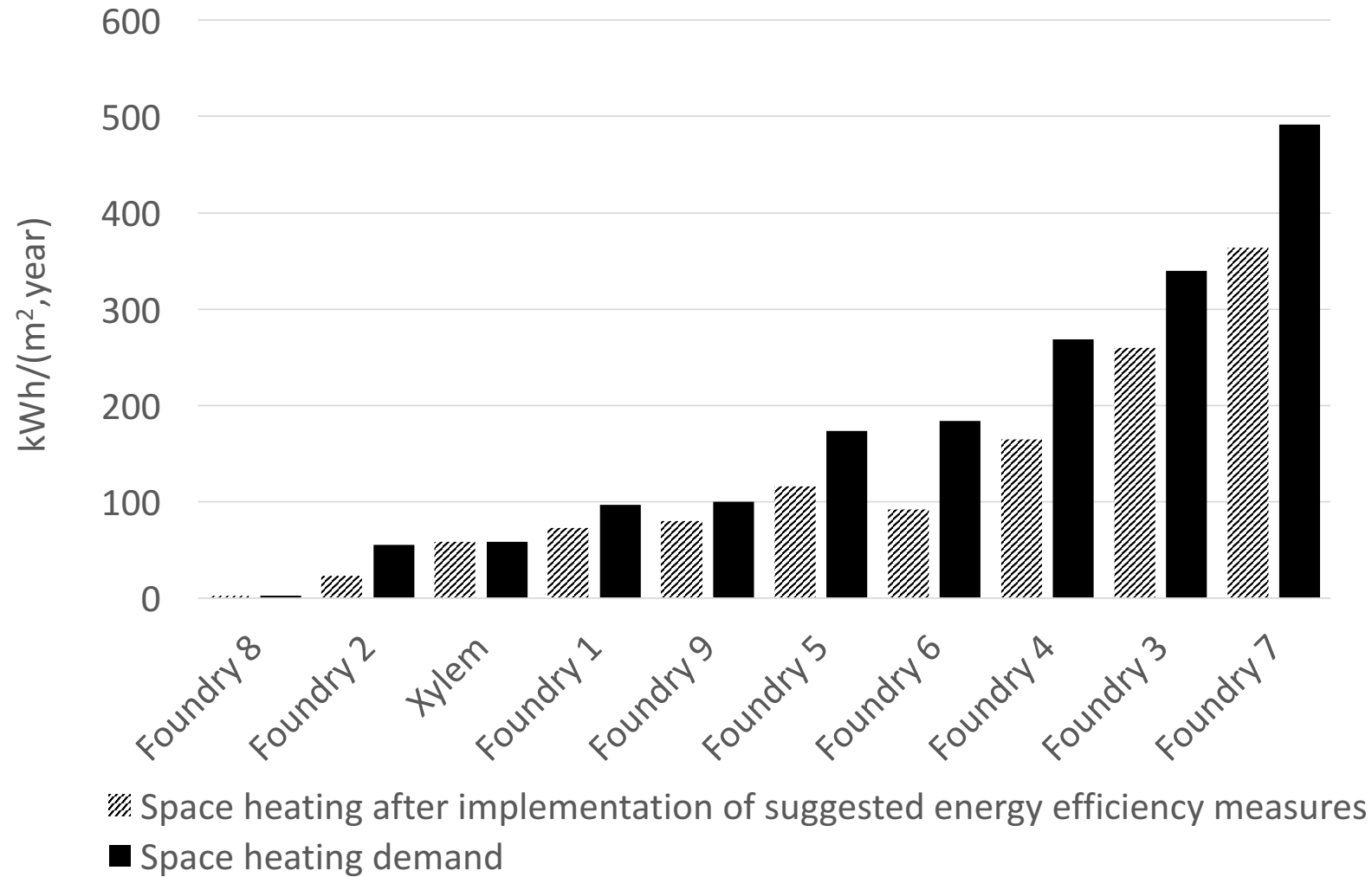
	Type of manufacturer	Status of building envelope [3 point scale*]	Heat recovery [3 point scale*]	Energy storing [Yes/No]	Type of heating system/energy carrier	Recommendations from energy auditor to implement/improve HVAC system controlling [Yes/No]
Foundry 8	Casting of light metals	Good	Yes, to high degree	No	Direct electric heating	No
Foundry 2	Casting of light metals	N/A	N/A	No	Boiler (oil), direct electric heating	No
Xylem	Casting of iron	Ok	Yes, to high degree	Yes	District heating, electricity heat pumps	No
Foundry 1	N/A	Ok	Yes, to high degree	No	District heating, direct electric heating	Yes
Foundry 9	Casting of light metals	N/A	N/A	No	Boiler (gas)	No
Foundry 5	Casting of light metals	Good	Yes, to some extent	No	Boiler (oil)	Yes
Foundry 6	Casting of iron	N/A	Yes, to some extent	No	Boiler (oil)	Yes
Foundry 4	Casting of light metals	Poor	Yes, to some extent	No	Boiler (gas)	Yes
Foundry 3	Casting of steel	Poor	N/A	No	Boiler (gas)	No
Foundry 7	Casting of iron	Ok	Yes, to some extent	No	Boiler (oil), direct electric heating	Yes



Total energy purchased to the site



Current vs. after measures



Conclusions

- Large sample spread
- Degree of heat recovery main factor for differences
- Based on overall purchase of energy, it should be possible for the less performing companies to reach values for space heating of that of the well performing companies