Erratum to "Techno-economic evaluation of electricity price-driven heat production of a river water heat pump in a German district heating system"

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This is an erratum to the article *Techno-economic evaluation of electricity price-driven heat production of a river water heat pump in a German district heating system* published by the International Journal of Sustainable Energy Planning and Management with DOI: https://doi.org/10.5278/ijsepm.6291 [1]

In the original published version of the article equation (10) was displayed incorrectly.

Corrected equation (10):

$$COP_{cascade} = \frac{COP_1 \cdot COP_2}{COP_1 + COP_2 - 1} + COP_{shift} \qquad (10)$$

with:

$$COP_1 = a \cdot \left(\Delta T_{lift,1} - 0.5 \cdot \Delta T_{lift,shift} + 2 \cdot b\right)^c \cdot$$
$$\left(T_{l,in} + \Delta T_{lift,1} - 0.5 \cdot \Delta T_{lift,shift} + b\right)^d$$

$$COP_2 = a \cdot (\Delta T_{lift,1} - 0.5 \cdot \Delta T_{lift,shift} + 2 \cdot b)^c \cdot \left(T_{h,out} + b\right)^d$$

$$\Delta T_{lift,1} = \Delta T_{lift,2} = 0.5 \cdot \Delta T_{lift} = 0.5 \cdot \left(T_{h,out} - T_{l,in}\right)$$

COP	coefficient of performance [-]
COP_{shift}	vertical shift of COP function [-] $COP_{shift} = 0.37$
a, b, c, d	fit parameter [-] $a = 40.789$, $b = 1.0305$, $c = -1.0489$, $d = 0.29998$ [2]

$T_{h,out}$	heat carrier temperature at condenser outlet [K]
$T_{l,in}$	heat carrier temperature at evaporator inlet [K]
$\Delta T_{lift,shift}$	horizontal shift of COP function [K] $\Delta T_{lift,shift} = 12.8$

Description of the corrected mistakes:

In the equation for COP_1 the last exponent is corrected to be **d** instead of a.

In the equation for $\Delta T_{lift,1/2}$ the third = sign was depicted as – in the published version.

In the equation for $\Delta T_{lift,1/2}$ $T_{l,in}$ was depicted as $T_{h,in}$ in the published version.

The publisher would like to apologise for any inconvenience caused.

References

[1] Trabert, U., Jesper, M., Bergstraesser, W., Best, I., Kusyy, O., Orozaliev, J., & Vajen, K. (2021). Techno-economic evaluation of electricity price-driven heat production of a river water heat pump in a German district heating system. *International Journal of Sustainable Energy Planning and Management*, *31*, 121–142. https://doi.org/10.5278/ijsepm.6291

[2] Jesper M, Schlosser F, Pag F, Walmsley TG, Schmitt B, Vajen K. (2021). Large-scale heat pumps: Uptake and performance modelling of market-available devices. Renewable and Sustainable Energy Reviews, 137, 110646. https://doi.org/10.1016/j.rser.2020.110646.

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