Commission Decision of 1 March 2013 establishing the guidelines for Member States on calculating renewable energy from heat pumps from different heat pump technologies pursuant to Article 5 of Directive 2009/28/EC of the European Parliament and of the Council (notified under document C(2013) 1082) (Text with EEA relevance) (2013/114/EU)

ANNEX U.K.

Guidelines for Member States on calculating renewable energy from heat pumps from different heat pump technologies pursuant to Article 5 of Directive 2009/28/EC

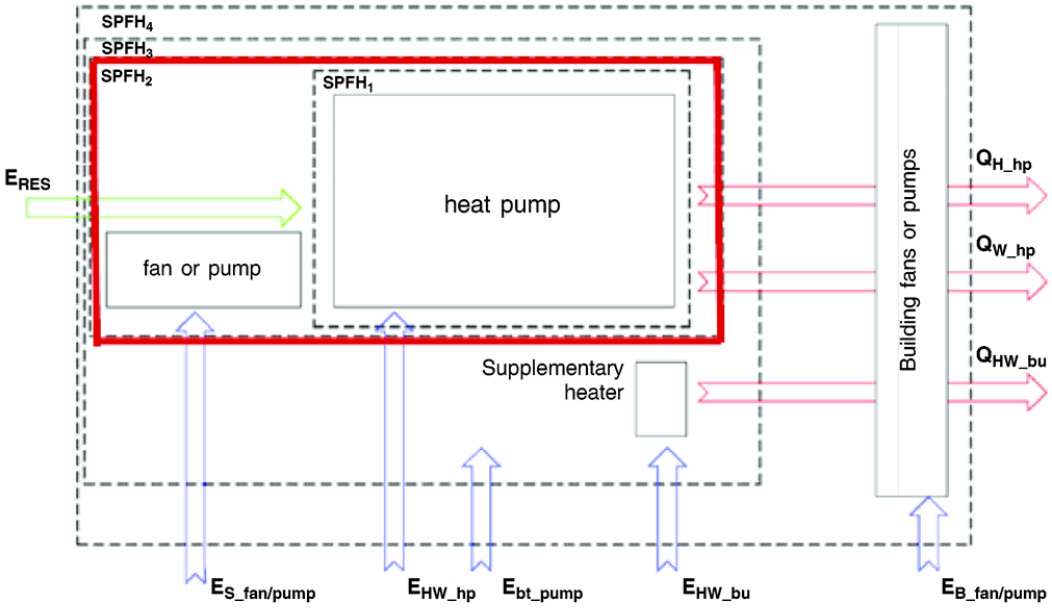
3. ESTIMATING SPF AND Q_{USABLE} U.K.

3.4. System boundaries for measuring energy from heat pumps U.K.

The system boundaries for measurement include the refrigerant cycle, the refrigerant pump and, for ad/absorption, in addition the sorption cycle and solvent pump. The determination of the SPF should be according to the seasonal coefficient of performance ($SCOP_{net}$) according to EN 14825:2012 or seasonal primary energy ratio ($SPER_{net}$) according to EN 12309. That implies that electric energy or fuel consumption for operation of the heat pump and circulation of the refrigerant should be taken into account. The corresponding system boundary is shown in Figure 1 below as $SPFH_2$, highlighted in red.

Figure 1

System boundaries for measurement of SPF and Q_{usable}



Source: SEPEMO build.

The following abbreviations are used in Figure 1:

$E_{S\_fan/pump}$	Energy used to run fan and/or pump that circulates the refrigerant
E_{HW_hp}	Energy used to run the heat pump itself
E_{bt_pump}	Energy used to run pump that circulates the medium that absorbs the ambient energy (not relevant for all heat pumps)
E_{HW_bu}	Energy used to run supplementary heater (not relevant for all heat pumps)
$E_{B\_fan/pump}$	Energy used to run fan and/or pump that circulates the medium that supplies the final usable heat
Q_{H_hp}	Heat supplied from the heat source via the heat pump
Q_{W_hp}	Heat supplied from the mechanical energy used to drive the heat pump

Q_{HW_hp}	Heat supplied from the supplementary heater (not relevant for all heat pumps)
E_{RES}	Renewable aerothermal, geothermal or hydrothermal energy (the heat source) captured by the heat pump
E_{RES}	$E_{RES} = Q_{usable} - E_{S\_fan/pump} - E_{HW\_hp} = Q_{usable} * (1 - 1 / SPF)$
Q_{usable}	$Q_{usable} = Q_{H\_hp} + Q_{W\_hp}$

It follows from the system boundaries set out above, that the calculation of renewable energy supplied by the heat pump depends on the heat pump alone and not the heating system the heat pump is a part of. Inefficient use of heat pump energy is therefore a matter of energy efficiency, and should therefore not influence the calculations of renewable energy supplied by heat pumps.