

Heat Network KPI Reference

Generated from the platform's KPI registry. A working basis for a proposed British Standard on heat network key performance indicators. Generated 2026-10-25.

How to read the tables

One table per element type, in network order from the energy centre to the dwelling. The layout follows the KPI tables of the HNTAS Milestone 4 technical specifications so the two can be compared row by row; the columns that differ carry the detail a KPI needs to be computed the same way on every network.

Code	<element>-KPI-<nn>; a letter after the number is a variant (A reported form, B weather-compensated or per-source form). -C- marks the cooling form of a KPI; -M- a meter-health KPI; -H- a health KPI (hours below outage limits, offered as an alternative to the outage KPIs 04 and 05).
Standing	HNTAS: in the HNTAS Milestone 4 specifications, assessed (pass/fail) or reported (expected value only). HNTAS-style: an HNTAS KPI's method applied where the scheme does not yet reach, such as cooling. Heatweb: a diagnostic KPI the platform runs that HNTAS does not define. proposed: defined here, not yet computed by the platform.
Monitoring points	Point code, minimum data frequency, and the fields read. "x, else y" is a fallback chain: the first source with data at each reading is used.
Threshold	Pass criterion for an assessed KPI; "expected value" for a reported one. "(proposed)" marks a value put forward for review.
Calculation	The maths, in as few words as states it exactly.
Period	The window the KPI is assessed over.

Notation. tF, tR flow and return temperature (°C); q volumetric flow rate (m³/h); V volume register (m³); E energy register (kWh); ΔE, ΔV register increase over the period or day; 1.163 kWh/(m³·K) the volumetric heat capacity of water; Σ over the period; n readings. Volume weighting pairs readings in 5-minute buckets. Data at a higher frequency than the minimum is used at that frequency.

Rules that apply to every KPI. Readings that fail the out-of-range bounds for their channel are excluded before any KPI is computed. A setpoint input follows the live setpoint stream where the controls publish one and falls back to the design value where they do not. Consumer Connection KPIs 01 to 03 are assessed across all consumer connections together, not dwelling by dwelling.

Energy Centre (EC)

Code	Standing	KPI	Monitoring points	Threshold	Calculation	Period
EC-KPI-01	HNTAS · assessed	Energy Centre ARMS connectivity	all EC points	≥ 99%	received intervals ÷ expected intervals across connected points	Monthly
EC-KPI-02	HNTAS · assessed	Energy Centre monitoring point data completeness	all EC points	≥ 95%	valid readings ÷ expected readings	Monthly
EC-KPI-03	HNTAS · assessed	Energy Centre monitoring points operational	all EC points	100% of ARMS-connected points	points with no error/negative/out-of-range values ÷ total points	Monthly
EC-KPI-04	HNTAS · assessed	Energy Centre unplanned interruptions	EC · tF (sensor, else heat meter); sensor dP	≤ 3 a year	count of >12h periods below min flow temp OR min dP without 48h notice. Uses design/minFlowTemp design/minDPIIndex	Previous 12 months
EC-KPI-05	HNTAS · assessed	Energy Centre planned interruptions	EC · tF (sensor, else heat meter); sensor dP	≤ 1 a year	count of noticed (≥48h) interruptions. Uses design/minFlowTemp design/minDPIIndex	Previous 12 months
EC-KPI-06	HNTAS · reported	Energy Centre average flow temperature	EC · tF (sensor, else heat meter)	[expected average flow temperature]	time-weighted mean of flow temperature. Uses design/tF	Monthly
EC-KPI-07	HNTAS · reported	Energy Centre average return temperature	EC · tR (sensor, else heat meter)	[expected average return temperature]	time-weighted mean of return temperature	Monthly
EC-KPI-08	HNTAS · assessed	EC flow temperature variance from set point	EC · tF (sensor, else heat meter), tF (setpoint, else design)	0 ± 2 °C	mean tF - setpoint	Monthly
EC-KPI-09A	HNTAS · assessed	EC volume weighted average flow temperature (VWAFT)	EC · tF (heat meter, else sensor); heat meter m³/h	[expected] ± 3 °C	Σ(tF · flow volume) ÷ Σ(volume). Uses design/tF	Monthly
EC-KPI-09B	HNTAS · assessed	EC VWAFT (weather-compensated variant)	EC · tF (heat meter, else sensor), tF (setpoint, else design); heat meter m³/h	tracks compensated setpoint ± 3 °C	as 09A against live setpoint	Monthly
EC-KPI-10A	HNTAS · assessed	EC flow temperature stability	EC · tF (sensor, else heat meter), tF (setpoint, else design)	≥ 95% within thresholds	1 - (time above upper + below lower) ÷ total	Monthly
EC-KPI-10B	HNTAS · assessed	EC flow temperature stability (weather-compensated)	EC · tF (sensor, else heat meter), tF (setpoint, else design)	≥ 95%	as 10A against compensated setpoint	Monthly
EC-KPI-11	HNTAS · assessed	EC flow temperature uptime	EC · tF (sensor, else heat meter)	≥ 98% above minimum flow temp (99.5% at M4)	time above minimum ÷ total time. Uses design/minFlowTemp	Monthly
EC-KPI-12	HNTAS · assessed	EC pressure differential uptime	EC · sensor dP	≥ 99% above minimum dP (99.5% at M4)	time above minimum dP ÷ total. Uses design/minDPIIndex	Monthly
EC-KPI-13	HNTAS · assessed	Max allowable differential pressure exceedance	EC · sensor dpSupply	100% below maximum dP	1 - time above max dP ÷ total. Uses design/maxDPSupply	Monthly
EC-KPI-14	HNTAS · assessed	Max allowable operating pressure exceedance	EC · sensor pressure	100% below maximum operating pressure	1 - time above max pressure ÷ total. Uses design/maxPressure	Monthly
EC-KPI-15	HNTAS · assessed	Top-up water volume	EC · water meter m³	≤ 1% of system volume per month (0.17% at M4/TS1)	make-up volume ÷ system volume per month. Uses design/systemVolume	Monthly
EC-KPI-16A	HNTAS · assessed	Heat fraction (source A)	EC · heat meter kWh	[design heat fraction]	source A heat out ÷ total heat out	Monthly
EC-KPI-16B	HNTAS · assessed	Heat fraction (source B)	EC · heat meter kWh	[design heat fraction]	source B heat out ÷ total heat out	Monthly
EC-KPI-18	HNTAS · assessed	Network distribution pump energy	EC · electricity meter kwhElectric	< 1% of annual heat generation	sum of distribution pump electricity (excl. shunts). Uses design/kwhAnnualPump	Monthly
Hours below outage limits (alternative to 04/05)						
EC-KPI-H-01	Heatweb	Energy Centre hours below outage limits	EC · tF (sensor, else heat meter); sensor dPIIndex	< 60 h a year, judged on the month pro rata (= 4.9 h in 30 days); shorter windows report hours used	Σ_i min(t_{i+1} - t_i, 1 h) over readings with tF < tF_min or dP < dP_min; tF and dP spans unioned. Offered as an alternative to KPI-04/05. Uses design/minFlowTemp design/minDPIIndex	Monthly (pro rata)
heat						
EC-KPI-17-A	HNTAS · assessed	Heat generation efficiency (source A)	EC · heat meter kWh; gas meter m3Gas, kWh	gas/oil 80% · biomass 75% · electric 98% · heat pump COP 2.0 · CHP QI 105	heat out ÷ fuel in (boiler gross; HP CoP uses emeter). Uses design/efficiency	Monthly

Code	Standing	KPI	Monitoring points	Threshold	Calculation	Period
EC-KPI-17-B	HNTAS · assessed	Heat generation efficiency (source B)	EC · heat meter kWh; gas meter m3Gas, kWh; electricity meter kwhElectric	gas/oil 80% · biomass 75% · electric 98% · heat pump COP 2.0 · CHP QI 105	as 17-A per source. Uses design/efficiency	Monthly

District Distribution (DD)

Code	Standing	KPI	Monitoring points	Threshold	Calculation	Period
DD-KPI-01	HNTAS · assessed	District Distribution ARMS connectivity	all DD points	≥ 99%	received intervals ÷ expected intervals across connected points	Monthly
DD-KPI-02	HNTAS · assessed	District Distribution monitoring point data completeness	all DD points	≥ 95%	valid readings ÷ expected readings	Monthly
DD-KPI-03	HNTAS · assessed	District Distribution monitoring points operational	all DD points	100% of ARMS-connected points	points with no error/negative/out-of-range values ÷ total points	Monthly
DD-KPI-04	HNTAS · assessed	District Distribution unplanned interruptions	DD1 · 30 min · tF (sensor, else heat meter); DD · sensor dP	≤ 3 a year	count of >12h periods below min flow temp OR min dP without 48h notice. Uses design/minFlowTemp design/minDPIndex	Previous 12 months
DD-KPI-05	HNTAS · assessed	District Distribution planned interruptions	DD1 · 30 min · tF (sensor, else heat meter); DD · sensor dP	≤ 1 a year	count of noticed (≥48h) interruptions. Uses design/minFlowTemp design/minDPIndex	Previous 12 months
DD-KPI-06	HNTAS · assessed	DD network heat loss	DD1 · 30 min · heat meter kWh	per design W/dwelling basis	initiation kWh - Σ(termination kWh), as W/dwelling	Monthly
DD-KPI-07	HNTAS · reported	DD average flow temperature	DD1 · 30 min · tF (sensor, else heat meter)	[expected]	time-weighted mean. Uses design/tF	Monthly
DD-KPI-08	HNTAS · reported	DD average return temperature	DD1 · 30 min · tR (sensor, else heat meter)	[expected]	time-weighted mean. Uses design/tR	Monthly
DD-KPI-09	HNTAS · assessed	DD flow temperature uptime	DD1 · 30 min · tF (sensor, else heat meter)	≥ 98% (99.5% at M4)	time above minimum/total. Uses design/minFlowTemp	Monthly
DD-KPI-10	HNTAS · assessed	DD network bypass flow rate	DD1 · 30 min · heat meter m³/h	[design bypass allowance]	initiation q - Σ(termination q). Uses design/maxBypassFlow	Monthly
Hours below outage limits (alternative to 04/05)						
DD-KPI-H-01	Heatweb	District Distribution hours below outage limits	DD1 · 30 min · tF (sensor, else heat meter); DD3 · 5 min · sensor dPIndex	< 60 h a year, judged on the month pro rata (= 4.9 h in 30 days); shorter windows report hours used	Σ_i min(t_{i+1} - t_i, 1 h) over readings with tF < tF_min or dP < dP_min; tF and dP spans unioned. Offered as an alternative to KPI-04/05. Uses design/minFlowTemp design/minDPIndex	Monthly (pro rata)

Substation (SS)

Code	Standing	KPI	Monitoring points	Threshold	Calculation	Period
SS-KPI-01	HNTAS · assessed	Substation ARMS connectivity	all SS points	≥ 99%	received intervals ÷ expected intervals across connected points	Monthly
SS-KPI-02	HNTAS · assessed	Substation monitoring point data completeness	all SS points	≥ 95%	valid readings ÷ expected readings	Monthly
SS-KPI-03	HNTAS · assessed	Substation monitoring points operational	all SS points	100% of ARMS-connected points	points with no error/negative/out-of-range values ÷ total points	Monthly
SS-KPI-04	HNTAS · assessed	Substation unplanned interruptions	SS1 · 5 min · tF (sensor, else heat meter); SS · sensor dP	≤ 3 a year	count of >12h periods below min flow temp OR min dP without 48h notice. Uses design/minFlowTempOff design/minDPIndex	Previous 12 months
SS-KPI-05	HNTAS · assessed	Substation planned interruptions	SS1 · 5 min · tF (sensor, else heat meter); SS · sensor dP	≤ 1 a year	count of noticed (≥48h) interruptions. Uses design/minFlowTempOff design/minDPIndex	Previous 12 months
SS-KPI-06	HNTAS · reported	Substation average flow temperature	SS1 · 5 min · tF (sensor, else heat meter)	[expected average flow temperature]	time-weighted mean. Uses design/tFOff	Monthly
SS-KPI-07	HNTAS · reported	Substation average return temperature	SS1 · 5 min · tR (sensor, else heat meter)	[expected average return temperature]	time-weighted mean	Monthly
SS-KPI-08	HNTAS · assessed	SS flow temperature variance from set point	SS1 · 5 min · tF (sensor, else heat meter); SS · tF (setpoint, else design)	0 ± 2 °C	mean tF - setpoint	Monthly
SS-KPI-09A	HNTAS · assessed	SS volume weighted average flow temperature	SS1 · 5 min · tF (heat meter, else sensor); heat meter m³/h	[network flow temp] ± 3 °C	Σ(tF · volume) ÷ Σ(volume). Uses design/tFOff	Monthly
SS-KPI-09B	HNTAS · assessed	SS VWAFT (weather-compensated)	SS1 · 5 min · tF (heat meter, else sensor); heat meter m³/h; SS · tF (setpoint, else design)	± 3 °C vs compensated setpoint	as 09A	Monthly
SS-KPI-10A	HNTAS · assessed	SS flow temperature stability	SS1 · 5 min · tF (sensor, else heat meter); SS · tF (setpoint, else design)	≥ 95% within thresholds	1-(out-of-band time/total)	Monthly
SS-KPI-10B	HNTAS · assessed	SS flow temperature stability (weather-comp)	SS1 · 5 min · tF (sensor, else heat meter); SS · tF (setpoint, else design)	≥ 95%	as 10A	Monthly
SS-KPI-11	HNTAS · assessed	SS flow temperature uptime	SS1 · 5 min · tF (sensor, else heat meter)	≥ 98% (99.5% at M4)	time above minimum/total. Uses design/minFlowTempOff	Monthly
SS-KPI-12	HNTAS · assessed	Substation average approach temperature	SS2 · 5 min · heat meter tROff; SS1 · 5 min · heat meter tR	≤ design maximum approach	mean(primary tR - secondary tR). Uses design/maxApproachTemp	Monthly
SS-KPI-13	HNTAS · assessed	SS pressure differential uptime	SS · sensor dP	≥ 99% (99.5% at M4)	time above min dP/total. Uses design/minDPIndex	Monthly
SS-KPI-14	HNTAS · assessed	SS max differential pressure exceedance	SS6 · 5 min · sensor dpOff	100% below max dP	1-time above/total. Uses design/maxDPOff	Monthly
SS-KPI-15	HNTAS · assessed	SS max operating pressure exceedance	SS · sensor pressure	100% below max pressure	1-time above/total. Uses design/maxPressure	Monthly
SS-KPI-16	HNTAS · assessed	SS top-up water volume	SS · water meter m³	≤ 1%/month (0.17% at M4)	make-up/system volume monthly. Uses design/systemVolume	Monthly
SS-KPI-17	HNTAS · assessed	SS distribution pump energy	SS3 · 30 min · electricity meter kWhElectric	< 1% of annual heat throughput	pump electricity sum (excl. shunts). Uses design/kwhAnnualPump	Monthly
Hours below outage limits (alternative to 04/05)						
SS-KPI-H-01	Heatweb	Substation hours below outage limits	SS2 · 5 min · tFOff (sensor, else heat meter); SS5 · 5 min · sensor dpIndex	< 60 h a year, judged on the month pro rata (≈ 4.9 h in 30 days); shorter windows report hours used	Σ_i min(t_{i+1} - t_i, 1 h) over readings with tF < tF_min or dP < dP_min; tF and dP spans unioned. Offered as an alternative to KPI-04/05. Uses design/minFlowTempOff design/minDPIndex	Monthly (pro rata)

Communal Distribution (CD)

Code	Standing	KPI	Monitoring points	Threshold	Calculation	Period
CD-KPI-01	HNTAS · assessed	Communal Distribution ARMS connectivity	all CD points	≥ 99%	received intervals ÷ expected intervals across connected points	Monthly
CD-KPI-02	HNTAS · assessed	Communal Distribution monitoring point data completeness	all CD points	≥ 95%	valid readings ÷ expected readings	Monthly
CD-KPI-03	HNTAS · assessed	Communal Distribution monitoring points operational	all CD points	100% of ARMS-connected points	points with no error/negative/out-of-range values ÷ total points	Monthly
CD-KPI-04	HNTAS · assessed	Communal Distribution unplanned interruptions	CD1 · 30 min · tF (sensor, else heat meter); CD · sensor dP	≤ 3 a year	count of >12h periods below min flow temp OR min dP without 48h notice. Uses design/minDPIIndex	Previous 12 months
CD-KPI-05	HNTAS · assessed	Communal Distribution planned interruptions	CD1 · 30 min · tF (sensor, else heat meter); CD · sensor dP	≤ 1 a year	count of noticed (≥48h) interruptions. Uses design/minDPIIndex	Previous 12 months
CD-KPI-06	HNTAS · assessed	CD network heat loss	CD1 · 30 min · heat meter kWh	per design W/dwelling basis	initiation kWh - Σ(termination kWh), as W/dwelling	Monthly
CD-KPI-07	HNTAS · reported	CD average flow temperature	CD1 · 30 min · tF (sensor, else heat meter)	[expected]	time-weighted mean. Uses design/tF	Monthly
CD-KPI-08	HNTAS · reported	CD average return temperature	CD1 · 30 min · tR (sensor, else heat meter)	[expected]	time-weighted mean. Uses design/tR	Monthly
CD-KPI-09	HNTAS · assessed	CD network bypass flow rate	CD1 · 30 min · heat meter m³/h	[design bypass allowance]	initiation q - Σ(termination q)	Monthly
Hours below outage limits (alternative to 04/05)						
CD-KPI-H-01	Heatweb	Communal Distribution hours below outage limits	CD1 · 30 min · tF (sensor, else heat meter); CD3 · 5 min · sensor dPIIndex	< 60 h a year, judged on the month pro rata (= 4.9 h in 30 days); shorter windows report hours used	Σ_i min(t_{i+1} - t_i, 1 h) over readings with tF < tF_min or dP < dP_min; tF and dP spans unioned. Offered as an alternative to KPI-04/05. Uses design/minFlowTemp design/minDPIIndex	Monthly (pro rata)

Consumer Connection (CC)

Code	Standing	KPI	Monitoring points	Threshold	Calculation	Period
CC-KPI-01	HNTAS · assessed	Consumer Connection ARMS connectivity (aggregated)	all CC points	≥ 90%	received intervals ÷ expected intervals across ALL CC points combined	Monthly
CC-KPI-02	HNTAS · assessed	Consumer Connection data completeness (aggregated)	all CC points	≥ 85%	valid readings ÷ expected readings across all CCs	Monthly
CC-KPI-03	HNTAS · assessed	Consumer Connection monitoring points operational (aggregated)	all CC points	= 100%	points with no error/negative/out-of-range values ÷ total points (two-stage; ALL heat-meter channels tF tR m³ q kW kWh)	Monthly
CC-KPI-04	HNTAS · assessed	Consumer Connection unplanned interruptions	CC1 · 30 min · tF (heat meter, else sensor)	≤ 3 a year	count of unplanned interruptions (≥ 12 h below minimum flow temp)	Previous 12 months
CC-KPI-05	HNTAS · assessed	Consumer Connection planned interruptions	CC1 · 30 min · tF (heat meter, else sensor)	≤ 1 a year	count of planned interruptions (≥ 12 h below minimum flow temp)	Previous 12 months
CC-KPI-06	HNTAS · reported	Consumer Connection heat generation efficiency	CC1 · 30 min · tF (heat meter, else sensor)	≥ 90% of design efficiency target	heat generated at the CC ÷ energy input to the CC	Monthly
CC-KPI-07	HNTAS · assessed	Consumer Connection volume-weighted average return temperature	CC1 · 30 min · tR (heat meter, else sensor); heat meter m³/h	≤ 45 °C	$\Sigma(tR \cdot q) \div \Sigma(q)$ by 5-min buckets	Monthly
CC-KPI-07A	HNTAS · reported	Consumer Connection average return temperature (reported)	CC1 · 30 min · tR (heat meter, else sensor)	expected value	time-average of tR	Monthly
CC-KPI-08	HNTAS · assessed	Consumer Connection volume-weighted average temperature difference (VWATD)	CC1 · 30 min · heat meter kWh, m³	≥ 5 °C (pair: CC-07 or CC-08 must be met)	kWh register delta ÷ (1.163 · m³ register delta)	Monthly
Cooling forms						
CC-KPI-C-01	HNTAS-style · proposed	Consumer Connection cooling ARMS connectivity (aggregated)	CC1 · all cooling meter channels	≥ 90%	Σ intervals received ÷ Σ intervals expected, all cooling CC points combined	Monthly
CC-KPI-C-02	HNTAS-style · proposed	Consumer Connection cooling data completeness (aggregated)	CC1 · all cooling meter channels	≥ 85%	Σ valid readings ÷ Σ expected readings, all cooling CC points combined	Monthly
CC-KPI-C-03	HNTAS-style · proposed	Consumer Connection cooling monitoring points operational (aggregated)	CC1 · 30 min · cooling meter kWh, m³, m³/h, kW, tF, tR	= 100%	points with no error, negative or out-of-range value ÷ points connected with complete data (C-01, C-02); every cooling-meter channel	Monthly
CC-KPI-C-04	HNTAS-style · proposed	Consumer Connection cooling unplanned interruptions	CC1 · 30 min · cooling meter tF	≤ 3 a year	count of unplanned periods ≥ 12 h with chilled flow tF > maximum chilled flow temperature. Uses design/tFMaxCool (proposed)	Previous 12 months
CC-KPI-C-05	HNTAS-style · proposed	Consumer Connection cooling planned interruptions	CC1 · 30 min · cooling meter tF	≤ 1 a year	count of planned periods ≥ 12 h with chilled flow tF > maximum chilled flow temperature. Uses design/tFMaxCool (proposed)	Previous 12 months
CC-KPI-C-07	HNTAS-style · proposed	Consumer Connection cooling volume-weighted average return temperature	CC1 · 30 min · cooling meter tR, m³/h	≥ design cooling return – 2 °C (proposed; pair: C-07 or C-08 must be met)	$\Sigma(tR \cdot q) \div \Sigma q$ over 5-minute buckets. Uses design/tRCool (proposed)	Monthly
CC-KPI-C-07A	HNTAS-style · reported · proposed	Consumer Connection cooling average return temperature (reported)	CC1 · 30 min · cooling meter tR	expected value	$\Sigma tR \div n$ (time average)	Monthly
CC-KPI-C-08	HNTAS-style	Consumer Connection cooling volume-weighted average temperature difference	CC1 · 30 min · cooling meter kWh, m³	≥ 4 °C (proposed; pair: C-07 or C-08 must be met)	$\Delta T = \Delta E \div (1.163 \cdot \Delta V)$; $\Delta E, \Delta V$ = register deltas over the period (kWh, m³)	Monthly
Meter health						
CC-KPI-M-01	Heatweb	Meter reporting (not silent)	CC1 · 30 min · heat meter kWh; cooling meter kWh	last reading within 72 h of period end	a reading on every meter within the last 72 h of the period	Rolling 7 days; month
CC-KPI-M-02	Heatweb	Meter channel coverage	CC1 · 30 min · heat meter kWh, m³, m³/h, kW, tF, tR	6 of 6 channels	channels with ≥ 1 reading among kWh, m³, m³/h, kW, tF, tR (the fewest on any of the dwelling's meters)	Rolling 7 days; month
CC-KPI-M-03	Heatweb	Meter reading cadence	CC1 · 30 min · heat meter kWh; cooling meter kWh	≥ 0.9 readings per day	energy-register readings ÷ days in period	Rolling 7 days; month

Code	Standing	KPI	Monitoring points	Threshold	Calculation	Period
CC-KPI-M-04	Heatweb	Register integrity	CC1 · 30 min · heat meter kWh; cooling meter kWh	0 faults	days with $\Delta E < 0$ (register stepped back) or $\Delta E > 500$ kWh (implausible jump), all the dwelling's meters	Rolling 7 days; month
CC-KPI-M-05	Heatweb	Plausible temperature difference	CC1 · 30 min · heat meter kWh, m ³ ; cooling meter kWh, m ³	$0\text{ °C} \leq \Delta T \leq 80\text{ °C}$	$\Delta T = \Delta E \div (1.163 \cdot \Delta V)$ within bounds; outside = scaling, units or a replaced meter	Rolling 7 days; month
CC-KPI-M-06	Heatweb	Flow comes to rest (no constant flow)	CC1 · 30 min · heat meter m ³ /h; cooling meter m ³ /h	$\geq 2\%$ of flow readings at zero	readings with $q = 0$ ÷ all q readings, per meter (needs ≥ 6 readings); below target = flow never at rest: bypass or control fault	Rolling 7 days; month
CC-KPI-M-07	Heatweb	No low temperature difference at volume	CC1 · 30 min · heat meter kWh, m ³ ; cooling meter kWh, m ³	heat: not ($\Delta T < 5\text{ °C}$ and > 150 L/day); cooling: not ($\Delta T < 2\text{ °C}$ and $> 1,000$ L/day)	$\Delta T = \Delta E \div (1.163 \cdot \Delta V)$; L/day = $1000 \cdot \Delta V \div \text{days}$	Rolling 7 days; month
CC-KPI-M-08	Heatweb	No simultaneous heating and cooling	CC1 · 30 min · heat meter kWh; cooling meter kWh	$< 30\%$ of active days	days with heat $\Delta E > 0.5$ kWh and cooling $\Delta E > 0.5$ kWh ÷ days with either	Rolling 7 days; month
CC-KPI-M-09	Heatweb	Load follows demand (no flat load)	CC1 · 30 min · heat meter kWh	$CV \geq 0.2$	$CV = \sigma \div \mu$ of daily heat ΔE over ≥ 7 days, applied when $\mu > 2$ kWh/day; below target = constant load: control fault	Rolling 7 days; month
CC-KPI-M-10	Heatweb · reported	Consumption band (reported)	CC1 · 30 min · heat meter kWh, m ³ ; cooling meter kWh, m ³	low: < 2 kWh/day and < 40 L/day; high: $> \max(15\text{ kWh/day}, 2 \times \text{site median})$	daily ΔE and ΔV compared with the site's median dwelling	Rolling 7 days; month
CC-KPI-M-11	Heatweb · reported	Cooling offset by heating (24 h overlap)	CC1 · 30 min · heat meter kWh; cooling meter kWh	expected value (reported; site-wide figure on the combined element)	$\Sigma_d \min(\Delta E_heat,d, \Delta E_cool,d) \div \Sigma_d \Delta E_cool,d$ over the period's days	Rolling 7 days; month