

EZASSI SIGNALS

Data Center Waste-Heat Reuse

Commercial Signals · September 2026

A Commercial watch on whether data center waste heat is becoming a bought, contracted resource: named offtakers, utility heat-pump builds, long-term heat purchase contracts, the specialist equipment supply chain, and the EU and German mandates behind them. Seven signals from one cycle.

#	SIGNAL	CONFIDENCE	HORIZON	STATUS
1	Finland has become the world's densest cluster of operating/contracted hyperscale data center heat reuse projects, with at least six named-offtaker deals active or commissioning across five cities	High	Immediate (0–3 months)	Verified
2	Utilities are now commissioning large heat pump infrastructure before hyperscale data centers are operational, inverting the traditional 'build the heat source first' sequencing	Medium	Short-term (3–12 months)	Review
3	Data center waste heat is crossing a material threshold — covering 40% to more than 80% of entire city-level district heating demand in multiple operating projects, not just marginal contributions	High	Immediate (0–3 months)	Verified
4	Multi-decade heat purchase contracts (15–25 years) are emerging as the standard commercial structure for data center heat offtake, locking in both utility planning and data center operator obligations at timescales comparable to power purchase agreements	Medium	Short-term (3–12 months)	Inconclusive
5	EU and German regulatory mandates for data center waste heat reuse have moved from proposal to enforcement, creating a structural legislative pipeline for new heat offtake projects across all EU member states from mid-2026 onward	High	Short-term (3–12 months)	Review
6	A specialist industrial heat pump supply chain — distinct from residential heat pump manufacturers — has mobilized around data center heat reuse, with at least five named OEMs or engineering contractors winning specific, contracted project roles across the Nordic and German markets	Medium	Short-term (3–12 months)	Verified
7	Mainova's two operating German projects demonstrate a replicable utility-led contracting model for data center waste heat — but continental Europe outside Germany shows almost no equivalents at the contracted project level, revealing a significant market gap relative to the Nordic cluster	Medium	Long-term (1–3 years)	Inconclusive

Every signal rests on two or more dated events. Confidence is published as a band. Where a signal sits below High, the reasoning names the evidence that is missing. Status says where the evidence stands: Verified, Review, or Inconclusive — we looked, and the evidence does not yet support a firmer call.

SIGNAL 1 OF 7

Finland has become the world's densest cluster of operating/contracted hyperscale data center heat reuse projects, with at least six named-offtaker deals active or commissioning across five cities

HIGH Immediate (0–3 months) · Commercial & Market Signals · **Verified**

Multiple independent projects — involving Microsoft, Google, and Borealis as heat sources and Fortum, Loiste, Haminan Energia, Helen, and Seinäjoki Energia as utility offtakers — have moved from announcement to commissioning or operation across Finnish cities within a 24-month window, establishing Finland as the global reference market for this model.

REASONING

Six distinct projects — each with a named data center operator AND a named utility/district heating offtaker AND a large heat pump — are documented in Finland alone. These are not clustered around a single operator or city: they span Espoo, Kirkkonummi, Kajaani (two separate projects), Hamina, Helsinki, and Seinäjoki. The independence of the sources (utility press releases, OEM announcements, engineering contractor announcements, industry trade press) across different parties makes this a genuine geographic market concentration pattern rather than a reporting artifact. No other country comes close in the findings.

PATTERN

Fortum commissioned large-scale heat pump plants at Kolabacken (Kirkkonummi) and Hepokorpi (Espoo) on 7 May 2026, explicitly linked to Microsoft data centers and Fortum's district heating network. Caverion announced a 30 MW heat pump plant in Kajaani recovering data center waste heat for the Kajaani district heating network, with first modules commissioned May 2026. Borealis Data Center and public utility Loiste Lämpö Oy signed a named agreement to recover waste heat from Borealis' Kajaani campus into Loiste's heat pump facility and district heating network. Nohewa reported a contracted heat pump plant for Haminan Energia recovering Google's Hamina data center waste heat, with operation targeted for end-2025. Helen and OnZero signed an agreement to use waste heat from a new Helsinki data center in Helen's district heating network, with recovery scheduled to begin in 2027. Calefa documented an operating installation where MinersLoop sells data center waste heat via an AmbiHeat heat pump plant to Seinäjoki Energia's district heating network.

IMPLICATION

Finland is functioning as a live proof-of-concept market at scale. Any operator, utility, or policy body evaluating the commercial and technical feasibility of data center heat reuse now has multiple independent Finnish references to draw on — across different city sizes, different hyperscalers, and different heat pump suppliers. This accelerates replication elsewhere and sets a benchmark against which other markets will be compared.

RECOMMENDED ACTION

Commission a structured field review of the Finnish project portfolio — focusing on contract structures, heat pump supplier selections, and district heating network integration approaches — to extract replicable design patterns and commercial terms before targeting similar opportunities in other EU markets.

SOURCES & WHAT THEY SIGNAL

- [Large-scale heat pumps utilize excess heat from Microsoft data centers in Finland \(pv-magazine\)](#) — Confirms Fortum commissioned large-scale heat pump plants in May 2026 linked to Microsoft data centers and district heating, with recovered heat expected to cover approximately 40% of the area's 2 TWh annual district heating demand for approximately 250,000 heat users
- [Caverion to deliver a 30-megawatt heat pump plant in Kajaani, Finland](#) — Names Caverion as contractor and Kajaani district heating network as offtaker for a 30 MW plant; first 12 MW modules commissioned May 2026, remaining 18 MW targeted for 2027; waste heat expected to cover more than 80% of regional district heating demand
- [Borealis and Loiste sign waste heat reuse agreement in Kajaani, Finland](#) — Names Borealis Data Center as heat source operator and Loiste Lämpö Oy as utility offtaker, with waste heat integrated into the local district heating network via Loiste's heat pump facility
- [Heat recovery for Haminan Energia and Google data center in Hamina \(Nohewa\)](#) — Confirms Haminan Energia as the utility offtaker of Google Hamina data center waste heat via a new Nohewa-supplied industrial-scale heat pump plant, with operation targeted for end-2025
- [Helen to use waste heat from new data center in Helsinki's district heating network](#) — Names Helen and OnZero as parties to a signed waste heat offtake agreement for a new Helsinki data center, with recovery scheduled from 2027 and potential supply of more than 500,000 MWh annually
- [Utilizing Data Center Waste Heat with World-Class Efficiency \(Calefa\)](#) — Documents an operating installation where MinersLoop sells data center waste heat via an AmbiHeat heat pump plant to Seinäjoki Energia's district heating network — a named operator-to-utility sale

SIGNAL 2 OF 7

Utilities are now commissioning large heat pump infrastructure before hyperscale data centers are operational, inverting the traditional 'build the heat source first' sequencing

MEDIUM Short-term (3–12 months) · Infrastructure & Supply Chain Signals · Review

Fortum commissioned its Kolabacken heat pump plant in May 2026 while Microsoft's data centers remain under development, and a separate Tricon/Suvic contract was awarded in 2023 to build Kirkkonummi waste-heat plant infrastructure targeting winter 2025-2026 heat delivery — establishing a new pattern where district heating utilities lead capital deployment ahead of the data center anchor tenant.

REASONING

The inversion of sequencing is explicitly stated in two independent sources: the DataCenter Dynamics article says Fortum's plants 'will initially use ambient air and electric boilers, then switch to data center waste heat once the Microsoft sites are fully operational', and the Fortum/Insta source confirms commissioning of electrification for plants designed around Microsoft data centers that are still under development. The Tricon/Suvic contract was awarded September 2023 for a plant in the same Kirkkonummi data center zone, targeting heat delivery from winter 2025-2026. This is analytically significant: utilities bearing capital risk ahead of the heat source implies long-term offtake agreements with sufficient certainty to justify infrastructure investment — a market maturity marker that goes beyond opportunistic retrofits.

PATTERN

Fortum commenced operations at Kolabacken (Kirkkonummi) and at a second large-scale heat pump plant in the Espoo area on 7 May 2026, with the plants described as designed to use excess heat from 'two Microsoft data centers currently under development,' meaning the utility-side infrastructure was commissioned before the data center heat source was operational. Insta confirmed delivery of electrification to both Espoo and Kirkkonummi plants reusing data center waste heat. Tricon and Suvic received a contract in September 2023 to construct a waste-heat power plant in the Kirkkonummi data center zone for Fortum's district heating system, targeting heat delivery from winter 2025-2026. Oilon was selected in November 2023 as heat pump supplier for the same Helsinki-area Microsoft complex, with Fortum as the commissioning party.

IMPLICATION

Utilities willing to commission heat pump infrastructure before the data center anchor tenant is online signals that long-term contractual certainty — not just technical feasibility — has been achieved at the deal level. This pattern, if it replicates, makes heat reuse a planning input for district heating capacity strategy rather than an add-on, and it raises the bar for what 'contracted' means: utilities are now accepting construction-phase exposure against future data center heat output.

RECOMMENDED ACTION

Map the contractual structures enabling utility-led pre-commissioning — specifically what performance guarantees, phased payment, or minimum heat delivery obligations make this capital sequencing viable — to identify whether similar structures can be replicated in markets outside Finland.

SOURCES & WHAT THEY SIGNAL

- **Fortum starts operations at two heat pump plants tied to Microsoft district heating scheme (DataCenter Dynamics)** — Explicitly states plants will initially use ambient air and electric boilers then switch to Microsoft data center waste heat once the data centers are operational — confirming utility infrastructure was commissioned before the data center heat source
- **Fortum to select Oilon as the heat pump supplier for heat recovery from a major data center complex** — Documents the 2023 supplier contract award to Oilon for heat pumps serving the Microsoft/Fortum Helsinki-area scheme, establishing the contracted supply chain timeline ahead of data center completion
- **Tricon and Suvic to construct waste-heat-to-energy plant for Fortum's district heating system in Kirkkonummi (Nasdaq OMX)** — September 2023 contract award for waste-heat power plant in Kirkkonummi data center zone for Fortum's district heating, targeting heat delivery from winter 2025-2026 — a second independent contractor engaged ahead of data center completion

SIGNAL 3 OF 7

Data center waste heat is crossing a material threshold — covering 40% to more than 80% of entire city-level district heating demand in multiple operating projects, not just marginal contributions

HIGH Immediate (0–3 months) · Commercial & Market Signals · **Verified**

Three independent, operating or commissioned projects now document data center waste heat covering substantial fractions of municipal heating demand: the Fortum-Microsoft system targeting approximately 40% of a 2 TWh annual demand, the Kajaani 30 MW plant targeting more than 80% of regional demand, and the Meta-Fjernvarme Fyn Odense system injecting approximately 45 MW continuously — collectively indicating that data centers are becoming primary, not supplementary, heat sources in specific cities.

REASONING

The 'materiality threshold' signal requires that the contribution be large enough to affect utility planning, not just be a welcome addition. Three independent sources state supply-share figures directly: pv-magazine quotes Fortum's own executive stating approximately 40% of 2 TWh annual demand for approximately 250,000 heat users; Caverion's press release states more than 80% of annual district heating demand in the Kajaani region; and Ramboll states approximately 45 MW continuously for the Meta/Odense system. These figures come from primary utility and engineering sources, not analysts, and they are consistent across independent corroborating sources in the Odense case. At these supply shares, data center heat becomes a planning dependency, not an optional supplement — utilities must manage what happens if the data center reduces load or closes.

PATTERN

Fortum's own executive vice president is quoted stating that recovered heat from Microsoft data centers is expected to cover approximately 40% of the total 2 TWh annual district heating demand for approximately 250,000 heat users in the Espoo/Kauniainen/Kirkkonummi area; mgrid.org similarly cites 350 MW capacity serving approximately 250,000 residents. Caverion's press release states the 30 MW Kajaani plant's waste heat is expected to cover more than 80% of the annual district heating demand in the Kajaani region. Ramboll states the Meta/Odense plant injects approximately 45 MW of heat into Odense's district heating network (published annual energy figures differ between sources and are not relied on here). DESMI's customer story corroborates the Fjernvarme Fyn/Meta operational setup.

IMPLICATION

When data center heat covers 40–80% of a city's heating demand, the data center becomes critical infrastructure for the heating grid — and vice versa. This creates a bilateral dependency that changes both the risk profile of district heating planning (exposure to hyperscaler capacity decisions) and the leverage position of data center operators (heat revenue as a partial offset to energy costs). Monitoring whether this supply-share trend continues in new projects is now essential.

RECOMMENDED ACTION

Track the heat supply-share metric (data center heat as a percentage of total district heating demand) as a leading indicator of market maturity in each geography — and flag any new projects where this share exceeds 20%, as those cities are entering bilateral dependency territory.

SOURCES & WHAT THEY SIGNAL

- [Large-scale heat pumps utilize excess heat from Microsoft data centers in Finland \(pv-magazine\)](#) — Quotes Fortum's executive vice president stating recovered heat expected to cover approximately 40% of the total 2 TWh annual district heating demand for approximately 250,000 heat users
- [Caverion to deliver a 30-megawatt heat pump plant in Kajaani, Finland](#) — States that waste heat from data centers is expected to cover more than 80% of the annual district heating demand in the Kajaani region — the highest supply-share figure found in the findings
- [Meta: surplus heat to district heating \(Ramboll project page\)](#) — States the Meta/Odense plant will recover 215,000 MWh and inject approximately 45 MW into Odense's district heating network via ammonia heat pumps raising temperature to 70-75°C

SIGNAL 4 OF 7

Multi-decade heat purchase contracts (15–25 years) are emerging as the standard commercial structure for data center heat offtake, locking in both utility planning and data center operator obligations at timescales comparable to power purchase agreements

MEDIUM Short-term (3–12 months) · [Commercial & Market Signals](#) · Inconclusive

At least three independent contracted projects — two in Germany and one in Sweden — are structured around 15- to 25-year heat supply agreements, suggesting that the commercial model for data center heat reuse is converging on long-duration bilateral contracts that resemble power purchase agreement structures.

REASONING

Three independent long-duration contracts are documented in the findings across two countries, with durations explicitly stated in primary sources: 15 years for Mainova-Telehouse, 15 years for Mainova-NTT Hattersheim, and 25 years for Scandinavian Data Centers-Eskilstuna Energi och Miljö. The Bytes2Heat best-practice overview, which is an industry survey document rather than a single company's marketing, independently cites the 15-year Mainova-Telehouse contract. The convergence on multi-decade terms across independent deals in Germany and Sweden is analytically meaningful — it suggests that the contract duration required to justify heat pump capital expenditure on the utility side is settling around 15 years as a floor.

PATTERN

Mainova's 15-year Wärmeliefervertrag (heat supply contract) with Telehouse for the Westville/'franky' residential quarter in Frankfurt is cited in both the DENEFF Bytes2Heat best-practice overview and the Haufe industry publication, with Mainova's own reference page confirming at least 36,000 MWh of waste heat to be utilized over 15 years and at least 60% of required heat from the neighboring data center. Mainova-NTT Hattersheim is documented with a 15-year Mainova-Contracting term; the Wärmepumpenverband blog confirms large heat pumps have been supplementing the local heat supply since 2025. Scandinavian Data Centers and Eskilstuna Energi och Miljö signed a 25-year agreement on residual heat recovery from a new data center in Eskilstuna, with up to 10 MW recoverable in the long term.

IMPLICATION

Long-duration heat purchase contracts change the risk calculus for both parties: utilities gain stable, low-cost heat baseload that can support decarbonization commitments; data centers gain a partial revenue stream and sustainability narrative that offsets energy cost exposure. For market entrants, the 15-year floor on contract duration also signals that this is not a spot-market product — any new project needs to be evaluated against decade-scale revenue and technology lock-in assumptions.

RECOMMENDED ACTION

Analyze the contract structures of the Mainova-Telehouse and Mainova-NTT deals in detail — specifically pricing mechanisms, performance guarantees, and exit provisions — as templates for structuring heat offtake agreements in new markets where no standard form yet exists.

SOURCES & WHAT THEY SIGNAL

- [Mainova reference: Quartier Westville / franky — Wärme aus der Nachbarschaft](#) — Mainova's own reference page confirms a 15-year contracting model with Telehouse, at least 36,000 MWh of waste heat over 15 years, and at least 60% of required heat from the data center
- [Bytes2Heat Best-Practice Overview \(DENEFF / IER Stuttgart\)](#) — Independent industry survey document citing the 15-year Wärmeliefervertrag between Mainova and Telehouse, and noting that commercial viability currently depends on zero-cost waste heat
- [NTT Global Data Centers liefert Abwärme und Mainova bringt diese auf Heiztemperatur \(DataCenter Insider\)](#) — Documents the 15-year Mainova-Contracting structure with NTT, large heat pumps raising ~30°C data center waste heat to 70-75°C for local heating network, serving more than 600 households
- [Scandinavian Data Centers signs 25-year agreement on waste heat recovery](#) — Names Scandinavian Data Centers and Eskilstuna Energi och Miljö as parties to a 25-year waste heat recovery agreement for a new Eskilstuna data center, with up to 10 MW recoverable — establishing the upper end of documented contract duration

SIGNAL 5 OF 7

EU and German regulatory mandates for data center waste heat reuse have moved from proposal to enforcement, creating a structural legislative pipeline for new heat offtake projects across all EU member states from mid-2026 onward

HIGH Short-term (3–12 months) · Regulatory & Policy Signals · Review

EED Article 26(6) — requiring data centers above 1 MW to utilize waste heat unless infeasibility is demonstrated — entered force for EU member states, while Germany's EnEfG imposed mandatory minimum energy-reuse fractions (10% from 1 July 2026, rising to 20% by 1 July 2028) and waste heat disclosure obligations to district heating planners, together converting what was previously voluntary best practice into legal obligation.

REASONING

This signal rests on two distinct regulatory layers — EU-level and German national — each documented in primary legal and policy sources. The EED Article 26(6) requirement is cited in the CA-EED official briefing document and corroborated by the EHPA report. The EnEfG mandatory percentage thresholds and disclosure obligations are cited in the Bright & Green legal summary and independently confirmed in the Bird & Bird legal overview. Commission Delegated Regulation 2024/1364 formalizes measurement and reporting requirements. The convergence of EU-level 'utilize or justify infeasibility' obligations with German national minimum percentage mandates — effective from 1 July 2026 for new data centers — represents a genuine regulatory step-change that will force new project pipelines regardless of voluntary market momentum. Confidence is not higher because the findings do not yet document new projects explicitly triggered by these mandates (as opposed to pre-existing market-driven deals).

PATTERN

EU Energy Efficiency Directive (EU/2023/1791) Article 26(6) requires Member States to ensure data centers above 1 MW utilize waste heat or demonstrate technical/economic infeasibility, with Article 26(7) requiring cost-benefit analyses for newly planned or substantially refurbished installations. Commission Delegated Regulation (EU) 2024/1364 (14 March 2024) specifies measurement methodology for 'Waste heat reused (EREUSE)' under CEN/CENELEC EN 50600-4-6 and sets reporting deadlines for operators above 500 kW. Germany's EnEfG Section 11(2) mandates minimum energy-reuse fractions for new data centers: 10% from 1 July 2026, 15% from 1 July 2027, 20% from 1 July 2028. EnEfG also requires data centers to disclose waste heat quantity, output, load profile, and temperature to heating network operators on request, with annual reporting to the Federal Energy Efficiency Office. A Frankfurt municipal policy document (ST_334_2025, March 2025) frames these mandates in local planning terms; according to that document, large heat pumps are described as a required technology to raise data center waste heat for integration into the Fernwärme system, though the specific temperature parameters cited in that document (approximately 35°C input, 80–120°C output) could not be independently verified in public sources as of September 2026 and should be confirmed against the source before reliance.

IMPLICATION

The regulatory pipeline is now legislative, not aspirational. Any new German data center commissioned after 1 July 2026 must contract for waste heat offtake or face non-compliance. EU-wide, any data center above 1 MW must either document utilization or prove infeasibility — shifting the default from 'opt-in' to 'opt-out requires justification.' This will drive a wave of new heat purchase agreements and utility partnerships in Germany and across the EU over the next 12-24 months, creating procurement opportunities for heat pump OEMs and engineering firms with proven project references.

RECOMMENDED ACTION

Map all new data center development applications filed in Germany after 1 July 2026 against the EnEFG 10% reuse mandate — these represent the first mandatory-compliance project pipeline — and identify which local district heating operators are positioned to receive that heat.

Editor's note: on 24 June 2026 the German cabinet approved an EnEFG amendment that replaces the fixed reuse quotas with a cost-benefit test, extends the period from two to four years and widens exemptions. The first Bundestag reading is scheduled for 24 September 2026. The fixed percentages above may not survive in their current form.

SOURCES & WHAT THEY SIGNAL

- [CA-EED briefing: Fit for 55 / Energy Efficiency Directive Article 26](#) — Official EU Member State coordination document confirming EED Article 26(6) requires data centers above 1 MW to utilize waste heat or demonstrate infeasibility — the primary EU regulatory obligation
- [Data centre waste heat and Germany's Energy Efficiency Act \(Bright & Green\)](#) — Summarizes EnEFG Section 11(2) mandatory energy-reuse fractions (10%/15%/20% from 2026/2027/2028) and the waste heat disclosure obligation to heating network operators and the Federal Energy Efficiency Office
- [Rechenzentren und Abwärme — Bird & Bird legal overview](#) — Independent legal overview confirming EnEFG energy efficiency and waste heat reuse thresholds for data centers commissioned after 1 July 2026
- [Commission Delegated Regulation \(EU\) 2024/1364](#) — Formalizes measurement and reporting requirements for waste heat reused (EREUSE) from data centers, with deadlines for operators above 500 kW — creating the reporting infrastructure that makes compliance monitorable

SIGNAL 6 OF 7

A specialist industrial heat pump supply chain — distinct from residential heat pump manufacturers — has mobilized around data center heat reuse, with at least five named OEMs or engineering contractors winning specific, contracted project roles across the Nordic and German markets

MEDIUM Short-term (3–12 months) · Infrastructure & Supply Chain Signals · Verified

Oilon, Caverion, Nohewa, IESenergy (with Mayekawa compressors and Alfa Laval heat exchangers), and Trane have each been named in separate, contracted or operating data center heat reuse projects with identified offtakers, indicating that a dedicated industrial heat pump supply chain for this application is now commercially active.

REASONING

Five distinct supplier firms appear in primary source documents (supplier press releases, OEM case studies, engineering contractor announcements) for specific contracted or operating projects — not as generic product marketers. Each is named in a different project: Oilon for the Microsoft/Fortum Helsinki-area complex; Caverion for the Kajaani 30 MW plant; Nohewa for the Google/Haminan Energia Hamina plant; IESenergy with Mayekawa and Alfa Laval for the Meta/Odense Fjernvarme Fyn installation; and Trane XStream RTWF units for the Infomaniak/Geneva residential district. This breadth of independent supplier engagements — across different geographies and different project scales — suggests a supply chain that is no longer prototype-stage. However, confidence is not higher because the findings provide limited visibility into delivery backlogs, lead times, or capacity constraints that would reveal supply chain stress.

PATTERN

Oilon was selected by Fortum as heat pump supplier for heat recovery from the Microsoft data center complex in the Helsinki metropolitan area, described on the Oilon page as potentially the largest such system in the world at the time. Caverion is delivering a 30 MW heat pump plant in Kajaani recovering data center waste heat for the district heating network, with first two 12 MW modules commissioned May 2026. Nohewa is supplying the industrial-scale heat pump plant for Haminan Energia recovering Google's Hamina data center waste heat. IESenergy designed and delivered industrial heat pumps using Mayekawa screw compressors and Alfa Laval semi-welded plate heat exchangers (as evaporators, condensers, subcoolers, and oil coolers) for the Meta/Fjernvarme Fyn Odense installation, recovering 100,000 MWh per year. Trane supplied two XStream RTWF heat pump units for Infomaniak's D4 data center in Geneva, raising server heat from 45°C to 67°C in summer and up to 85°C in winter, with the system feeding a nearby residential district's heating network.

IMPLICATION

The diversification of the industrial heat pump supply chain across multiple specialist firms — rather than concentration in one or two dominant suppliers — is a positive signal for project pipeline scalability. It also creates competitive pressure that may reduce equipment costs and lead times over the next 12–24 months.

For project developers and utilities evaluating new heat reuse schemes, supplier selection is now a genuine market decision rather than a sole-source situation.

RECOMMENDED ACTION

Build a supplier capability matrix covering at least Oilon, Caverion, Nohewa, IESenergy, Trane, and Alfa Laval — mapping their documented temperature ranges, capacity envelopes, and project references — to support OEM selection for new project evaluations.

SOURCES & WHAT THEY SIGNAL

- [Fortum to select Oilon as the heat pump supplier for heat recovery from a major data center complex](#) — Names Oilon as selected heat pump supplier for the Fortum/Microsoft Helsinki-area district heating scheme — a supplier contract award, not a concept
- [Caverion to deliver a 30-megawatt heat pump plant in Kajaani, Finland](#) — Names Caverion as engineering contractor and documents first 12 MW modules commissioned May 2026 — a concrete supply chain execution record
- [Heat recovery for Haminan Energia and Google data center in Hamina \(Nohewa\)](#) — Names Nohewa as industrial-scale heat pump supplier to Haminan Energia for Google Hamina waste heat recovery, with operation targeted end-2025
- [Waste heat from Odense data center to warm local community \(Alfa Laval\)](#) — Documents IESenergy as heat pump system designer/supplier with Mayekawa compressors and Alfa Laval heat exchanger components for the Meta/Fjernvarme Fyn Odense installation, recovering 100,000 MWh per year
- [Infomaniak Data Centre in Geneva — Trane press release details](#) — Names Trane XStream RTWF as the heat pump units in the Infomaniak D4 Geneva data center, with combined capacity of 3.2 MW feeding the city's heating grid

SIGNAL 7 OF 7

Mainova's two operating German projects demonstrate a replicable utility-led contracting model for data center waste heat — but continental Europe outside Germany shows almost no equivalents at the contracted project level, revealing a significant market gap relative to the Nordic cluster

MEDIUM Long-term (1–3 years) · Commercial & Market Signals · Inconclusive

Mainova has built the only clearly documented pair of operating German data center heat reuse projects with named offtakers, large heat pumps, and multi-year contracts (Telehouse/Westville Frankfurt and NTT Hattersheim), while the broader continental European market — including Spain, France, and the Netherlands — shows no comparable contracted projects in the current findings, indicating that regulatory mandates are ahead of commercial execution outside Germany and the Nordics.

REASONING

The two Mainova projects are well-documented across multiple independent sources (Mainova's own reference page, DENEFF Bytes2Heat, Haufe, DataCenter Insider, Wärmepumpenverband) and the NTT Hattersheim system is confirmed operational since 2025. These are genuine operating references. The contrast with the rest of continental Europe is drawn from the findings' explicit statement that no comparable contracted projects were found for A2A, Vattenfall Wärme, E.ON, or Equinix in continental Europe outside Germany. However, confidence is not higher because the absence of other documented projects in the findings is a property of the search retrieval, not a definitive statement about what projects may exist but not yet be publicly documented — and because the signal depends partly on what was not found.

PATTERN

Mainova-Telehouse 15-year Wärmeliefervertrag for the Westville/'franky' quarter in Frankfurt is documented as operational, with at least 60% of heat from the data center and large heat pumps each delivering 320 kWth raising ~35°C waste heat to ~70°C. Mainova-NTT Hattersheim is documented as operational since 2025, with large heat pumps raising ~30°C waste heat to 70–75°C for more than 600 households via a 15-year Mainova-Contracting structure. The Bytes2Heat best-practice overview cites the Mainova-Telehouse project as a flagship German reference for data center waste heat to district heating. The research findings explicitly state that no sources were found documenting operating or contracted data center waste heat projects with named offtakers for A2A in Italy, Vattenfall Wärme, or Equinix in continental Europe meeting the same criteria. The nLighten Stuttgart deal (approximately 1.8 MW, signed February 2026) and the Mainova-Data4 Hanau letter of intent (2024) represent the next tier in Germany — contracted but smaller scale or pre-contract stage respectively.

IMPLICATION

Mainova's playbook — utility as contractor, 15-year term, large heat pumps, zero-cost waste heat from data center — is documented well enough to be replicated by other German municipal utilities. The gap between German and broader continental European execution suggests that utility appetite and institutional capacity,

not just regulation, are rate-limiting factors. Non-German EU utilities that want to develop this market have a replicable template but need the organizational capability to structure and operate heat pump contracting businesses.

RECOMMENDED ACTION

Evaluate whether Mainova's contracting model (utility bears heat pump capital and operates the system; data center supplies waste heat at zero cost; residential quarter or industrial customer is the end offtaker) can be adapted for other German municipal utilities — specifically those in cities with both growing data center clusters and district heating decarbonization commitments.

Editor's note: A2A and Equinix announced a 72 MW (about 225 GWh) waste-heat collaboration in Milan on 2 July 2026. Contract status is not stated, so Italy is removed from the list of markets with no comparable projects.

SOURCES & WHAT THEY SIGNAL

- [Mainova reference: Quartier Westville / franky](#) — Primary utility reference confirming at least 60% of heat from Telehouse data center, 15-year contract, two 320 kWth large heat pumps, and 6,000 tonnes CO2 avoided over contract life
- [Abwärme aus einem Rechenzentrum für Hattersheim am Main \(Wärmepumpenverband blog\)](#) — August 2026 confirmation that the Mainova-NTT large heat pumps have been supplementing local heat supply since 2025 — establishing operational status, not just contractual status
- [NTT Global Data Centers liefert Abwärme und Mainova bringt diese auf Heiztemperatur \(DataCenter Insider\)](#) — Documents the NTT Hattersheim project structure: 15-year Mainova-Contracting, two large heat pumps at 30°C to 70-75°C, more than 600 households served, commissioning targeted end-2024/early 2025
- [Bytes2Heat Best-Practice Overview \(English version, IER Stuttgart\)](#) — Independent industry survey citing the Mainova-Telehouse project as a German best-practice reference, and noting that current commercial viability depends on zero-cost waste heat from the data center

PUT A WATCH ON YOUR QUESTION

A watch on your question runs every cycle.

These signals came from one cycle of a standing watch. Name a company, a market or a regulation, and the watch keeps running whether or not anyone opens the platform. Every signal arrives rated for confidence and horizon, with the dated events behind it and the sources that carry the weight.

See all the samples and tell us your question at ezassi.com/ezassi-signals-sample-library.

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