

GREEN POWER IN. GREEN HEAT OUT. ONE LOOP.

DATA CENTRE HEAT, REBORN AS FACTORY HEAT.

jouleWise delivers low-cost green power to the data centre's doorstep, then uses heat pumps to lift the warm water returning from its cooling loop into hot water and low-pressure steam for the factory next door. The data centre is cooled, the factory is heated, and every 15-minute block is metered, dispatched and reported on one platform.

~6 kWh

USEFUL HEATING + COOLING
PER KWH OF POWER

≤120 °C

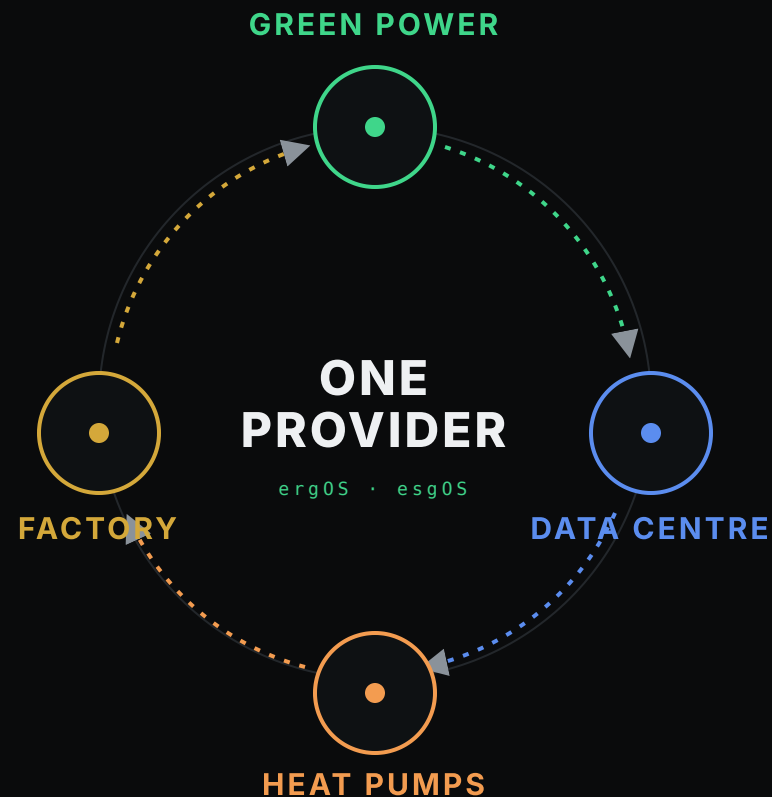
HOT WATER AND LP STEAM
FOR THE FACTORY

15-min

METERED HEARTBEAT
ON ERGOS

1

ACCOUNTABLE PROVIDER
FOR BOTH SITES



JOULEWISE / THE DECARBONISATION STACK

ONE PROVIDER FOR THE WHOLE FOOTPRINT.

jouleWise takes a site's power, fuel, diesel and ESG reporting and runs them as one metered, green, provable system. Four layers, built in-house, from one accountable team. No hand-off between the person who promises the saving and the person who has to deliver it.

LAYER 01 · POWER

GREEN POWER

Intrastate and ISTS solar and wind, rooftop solar, BESS and green-market purchase, each orchestrated to meet demand at least cost. ABT metering and substations to 220 kV through jouleWise Infra Services.

LAYER 02 · HEAT

GREEN HEAT

Industrial heat pumps to 120 °C, waste-heat recovery and thermal storage. Delivered as Heat Advisory, or as Heat as a Service where the client pays per unit of heat.

LAYER 03 · DATA

ERGOS

15-minute metering of power, heat, fuel and water. 96-block forecasting, SLDC scheduling, DAM/GDAM/RTM/GTAM trading, and dispatch of BESS, heat pumps and stores against price.

LAYER 04 · ESG

ESGOS

The same metered data turned into GHG Protocol Scope 1, 2 and 3, BRSR Core-format, CBAM, CCTS and CDP disclosure, run by a deterministic rule engine with an audit trail.

up to 25%

LOWER POWER COST VS
DISCOM TARIFF*

up to 65%

RENEWABLE SHARE
ACHIEVED*

~1 GW

RE-100 STUDY SCOPE,
8 INDUSTRIAL GROUPS

15+ · 20+

STATE JURISDICTIONS ·
YEARS IN ENERGY

*Reported C&I client impact, year 1 of ergOS. Results vary with state, tariff structure and load profile. ISO 9001:2015 · ISO 27001.

THE PROBLEM / HEAT THROWN AWAY NEXT TO HEAT BOUGHT IN

ONE SITE DUMPS THE HEAT. THE OTHER SITE BUYS IT.

THE DATA CENTRE

PAYS TWICE FOR THE SAME KWH

- ❑ Draws power round the clock: a 10 MW IT hall is roughly 14 MW at the meter (PUE ~1.4), mostly grid power today.
- ❑ Almost every kWh the servers use ends up as low-grade heat in the cooling water.
- ❑ Then it pays again, in chiller power and cooling-tower water, to throw that heat into the air.
- ❑ Hyperscale and AI tenants ask for green power, low PUE and low water use, with evidence.

THE COLOCATED FACTORY

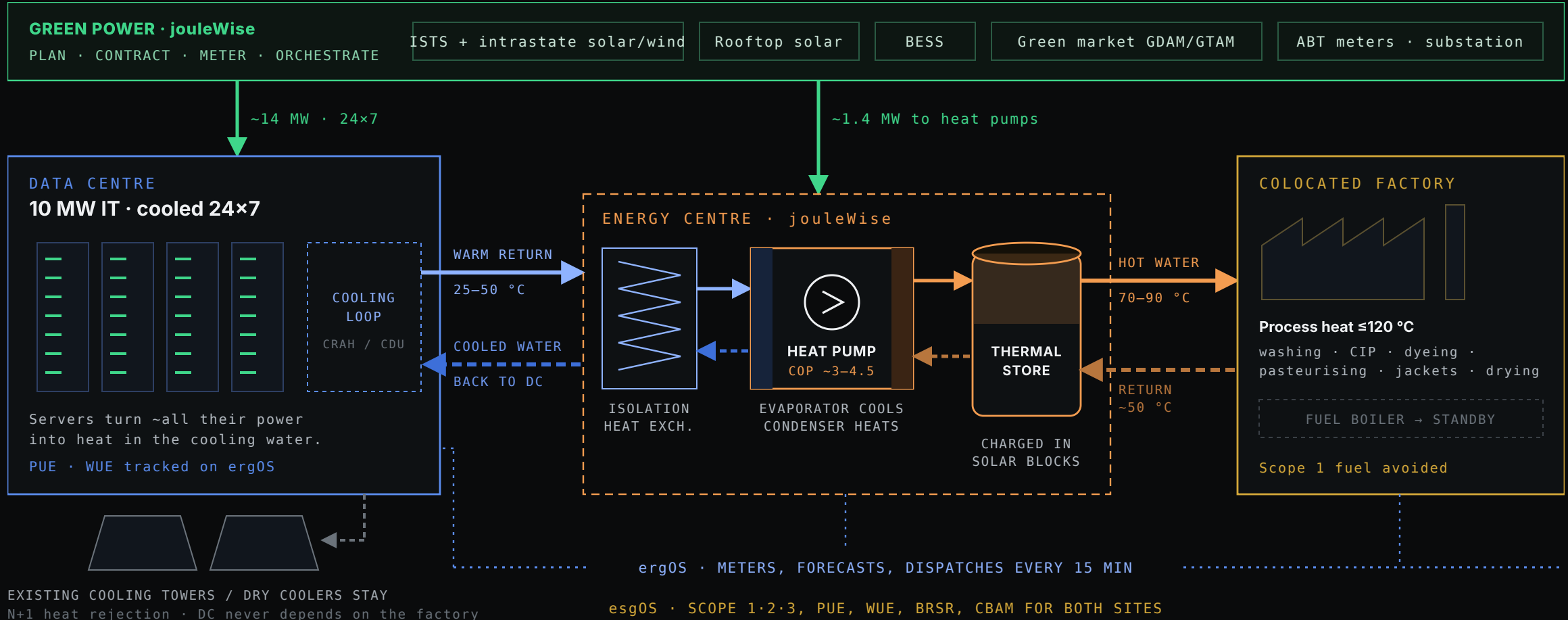
BURNS FUEL FOR LOW-TEMPERATURE HEAT

- ❑ Burns PNG, coal, LPG or diesel in boilers for hot water, washing, CIP, drying and jacket loops, mostly below 120 °C.
- ❑ That fuel is its Scope 1 line: the hardest carbon to cut and the most exposed to price swings.
- ❑ CBAM, BRSR Core, CCTS and customer programmes now ask for metered evidence of the cut.
- ❑ Its heat load sits a few hundred metres from a 24×7 source of warm water.

The size of it. India's data-centre capacity is projected to grow to roughly 6.5–12 GW by 2030 (industry estimates). Each MW of IT load releases about a MW of heat, continuously. Today almost all of it goes to cooling towers, often next to industrial parks that burn fuel for the same temperature range.

THE CONCEPT / ONE LOOP ACROSS TWO SITES

GREEN POWER AT THE DOORSTEP. DC HEAT TO THE FACTORY.



HOW IT WORKS / FROM INCOMER TO BOILER HOUSE

EVERY LAYER FEEDS THE NEXT.

01

Green power at the doorstep

jouleWise builds the green portfolio to the data centre's flat 24×7 shape: ISTS and intrastate wind and solar hybrids, rooftop solar, BESS for the evening, and green-market purchase for the gaps. It handles open access approvals, ABT metering and SLDC scheduling.

03

Lift it with heat pumps

Industrial heat pumps take heat from that loop and deliver 70–90 °C hot water, or LP steam up to 120 °C. The cold side sends cooler water back to the data centre, so its chillers and towers do less work.

05

Orchestrate on ergOS

Every meter is on one screen: DC incomer, heat-pump power, heat across the boundary, store temperatures, factory header. ergOS forecasts 96 blocks and dispatches heat pumps and storage against price, cooling demand and process limits.

02

Capture the cooling-loop heat

Warm water returning from the CRAHs, CDUs or condensers passes through an isolation plate heat exchanger. The data centre's water never leaves its own loop, and no change is made inside the white space.

04

Store, then deliver to the factory

A hot-water store (about 400 m³ / 13 MWh-th in the example) is charged in the cheapest solar blocks and drawn on the factory's own shift pattern. Factory boilers move to standby and cover peaks or loads above 120 °C.

06

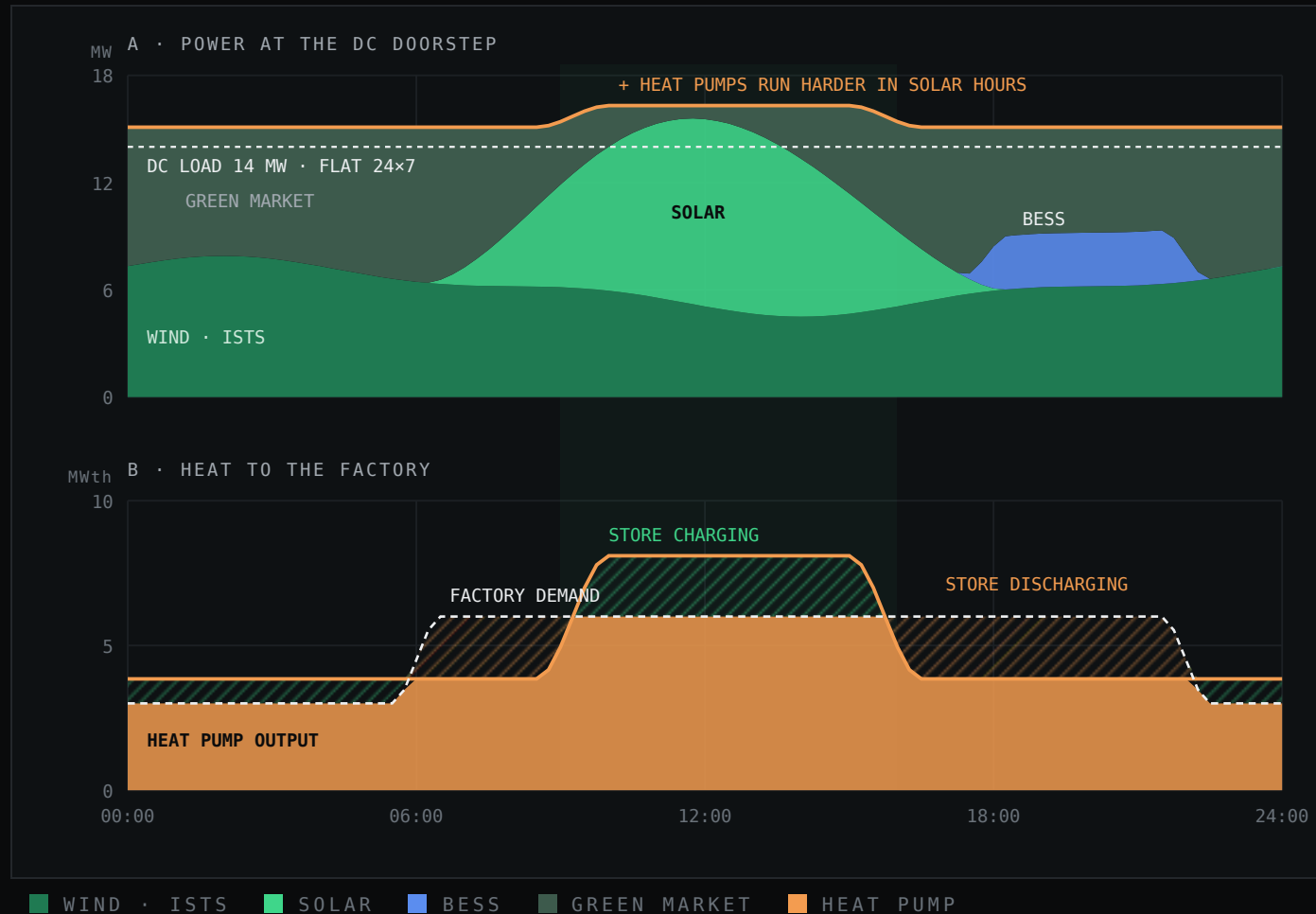
Prove it on esgOS

The same data becomes Scope 2 and green-attribute evidence for the data centre, Scope 1 fuel avoided for the factory, PUE and WUE trends, and BRSR Core, CBAM and customer disclosures. Each kWh is allocated across both companies at a metered boundary.

Why it works. The data centre has warm water it pays to get rid of, every hour of the year. The factory needs heat at a temperature a heat pump can reach. jouleWise green power is what makes that heat both cheap and close to zero-carbon.

RUNNING IN SYNC / ONE DISPATCH FOR TWO SITES

THE DC LOAD IS FLAT. THE HEAT FOLLOWS THE SUN.



DISPATCH RULES ON ERGOS

- Cooling comes first**
DC supply temperature is a hard limit. Heat pumps take only what the loop can give. Any surplus goes to the towers as usual.
- Heat pumps follow price**
Output rises in the cheapest, greenest solar blocks and the surplus charges the thermal store.
- The store covers the shifts**
Evening and night factory demand is met from the store, so the factory never waits on the sun.
- BESS covers the evening**
Batteries charged on midday solar carry the evening peak, which raises the green share for the DC.
- Boiler is the backup**
If the DC loop or the heat pump trips, the factory boiler fires automatically. Neither site is put at risk.

HEAT PUMP ON THE DC LOOP / ONE KWH, TWO JOBS

WARMER RETURN WATER, CHEAPER FACTORY HEAT.

A heat pump's efficiency (COP) depends on the lift: delivery temperature minus source temperature. Data-centre return water is a steady, warm, 24×7 source, much better than ambient air. The warmer the loop, the less power each kWh of factory heat needs.

CASE A · CONSERVATIVE

AIR-COOLED / CHILLED-WATER DC

Loop return	20–30 °C
Delivered to factory	~80 °C
Lift	~55 K
Indicative COP	~3
Per kWh of power	3 heat + 2 cool

Also cuts chiller power directly, since heat is taken out before the chillers.

CASE B · LEAD CASE

LIQUID-COOLED / AI RACKS

Loop return	40–50 °C
Delivered to factory	~80 °C
Lift	~35 K
Indicative COP	~4–4.5
Per kWh of power	4 heat + 3 cool

Direct-to-chip and rear-door loops run warm by design. That makes them the best heat source on any industrial site.

ENERGY BALANCE · BASE CASE COP 3.5

IN

1 kWh POWER + 2.5 kWh FROM DC LOOP

OUT

3.5 kWh HEAT TO FACTORY

+ 2.5 kWh COOLING THE DC NO LONGER BUYS

~6 kWh

 of useful heating + cooling per kWh

Indicative COPs, consistent with the jouleWise lift table (≈5 at 30 K, ≈3.5 at 50 K, ≈2.5 at 70 K). LP steam up to 120 °C is possible at a lower COP (~2); hot-water loads are served first. Actual values come from metered loop temperatures and flows in the baseline.

THE LOOP IN NUMBERS / ILLUSTRATIVE EXAMPLE

1.4 MW OF GREEN POWER. 5 MW OF GREEN HEAT.

PER YEAR · ~8,000 H	VALUE	₹ PER KWH OF USEFUL HEAT
Heat delivered to the factory	40,000 MWh-th	Diesel (HSD) boiler10.59
Green power to heat pumps (COP 3.5)	11,430 MWh	PNG-fired boiler6.22
Heat taken out of the DC loop	28,570 MWh-th	Heat pump on DISCOM power2.43
Factory fuel cost today (PNG boiler)	₹24.9 Cr	Heat pump on DC loop, green open access1.57
Heat-pump energy cost (₹5.5/kWh green)	₹6.3 Cr	Heat pump in solar blocks + store1.14
Energy-cost saving, before capex and O&M	~₹18.6 Cr	
Scope 1 CO ₂ avoided at the factory	~8,800 t	
DC chiller power avoided (Case A, chiller COP 5)	up to ~5.7 GWh	
Cooling-tower evaporation avoided	~40,000 m ³	

Two sites, both better off. The factory buys heat for about a quarter of what it pays for fuel. The data centre has ~3.6 MWth taken off its cooling plant for free. The green power under both is supplied, metered and proven by jouleWise.

Illustrative only, not an offer. 10 MW IT DC (PUE ~1.4); factory average demand 5 MWth at ~80 °C; COP 3.5; ~8,000 h/yr. PNG ₹55/SCM, 10.4 kWh/SCM, 85% boiler efficiency, 1.95 kg CO₂/SCM; HSD ₹90/L; DISCOM ₹8.5/kWh. Green power treated as zero-emission on a market basis. Water at ~1.5 L evaporated per kWh-th rejected; applies only where heat is rejected through wet towers. All values are replaced with metered site data in the baseline.

VALUE / THREE WINNERS FROM ONE LOOP

COOLER DATA CENTRE. CHEAPER HEAT. **ONE PROOF.**

DATA CENTRE OPERATOR

GREEN, COOLER, PROVABLE

- Low-cost green power at the incomer, with an RE share that holds up to hourly scrutiny.
- Part of the cooling load taken off chillers and towers, which means lower PUE, lower WUE and less make-up water.
- BESS on the evening peak and outages, so DGs run fewer hours.
- A heat-reuse story that hyperscale and AI tenants ask for, backed by metered numbers.

COLOCATED FACTORY

GREEN HEAT, NO FUEL

- Hot water and LP steam at a fraction of its fuel cost, priced per unit of heat.
- Scope 1 fuel emissions cut at source, with no new fuel supply contract to manage.
- Evidence for CBAM, BRSR Core, CCTS and customer supplier programmes.
- Boilers kept on standby as backup, with zero upfront capex under Heat as a Service.

BOTH, TOGETHER

ONE CONTRACT, ONE TRUTH

- One accountable provider for power, heat, storage, metering and disclosure.
- A metered heat boundary, so both companies settle on the same 15-minute numbers.
- esgOS allocates power, heat and green attributes cleanly, so neither side double-counts carbon.
- A campus decarbonisation case that lenders and investors can underwrite.

~₹18.6 Cr

FACTORY ENERGY-COST SAVING
PER YEAR, BEFORE CAPEX

~3.6 MWth

TAKEN OFF THE DC'S
COOLING PLANT

~8,800 t

SCOPE 1 CO₂ AVOIDED
PER YEAR

~40,000 m³

COOLING-TOWER WATER
SAVED PER YEAR

Illustrative 10 MW IT → 5 MWth example from the previous page.

UPTIME FIRST / THE DATA CENTRE NEVER DEPENDS ON THE FACTORY

HEAT RECOVERY **ALONGSIDE COOLING, NEVER** **INSTEAD OF IT.**

No data-centre operator will trade uptime for heat revenue. The energy centre is designed as an extra heat sink on the loop. It can drop out at any moment and the data centre will not notice.

01 · HYDRAULIC ISOLATION

PLATE HEAT EXCHANGER AT THE BOUNDARY

DC water, glycol and chemistry stay in the DC's loop. There is no shared fluid with the factory and no contamination path.

02 · HEAT REJECTION RETAINED

TOWERS AND DRY COOLERS STAY N+1

Existing heat rejection stays sized for full load. Heat recovery is a parallel sink, so Tier design and redundancy are unchanged.

03 · FAIL-SAFE BYPASS

AUTOMATIC THREE-WAY BYPASS

If the heat pump trips or the factory stops, valves return the loop to the towers within seconds. DC supply temperature is the controlling limit.

04 · FACTORY CONTINUITY

BOILER ON HOT STANDBY

The thermal store gives hours of ride-through, and the existing boiler fires automatically for longer outages or loads above 120 °C.

05 · POWER RESILIENCE

BESS AHEAD OF DG

BESS carries short grid events and the evening peak. DGs stay for Tier certification and become the backup to the backup.

06 · METERED BOUNDARY

CUSTODY-GRADE HEAT METERS

Flow and temperature are metered on both sides of the exchanger, so cooling credit, heat sold and carbon are settled on the same data.

FIRST OF ITS KIND / IN INDIA

FIVE VENDORS CAN'T RUN ONE LOOP. ONE STACK CAN.

WHAT THE LOOP NEEDS	BOUGHT IN PIECES TODAY	JOULEWISE
Green power to a 24×7 load	RE developer or trader	Open access, BESS, green market
DC cooling	Chiller OEM and facility team	Heat recovery as an extra sink
Factory heat	Boiler vendor and fuel supplier	Heat pumps, store, Heat as a Service
The interface between two companies	Nobody owns it	Metered boundary and one contract
Real-time sync of power and heat	Separate BMS and SCADA	ergOS, every 15 minutes
Carbon proof for both sites	ESG consultant, once a year	esgOS, continuously

THE CLAIM

jouleWise's offer is the first in India to combine **green power at the data centre's doorstep**, **heat pumps on its return water serving a colocated factory**, and **the metering, dispatch and disclosure layer**, all from one provider under one contract.

Why the order matters. On grid power, a heat pump cuts fuel cost but barely cuts carbon compared with gas. On jouleWise green power, the factory's heat is close to zero-carbon. Power comes first, then heat, then proof.

Data-centre heat reuse operates abroad, mainly into district-heating networks in Northern Europe. The distinction claimed here is the integrated, single-provider model for an Indian DC and a colocated industrial heat user.

WORKING MODELS / AND THE PATH TO LIVE

START WITH ONE CAMPUS. SCALE THE LOOP.

RECOMMENDED · HEAT AS A SERVICE

jouleWise designs, owns and operates the energy centre. The DC gets its return water cooled at no cost, and the factory pays per kWh of heat, priced below its current fuel cost. No upfront capex for either party.

ADVISORY · GREEN POWER

RE-100 roadmap, RfP and reverse auction, PPA, open access approvals and ABT metering for the DC, and the factory where useful.

SAAS · ERGOS + ESGOS

Per-plant subscription for metering, dispatch and disclosure across both sites.

HEAT ADVISORY

Engineering route from boiler to heat pump with the owner holding the asset: heat audit, sizing, EPC oversight, commissioning.

WHEN	STEP
Wk 1–4	Joint baseline. DC loop temperatures and flows, PUE and water data, factory heat map with portable heat meters, power bills and 15-minute data.
Wk 4–8	Design and business case. Heat-pump and store sizing, hydraulic interface, green power portfolio, tripartite heat agreement.
~3 months	Power live. Open access contracted and approved. Meters and loggers on ergOS.
6–12 months	Energy centre live. Commissioned with the DC on bypass first, then heat recovery stepped up block by block.
Ongoing	Operate and disclose. ergOS runs both sites and esgOS reports for both, with an audit trail.

Timelines indicative. They depend on state approvals, equipment lead times and DC change-control windows.

LET'S TALK / START WITH ONE CAMPUS

TELL US THE CAMPUS. WE'LL CLOSE THE LOOP.

Share a year of DC power bills and cooling-loop data, plus the neighbouring factory's fuel and steam records. We return the baseline, the power-and-heat design and one business case for both sites.

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