CONCEPT · 2026

Data Renoversity™

H -2.0.1

The AI campus that carries its own power. A design concept for energy companies that want to turn power-plant sites into AI campuses — energy first, not grid queue first.

Energy first | Water neutral | Brownfield first | Sites found with WaiMAP

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INTRODUCTION

Data Renoversity™ — our latest and most efficient AI data-campus technology

Data Renoversity is WHT's newest technology for AI computing: a campus that produces its own energy, cools in a sealed loop and turns power-plant sites into AI campuses. The concept is protected — patent and Data Renoversity™ trademark applications are filed in the name of WHT – Şaban Akman, the system architect of Data Renoversity.

1.08
design PUE

−60 %
non-IT energy

−84 %
CO_2 per year

≈ 0
evaporative water

Most efficient

Design PUE 1.08 and cooling energy of −2 %, 0 or +1 % of the IT load — about 20 % less energy than a campus at the industry-typical PUE of 1.35.

Protected and standardised

Patent and trademark applications filed; the H -2.0.1 design standard sets every target.

Ready to apply

Built only from equipment in commercial service today, on sites found and ranked with WaiMAP.

WHY NOW

100 MW of AI, 20 MW of cooling — time to say stop

A conventional data centre spends about a fifth of its IT power just to remove heat. That cooling power becomes heat itself, released straight into the air; generating it in thermal power plants releases even more; and cooling towers evaporate water around the clock. The world is moving away from this — Data Renoversity is the smartest system we can build today with proven equipment.

≈ 20 MW
cooling power for every 100 MW of IT — 20 MWh of extra heat into the air every hour

+ 33 MW
more heat at the thermal power plant that generates those 20 MW (≈ 38 % efficiency)

≈ 180 m³/h
water evaporated by cooling towers — about 1.57 million m³ a year

≈ 313,000 t
CO_2 a year for one 100 MW IT campus on a 350 g/kWh grid

Data Renoversity instead: cooling energy of −2 %, 0 or +1 % of the IT load · energy produced on site, renewables first · a sealed loop with no cooling towers and no evaporated water · built on existing power-plant sites.

THE IDEA

The data-centre era is over. The Data Renoversity era has begun.

AI needs power faster than grids can deliver it. Across Europe and Asia, the binding constraint on new AI capacity is no longer land or permits — it is the grid connection. Data Renoversity starts from the other end.

Energy first

The campus produces the energy it uses — renewables first, batteries for daily balancing, firm on-site generation only where the market needs it. No peak pushed onto the public grid.

Water neutral

A sealed closed-loop cooling concept with no cooling towers and no evaporation. Cooling energy of −2 %, 0 or +1 % of the IT load, against 10–40 % in a conventional data centre.

Brownfield first

Former and closing power-plant sites come first: high-voltage substation, land, permits and skilled people are already there. The site gets a second life instead of a demolition bill.

> **Renewable + University: a campus that produces its energy, its knowledge and its jobs where it stands.**

WHAT IT DELIVERS

Data Centre vs Data Renoversity H -2.0.1

Design targets for the reference campus (100 MW IT blocks). Screening values — every site is confirmed by its own study.

	CONVENTIONAL DATA CENTRE	DATA RENOVERSITY H -2.0.1
Cooling energy	10–40 % of the IT load	**−2 % · 0 · +1 % of the IT load**
Cooling water	1–2 L/kWh with cooling towers	**Zero evaporative water — closed loop**
Design PUE (100 MW IT)	1.20 – 1.50	**< 1.10 (design 1.08)**
Peak demand, 100 + 100 MW IT	≈ 308 MW	**< 220 MW**
Non-IT energy per year	≈ 0.30 TWh	**≈ 0.07 TWh**
Energy source	Grid and green certificates	**100 % produced on site, renewables first**
Backup power	Diesel gensets	**Batteries and on-site generation**
Surplus energy	Curtailed or exported	**Turned into hydrogen as a product**
Large power transformers	New units, ≈ 2-year lead time	**Existing HV substation re-used**

EXAMPLE: 100 MW IT

Investment, operating cost, CO_2 and energy

One 100 MW IT AI campus, 85 % average IT utilisation (744.6 GWh IT a year), on a former power-plant site. Conventional: grid-fed, cooling towers, PUE 1.20, grid 350 g CO_2/kWh. Data Renoversity: design PUE 1.08, renewables first with firm on-site units, closed-loop cooling. Screening values from the WaiMAP data-centre model; prices are illustrative.

	CONVENTIONAL	DATA RENOVERSITY	DIFFERENCE
Energy use per year (facility)	893.5 GWh	**804.2 GWh**	**−89.4 GWh**
of which non-IT (cooling, losses, auxiliaries)	148.9 GWh	**59.6 GWh**	**−60 %**
CO_2 per year	≈ 312,700 t	**≈ 51,400 t**	**−84 %**
Site water per year	≈ 1.57 million m³	**≈ 2,200 m³ (staff and process)**	**−99.9 %**
Energy bill avoided (89.4 GWh at €90/MWh)	—	**≈ €8.0 million / year**	
Water cost avoided (at €3/m³)	—	**≈ €4.7 million / year**	
CO_2 cost avoided (at €80/t)	—	**≈ €20.9 million / year**	
Data-centre facility investment (excl. IT)	≈ $650 million	**≈ $660 million**	**same order**
On-site energy plant (PV, wind, batteries, firming, H_2)	buys from the grid	**≈ €0.89 billion — a power asset of its own**	

Operating savings shown are the energy, water and carbon lines only — about €33 million a year on this example. The on-site energy plant replaces purchased grid power and is financed as an energy asset; its cost of energy is set per site in the pre-feasibility study.

ECONOMICS

Energy saving, CAPEX, OPEX and LCOE — 100 MW IT

Data Renoversity at design PUE 1.08 uses 804.2 GWh a year for 744.6 GWh of IT. The saving depends on what it replaces:

CONVENTIONAL PUE	FACILITY GWH/YR	SAVED GWH/YR	SAVING	AT €90/MWH
1.20 — new conventional build	893.5	89.4	10 %	€8.0 M
1.35 — industry-typical	1,005.2	201.0	20 %	€18.1 M
1.50 — installed base	1,116.9	312.7	28 %	€28.1 M

CAPEX

ITEM	INDICATIVE	
Data-centre facility (excl. IT)	≈ $659 M	conventional ≈ $650 M
On-site energy plant (PV 300 MWp, wind 150 MW, BESS 600 MWh, firm units)	≈ €723 M	replaces grid purchases
Electrolysers (surplus to hydrogen)	≈ €166 M	sells hydrogen as a product
Campus total with site works	≈ €1.5 bn	

OPEX and LCOE

ITEM	DATA RENOVERSITY	BENCHMARK
Own energy, LCOE (capital + O&M + fuel)	€125 / MWh	grid €90 + CO_2 €28 = €118 / MWh
Energy-plant O&M + fuel at full load	≈ €40 M / yr	
Energy + carbon + water, per year	≈ €105 M	conventional ≈ €110 M

WaiMAP data-centre model, reference site in Central Asia, island operation, WACC 8 %, CO_2 €80/t, grid 350 g/kWh, water €3/m³. Indicative screening values — revenue, IRR and NPV use the owner's compute price and are set in the pre-feasibility study.

BY DESIGN

What you will not find on a Data Renoversity campus

Every item below costs a conventional data centre energy, water, noise or permits. The H -2.0.1 Standard leaves them out.

- ✕ Cooling towers — no plume, no drift, no Legionella risk
- ✕ Evaporative inlet cooling on generating units
- ✕ Oil-lubricated, fixed-speed or legacy compressors
- ✕ Dummy loads burning energy to smooth AI training swings
- ✕ Peak demand pushed onto the public grid
- ✕ Carbon in the stored fuel — surplus is stored as hydrogen
- ✕ Evaporative or adiabatic cooling — no water sprayed into the air
- ✕ Water-treatment chemicals and blowdown discharge
- ✕ High-GWP refrigerants
- ✕ Diesel backup gensets
- ✕ Grid upgrades charged to local households
- ✕ New greenfield land — power-plant sites first

The cooling and power-island concept is protected; technical details are shared under a non-disclosure agreement.

ENVIRONMENT & PEOPLE

Quieter, cleaner, nothing evaporated — in numbers

Screening study of the 100 MW IT reference campus against a conventional data centre: carbon from the WaiMAP energy model, noise after ISO 9613-2 (simplified), water and waste from typical plant data.

−261 kt
CO_2 a year (−84 %)

46 dB(A)
at 300 m — conventional 58 dB(A)

−84 %
land above 40 dB(A) at night

0
cooling chemicals, blowdown, diesel

	CONVENTIONAL	DATA RENOVERSITY
Carbon	≈ 312,700 t CO_2 / yr	**≈ 51,400 t CO_2 / yr — 6.5 Mt avoided in 25 years**
Noise at 300 m	≈ 58 dB(A) · 60 with gensets running	**≈ 46 dB(A) — no cooling towers, no gensets**
40 dB(A) night contour	≈ 1.3 km from the campus	**≈ 0.5 km**
Water	≈ 1.57 million m³ / yr evaporated	**≈ 2,200 m³ / yr (staff and process)**
Discharge and chemicals	≈ 523 thousand m³ blowdown · 8–21 t chemicals / yr	**none**
Diesel tests, NOx, waste oil	≈ 99 m³ diesel · 2.5 t NOx · 9 m³ oil / yr	**none**
Waste heat	released to the air	**sold as 85–90 °C heat where a heat network or heat user is near**
End of life	chillers, towers, gensets	**PV modules and batteries to licensed recycling**

Full method and assumptions in the companion note "Data Renoversity — Environment & People". Each site is confirmed by its own environmental and noise study.

POWER CONFIGURATIONS

One DC backbone, four ways to feed it

Every element of the first phase is in commercial service today. New technologies enter only with type approvals and field references.

A

DC Renewable

Renewables first · zero export · European reference design

Solar and batteries on a DC campus bus; existing HV connection for import only; nothing exported.

24 months to full IT

B

Max DC + firm AC

Wind where the site has it · firm on-site generation

Adds wind and firm on-site generation (gas turbines or engines) where the market needs firm power.

24 months IT · 33–42 months firm power

C

Long-duration storage

A or B plus long-duration storage and hydrogen

Flow batteries for multi-day balance; electrolysers sized to the surplus that would be curtailed.

24 months IT · 30 months storage + H_2

D

Pumped-storage pilot

Only where the site allows · long schedule

Pumped storage on suitable terrain as a site-bound pilot, mature technology.

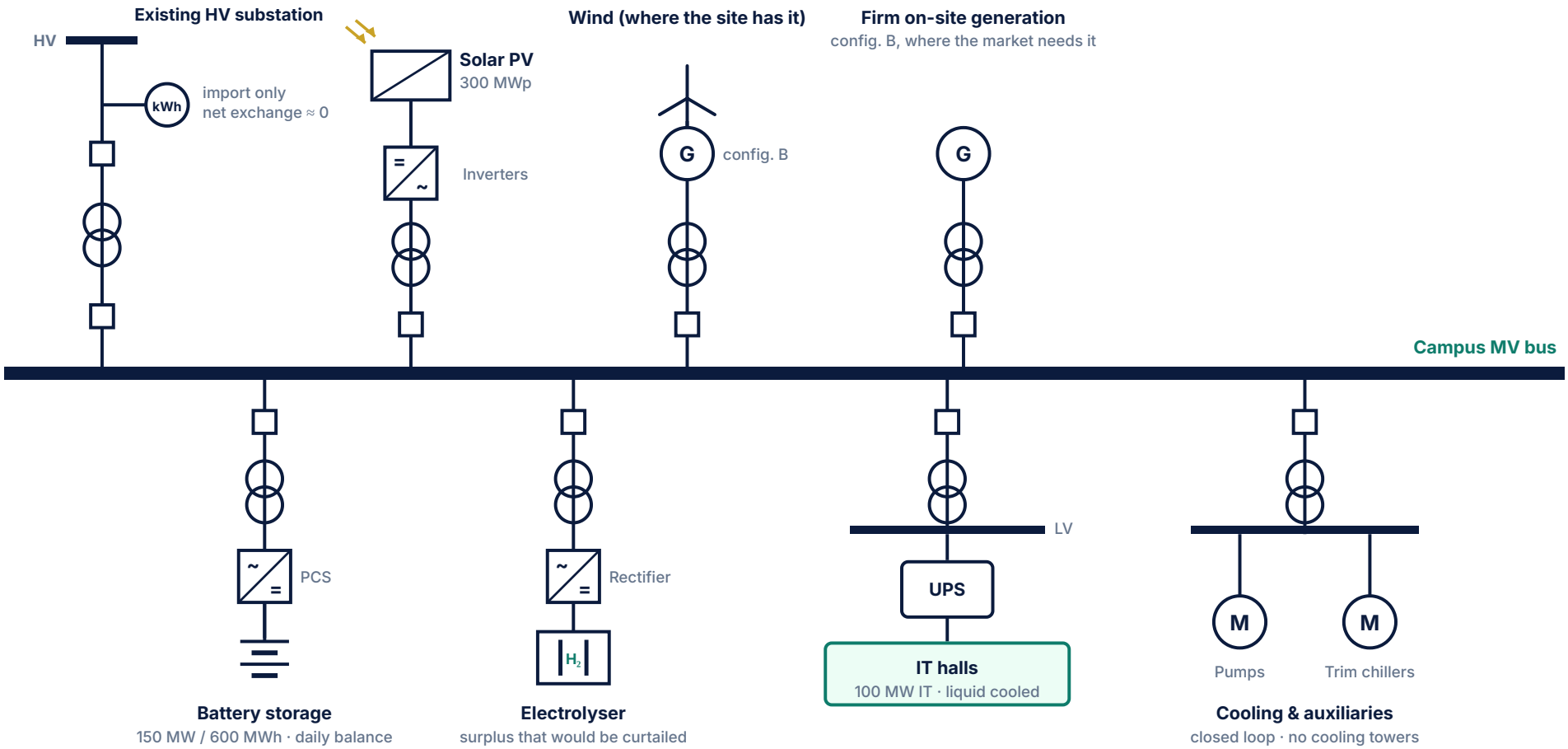
24 months IT · 84 months pilot

Reference project: 100 MW IT on a former coal-plant site with its HV substation — PV 300 MWp, batteries 150 MW / 600 MWh; first 25 MW IT from month 18. Transformers in the AC-coupled design: 209; in configuration A today: 171; with the DC hall in phase 2: 2.

TECHNICAL SCHEMATIC 1

Power: one campus bus, on-site sources first

Simplified single-line diagram of the reference campus (configuration A, with the configuration B additions). The existing HV substation is kept for import only; the campus balances itself with batteries, and surplus goes to hydrogen instead of the grid.

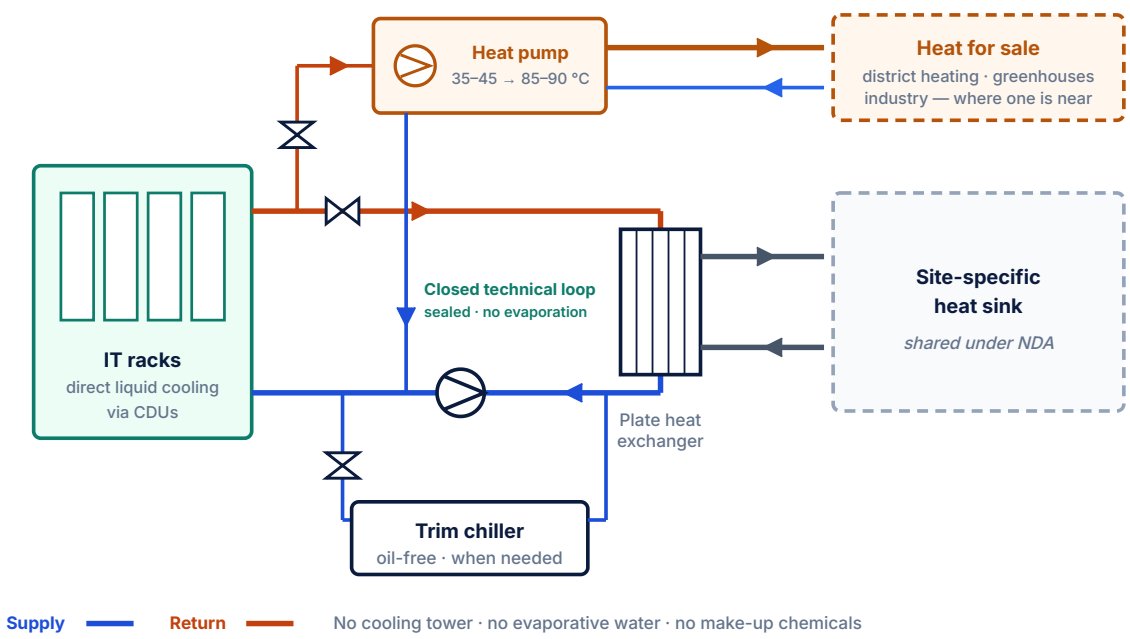


IEC 60617 symbols. Ratings are those of the 100 MW IT reference campus; every site gets its own single-line diagram in the pre-feasibility study.

TECHNICAL SCHEMATIC 2

Cooling and energy: a sealed loop, a smaller bill

Heat leaves the IT racks through a sealed closed loop and a plate heat exchanger; oil-free trim chillers run only when needed. Nothing is evaporated. The heat sink is site-specific and shared under NDA. Where a district-heating network, greenhouses or an industrial heat user is near, a heat pump lifts the rack heat to 85–90 °C and sells it — a second product of the campus.



Annual energy, 100 MW IT example

Conventional



Facility 893.5 GWh · PUE ≈ 1.20

Data Renoversity



Facility 804.2 GWh · PUE ≈ 1.08

Non-IT energy: −60 % · −89.4 GWh a year

Heat as a product — 100 MW IT example, where a heat network is near: about 50 MW of heat at 85–90 °C for some 5,000 hours a year ≈ 250 GWh of heat sold · heat-pump electricity ≈ 75 GWh from on-site renewables, billed to the heat business, not to the IT load · about 55,000 t CO_2 a year avoided if it replaces gas-fired heat. Heat recovery is reported as the energy reuse factor (ERF, ISO/IEC 30134-6) next to PUE.

WHAT WE BRING

The concept, the sites and the path to build

WHT Enterprise is the author of Data Renoversity. We bring the concept and the design standard, find the sites and support the owner up to the EPC tender; construction stays with the owner's EPC contractors and suppliers.

The concept

The Data Renoversity concept and the H -2.0.1 design standard for one site or a portfolio: system architecture, power and cooling concept, energy balance and design rules — shared under NDA.

Site screening

Which of your sites suit a Data Renoversity campus: grid and substation, land, hazards, climate and renewable resource, ranked — with our WaiMAP spatial-engineering platform.

Owner's advisory

Concept to tender: configuration choice, pre-feasibility, specifications for EPC tenders and design reviews against the concept. Construction stays with your EPC contractors.

Owner
Sites, generation, the campus — and the decision

→

WHT Enterprise
Concept, design standard, site screening

→

EPC contractors & suppliers
Design, supply, build — tendered by the owner

→

Investors, grid, community
A campus that carries its own power

PROTECTION

A protected concept with a public design standard

The targets are public; the know-how behind them stays with its author and is shared with owners and their engineers under NDA.

Patent application filed

The cooling and power-island system of Data Renoversity is protected by a patent application. The technical content is shared only under NDA.

Trademark filed

Data Renoversity™ is filed as a word mark (classes 40 and 42).

Published design standard

H -2.0.1 sets the design targets of a Data Renoversity campus — cooling energy, PUE, water, on-site energy and renewable share.

H -2.0.1 design targets: cooling energy −2 %, 0 or +1 % of the IT load · design PUE < 1.10 · zero evaporative water · ≥ 100 % of the annual energy produced on site · renewables first.

FOR ENERGY COMPANIES

Why it fits a national power company

Built for owners of generation and sites — in Central Asia, Europe and beyond.

Your sites are the scarcest asset

A power-plant site has what an AI campus cannot buy quickly: an HV substation, land zoned for energy, permits history and a trained workforce.

Your generation finds a buyer on site

The campus takes energy where it is produced — no export bottleneck, no curtailment, a long-term industrial off-taker.

Cold climates cool for free

Long cold seasons make the closed-loop concept even more efficient — the chillers run only as trim.

Wind and sun at scale

Steppe wind and strong sun feed configuration B or C; surplus becomes hydrogen instead of curtailment.

Sovereign AI capacity

A national AI campus powered by national energy, on national sites, built to a published design standard.

A second life for coal sites

Closing or ageing coal units are replaced by a campus that keeps the jobs and the grid assets in use.

SITE SUPPLY

Suitable sites, found and ranked with WaiMAP

We find the sites. WaiMAP, our spatial-engineering platform, screens an owner's portfolio or a whole country for Data Renoversity sites and ranks them on the criteria of the design standard.

Grid & substations

HV substations, lines and spare capacity near each candidate; connection risk and queue.

Brownfield power sites

Closed, closing and ageing coal and gas plants with their land, substation and permits history.

Solar & wind resource

Hourly solar and wind yield on the site, land for PV and turbines, BESS sizing.

Land & constraints

Parcels, slope, protected areas, settlements and set-backs.

Hazards & climate

Flood, seismic, landslide and heat exposure; cooling-season length.

Campus fit

Room for 100 MW IT blocks, energy plant and storage; first layout and energy balance.

What the owner receives: a ranked shortlist with a map, a site sheet per candidate (grid, land, resource, hazards, first layout) and the targets each site can reach. · waimap.app · info@waimap.app

SUPPLY CHAIN

Built from equipment the world already makes

Every element of a Data Renoversity campus is in commercial service today. Examples of global manufacturers whose product classes fit the concept:

MV/HV equipment & transformers	Hitachi Energy · Siemens Energy · ABB · Schneider Electric
UPS & LV distribution	Vertiv · Schneider Electric · Eaton · ABB · Legrand
Liquid cooling & CDUs	Vertiv · Schneider Electric · nVent · CoolIT Systems
Oil-free centrifugal chillers	LG · Daikin · Trane · Johnson Controls (YORK) · Carrier
Heat exchangers & pumps	Alfa Laval · Kelvion · Danfoss · Grundfos · KSB · Xylem
PV modules & inverters	LONGi · JinkoSolar · Trina Solar · First Solar · SMA · Sungrow · Huawei
Wind turbines	Vestas · Siemens Gamesa · Nordex · GE Vernova
Battery storage	Tesla · Fluence · Sungrow · CATL · BYD · Wärtsilä
Electrolysers	Siemens Energy · thyssenkrupp nucera · Nel · ITM Power · John Cockerill
Controls & energy management	Siemens · ABB · Schneider Electric · Honeywell

For reference only. The manufacturers above are examples of global suppliers; the list implies no endorsement or partnership, and equipment is chosen by the owner's EPC tender. Manufacturers who want to work with Data Renoversity are welcome to contact us: info@wht-enterprise.com

HOW WE WORK

From first meeting to a working campus

Each step ends with a decision for the owner. Prices are proposed separately for each step.

1

Introduction

A meeting, the concept under NDA, and the shortlist of candidate sites.

2–4 weeks

2

Site screening

All candidate sites screened and ranked with WaiMAP; one or two selected.

4–6 weeks

3

Concept & pre-feasibility

Configuration, energy balance, layout, single-line diagrams, schedule, CAPEX range, targets.

3–4 months

4

Tender & delivery support

EPC specifications, bid review and design reviews against the concept through commissioning.

Project schedule

WHT Enterprise
Energy, construction and engineering group · 10+ GW executed in thermal, renewable and hydropower plants · ~7 GW developed in BESS, solar and wind

Author of Data Renoversity
Concept protected; H -2.0.1 is our published design standard · WaiMAP spatial-engineering platform for site screening

WHT **ENTERPRISE**

Let's look at your sites.

Data Renoversity ends these troubles: a system at peace with the environment and with people — and this time the money stays in your pocket.

A first meeting takes an hour. We bring the concept, you bring the sites — and we show which of them can become a Data Renoversity campus.

info@wht-enterprise.com **wht-enterprise.com**

Data Renoversity™ and H -2.0.1 are WHT Enterprise designations. Figures are design targets and screening values for a reference campus; each site is confirmed by its own study. The concept is protected; technical details are shared under NDA.