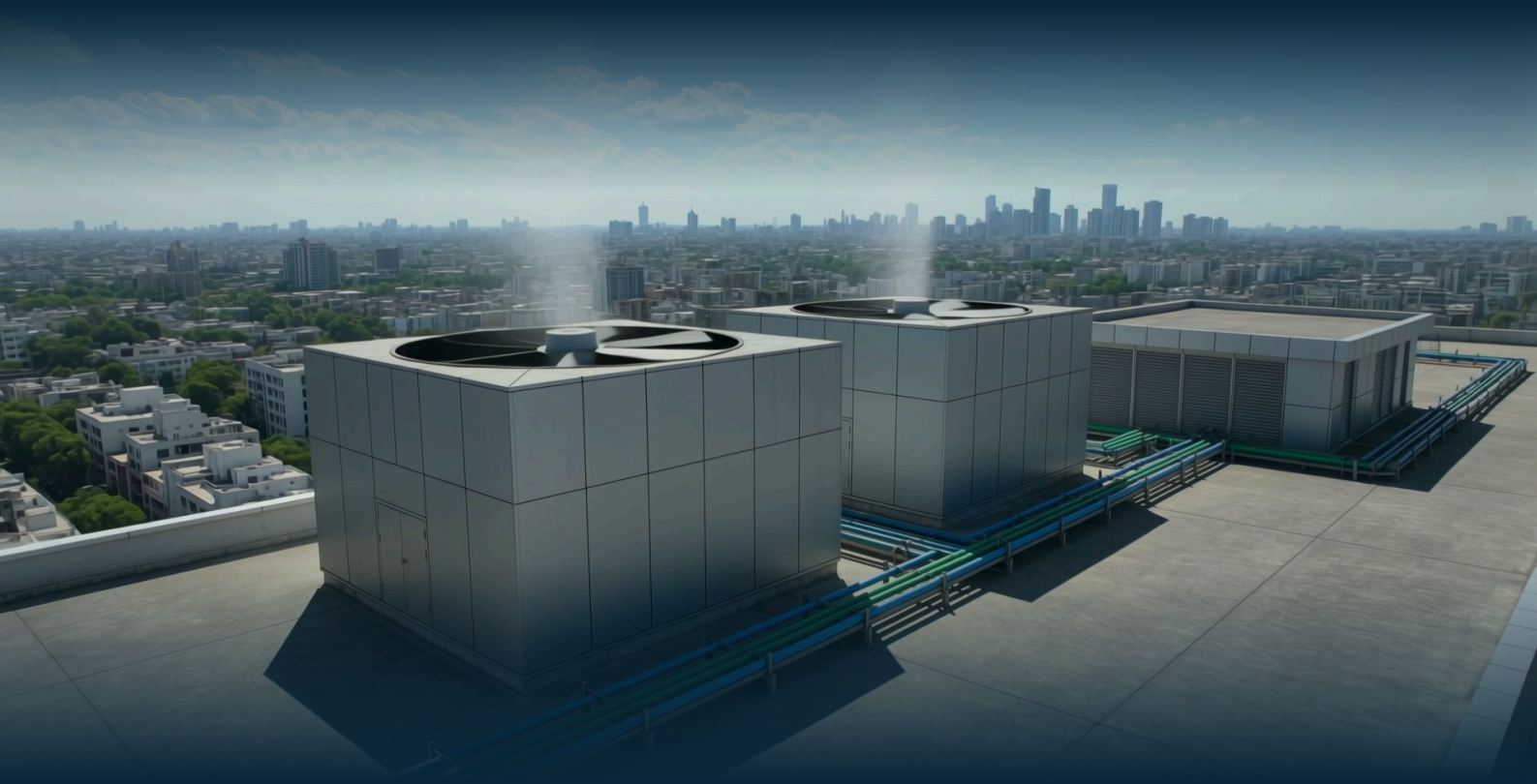
CARI-Chiller

COOLING PLANT HEALTH · BY CARIMO

FOR COMMERCIAL BUILDINGS, MALLS, CAMPUSES AND DATA CENTRES

# Your whole cooling plant, on one page.

CARI-Chiller reads the records your building management system already keeps and shows your team which chiller, tower, pump, air handler or data-hall unit needs attention. Chillers get alerts with an urgency grade, the extra energy and its cost, and the days left to the condenser cleaning limit. Every other plant unit gets named findings with dates.



**BUILT FOR** COMMERCIAL BUILDINGS · MALLS AND RETAIL · DATA CENTRES · HOSPITALS · HOTELS · AIRPORTS · IT PARKS · PHARMA · DISTRICT COOLING

**Chillers**
one or many

**Cooling towers**
and the condenser loop

**Pumps and loops**
primary and secondary

**Air handlers**
and their fans

**Data-hall units**
and their fans

**Free cooling**
water-side economiser

CARIMO Technologies Pvt. Ltd., Mumbai · Incubated at SINE, IIT Bombay · DPIIT-recognised  Tested on our own test plants built to industry practice.

THE PROBLEM

# Cooling plants drift quietly. The bill and the complaints arrive later.

Cooling is among the largest electrical loads in a large building or data hall. Its problems often build before anyone notices: a little more power for the same cooling, a little less margin on a hot afternoon. The building management system holds the trend records, but reading them across the whole plant takes hours nobody has.

### Condenser tubes foul

The chiller draws more power for the same cooling, week after week.

### A tower cell weakens

Fill or nozzles block. Warmer condenser water goes back to the chillers, and they pay for it.

### A pump wears

It delivers less water, or draws more power for the same duty.

### The building outdraws the chillers

When the building side takes more water than the chiller side supplies, return water mixes into the supply.

### Heating fights cooling

A leaking valve or a sequence fault in an air handler pays for the same air twice, unseen.

### One hall unit falls out of step

Its readings part from its neighbours, and the rack-inlet records show where it gets warm.



WHAT THE PLANT TEAM NEEDS TO KNOW

## Which machine, what was seen, and since when.

Routine rounds see a machine for minutes. The trend records hold every recorded hour. CARI-Chiller reads those records for the whole cooling plant and puts the answer on one page, in plain words your team can act on.

**Start with the records you already have.** CARI-Chiller works from a CSV export of your building management system or historian. Each unit is checked when its points are in the file.

CARI-CHILLER AT A GLANCE

# One export in. A plant-wide health picture out.

CARI-Chiller is a cooling plant health application for facility and energy teams. Keep your existing building management system. CARI-Chiller reads its exported records on your own PC and returns chiller alerts, dated plant-unit findings and a printable report for the team.

## YOU PUT IN

**One export from your BMS or historian**
A CSV file: one row per time step, one column per point. One chiller or the whole plant in one file.

**The weeks your team calls normal**
Your engineer picks the dates. Each machine is then judged against its own records.

**The plant units you want watched**
Towers, loops, pumps, air handlers, data-hall units and free cooling are added by name. Each is checked when its points are in the file.

**Your electricity price and currency**
Optional. Typed once and kept with the plant.

**Your chiller maker's cleaning limit**
Optional. The figure from the maker's manual, and where it is printed.

**A name for the plant**
Optional. A saved project keeps this plant's choices and history for the next file.

## YOU GET BACK

### FOR THE WHOLE PLANT

**A plant page and a printable report**
Every chiller and every plant unit with its status, on one screen and in one document.

### FOR EACH CHILLER

**Alerts with an urgency grade**
What moved and since when: Keep watching, or Fix at next stop.

**Days to the condenser cleaning limit**
A band of days against your maker's limit, redrawn with every new file.

**Extra energy and its cost**
Per open chiller alert, in your currency, largest first.

**Work orders and alert history**
One row per chiller alert; who acknowledged, who closed, why.

### FOR EVERY OTHER PLANT UNIT

**Named findings with dates**
Towers, loops, pumps, air handlers and their fans, data-hall units and free cooling.

### Each machine against its own normal

No fleet averages. Your chiller is compared with your chiller, at the same load and weather.

### The whole plant, not only the chiller

Towers, loops, pumps, air handlers, fans, data-hall units and free cooling in the same file.

### From alert to work order

Acknowledge, close and reopen chiller alerts with names and reasons. One row per alert for maintenance planning.

### On your own PC

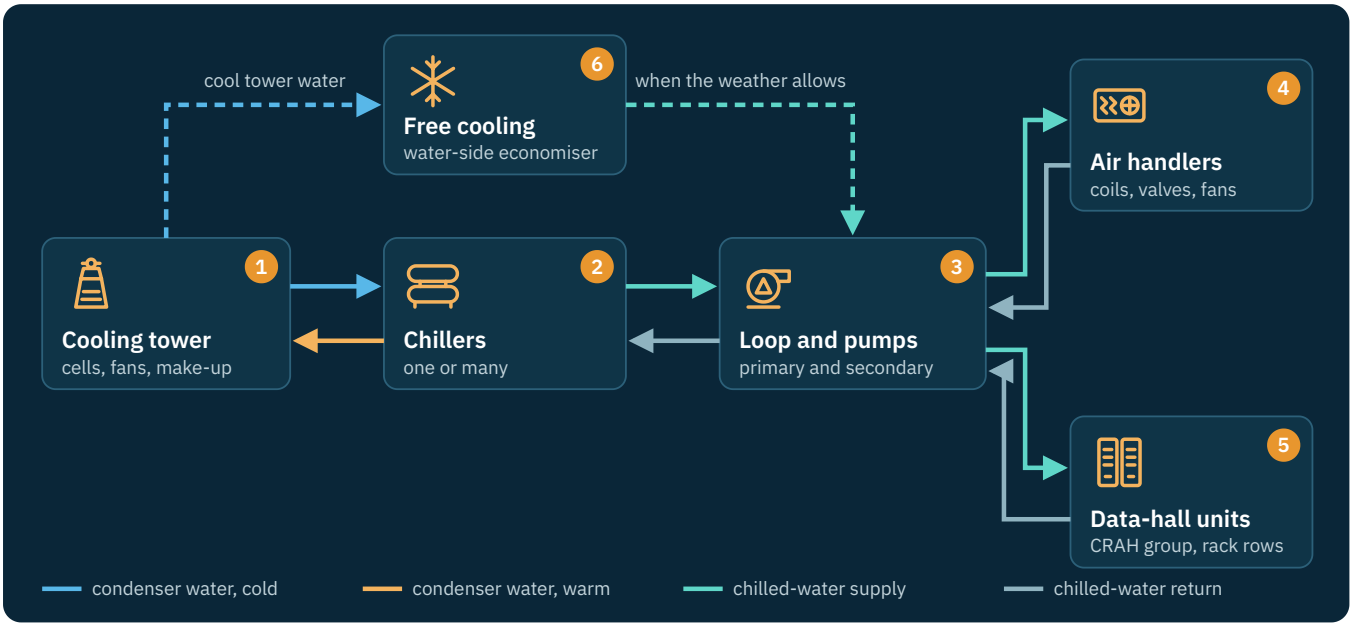
You load the file into the app on your own computer. Your plant records stay with you.

**Built for the people who run the plant.** Chiller alerts show what moved and how urgent it is. Findings on the other plant units name the unit, the finding and the dates. Plain words, no codes to look up.

THE WHOLE COOLING PLANT

# Six parts of the plant. One plant page.

A chiller never works alone. CARI-Chiller follows the cooling from the tower on the roof to the air handler on the floor and the cooling units in the data hall, and reports on each part from the same file.




1 **Cooling tower and condenser-water loop**
Weak cells, fan belts, fouled condensers, water treatment, make-up and water loss.

2 **Chillers**
Drift against each chiller's own normal, days to the cleaning limit, extra energy and its cost.

3 **Primary-secondary loop and chilled-water pumps**
Deficit flow in the bypass, a weak primary side, worn or inefficient pumps.

4 **Air handlers and their fans**
Heating fighting cooling, low duct pressure at full fan speed, sensors that read wrong.

5 **Data-hall cooling units**
The unit out of step with the others, valve hunting, and hot rack rows.

6 **Free cooling**
An economiser valve in the wrong place for the weather, and an exchanger losing effectiveness.

CARI-Chiller · plant page: the other plant units

Finding on: AHU Level 5, Cooling tower 2, Data hall B, Free cooling B, South loop, South pumps.

**Cooling tower 1**: Cooling tower and condenser-water loop. **No change found.**

**Cooling tower 2**: Cooling tower and condenser-water loop. **Finding.**

- **tower cell weak (fill or spray nozzles), cell 2**, from 2026-05-07 00:00 to 2026-05-13 00:00 (still showing)

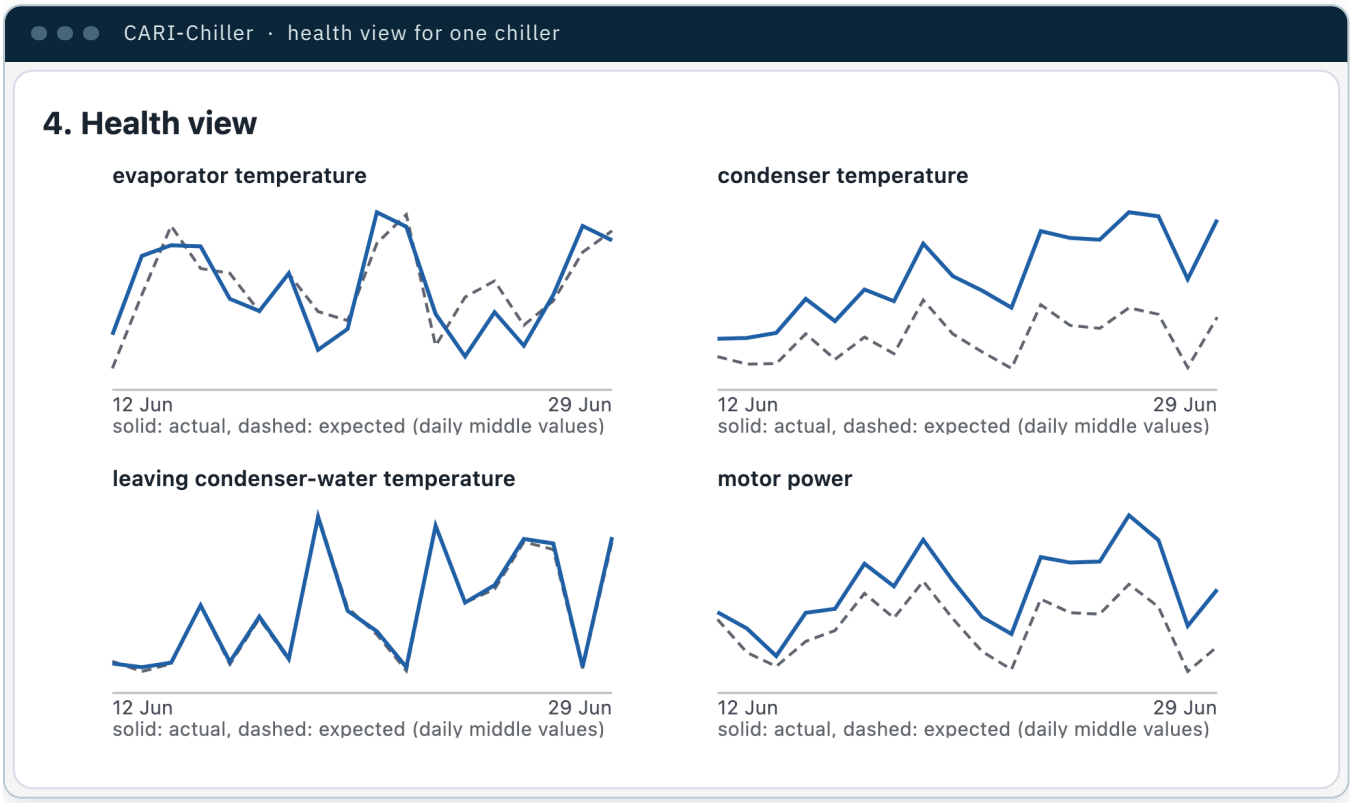
**North loop**: Primary-secondary water loop. **No change found.**

The plant-unit section of the plant page. Each tower, loop, pump group, air handler, data-hall group or economiser carries its own line: no change found, or a named finding with the dates it was seen.

CHILLERS

# Each chiller, measured against its own normal.

Your engineer picks the weeks the team calls normal. From then on every water-cooled chiller in the file is compared with its own normal running at the same load and weather, so a real change stands out from a hot day.




Health view for one chiller: evaporator temperature, condenser temperature, leaving condenser water and motor power, day by day; solid is actual, dashed is expected. **Reads** eleven points per chiller: chilled water entering and leaving, condenser water entering and leaving, both water flows, evaporating and condensing temperature, suction superheat, condenser subcooling and compressor motor power.

### Alerts in plain words

Which readings moved, by how much, from when, and whether the change still shows or has cleared.

### An urgency grade on every open alert

**Keep watching** or **Fix at next stop**, so the team knows what to plan.

### Power per ton of cooling

Normal against now, and the extra energy drawn while an alert was open.

### Checked against your normal weeks

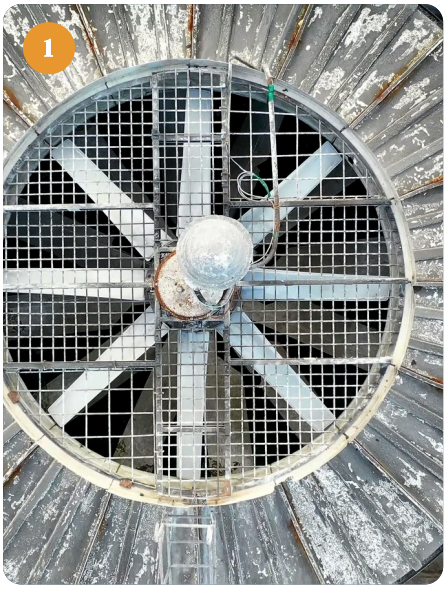
Shows how often the same alert would have appeared in your own normal weeks, so your team can trust it.

**One chiller or many.** Several chillers can share one file; each is judged on its own.

TOWERS, LOOPS AND PUMPS

# The water side, with the finding named.

Heat leaves the building through water. When a tower cell, a pump or the loop itself falls short, the chillers work harder to hide it. CARI-Chiller looks at each part directly.




## Cooling tower and condenser-water loop

Cells, fans, basins, make-up water and water quality, together with the chillers the tower serves.

WHAT IT TELLS YOU

- A **weak tower cell** (fill or spray nozzles), and which cell
- A **fouled chiller condenser**, told apart from a weak tower cell, chiller by chiller
- A **make-up valve** shut or stuck open
- **Fan belt slip**, cell by cell
- A **water treatment upset**: blowdown not flowing
- **Extra water loss**: drift eliminator or leak

READS Outdoor wet-bulb, tower supply and return water, each cell's cold water, fan speed command, fan power and basin level, make-up flow, water conductivity, and each chiller's duty, power and condensing temperature.



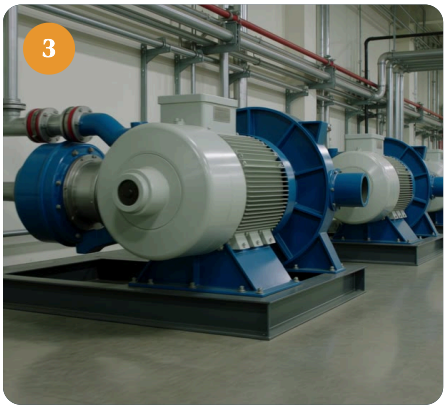

## Primary-secondary water loop

The chiller side, the building side and the bypass between them.

WHAT IT TELLS YOU

- **Deficit flow in the bypass**: the building is drawing more water than the chillers supply
- A **weak primary side**: pump, chiller or strainer

READS Flow on the chiller side, on the building side and through the bypass, the pressure difference at the far end of the building, and how many pumps and chillers are running.




## Chilled-water pumps

The secondary pumps that carry chilled water to the building.

WHAT IT TELLS YOU

- A **worn secondary pump**
- **Pump efficiency loss**: motor or bearings

READS Pump speed, the flow delivered, the pressure difference held at the far end of the building, and the power the pumps draw.

**Named, with dates, for every unit you add.** Each finding says what was seen, on which unit, from when to when, and names the usual cause, so the round starts at the right place.

AIR HANDLERS, FANS AND THE DATA HALL

# Where the cooling meets the load.

Chilled water is only useful once it reaches the air. CARI-Chiller follows it into the air handlers that serve the floors and the cooling units that serve the racks.




## Air handlers and their fans

Coils, valves, sensors and the supply fan of each air-handling unit.

WHAT IT TELLS YOU

- **Heating and cooling fighting**: a leaking valve or a sequence fault
- **Duct pressure low with the supply fan at full speed**: a slipping belt, a blocked filter, a closed damper or a duct leak
- A **mixed-air, return-air or outdoor-air sensor** that reads wrong

READS Supply, mixed, return and outdoor air temperatures, valve positions, fan status and speed, duct pressure and its set point.




## Data-hall cooling units

A group of computer-room air-handling units (CRAHs) and the rack rows they serve, read together.

WHAT IT TELLS YOU

- The **unit out of step** with the others, and on which reading
- **Valve hunting**, unit by unit
- A **hot spot**, by rack row

READS For each unit: return and supply air, humidity, valve position, **fan speed**, power, humidifier output and chilled-water return temperature. For the room: rack inlet temperature by row.




## Free cooling

The water-side economiser that takes load off the compressors when the weather allows.

WHAT IT TELLS YOU

- Economiser valve **held part-open**
- Valve **open when the tower water is too warm**
- Valve **shut when free cooling is available**
- The exchanger **losing effectiveness**

READS Outdoor wet-bulb, chilled-water supply temperature, economiser valve position, IT load and cooling-plant power.

FANS, WHEREVER THEY WORK

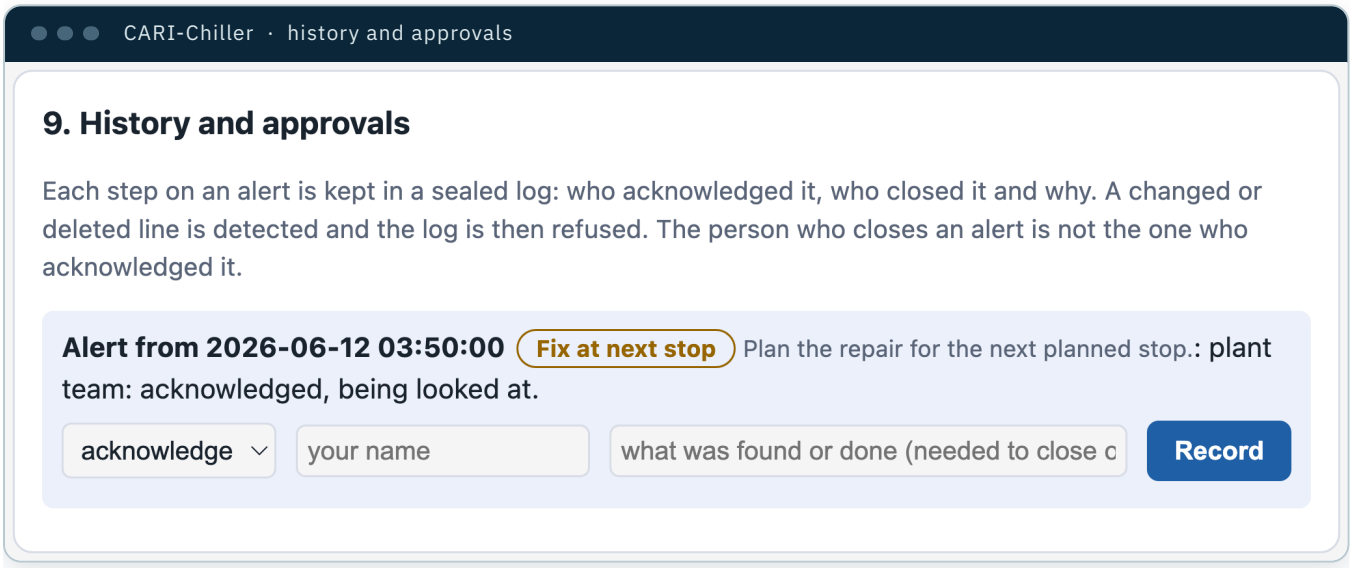
Fans are watched as part of the machine they serve: **tower fans** for belt slip, cell by cell; the **air handler's supply fan** against the duct pressure it should hold; and each **data-hall unit's fan** against the others in the room.

WHAT YOU GET · CHILLER ALERTS AND WORK ORDERS

# From alert to work order. Every step on record.

An alert is only useful if someone owns it. CARI-Chiller follows each chiller alert from the day it is raised to the day it is closed and checked against the next file.

| 1. Alert raised | 2. Acknowledged | 3. Work order | 4. Closed | 5. Next file |
|---|---|---|---|---|
| With its urgency grade and the readings that moved. | By name and time, with a note. | One row per chiller alert for the maintenance team. | By a second person, with what was found or done. | Shows whether the readings still carry the alert. |




History and approvals. The alert carries its urgency grade and the team's last recorded step. The next step is recorded with a name and a note.

### Two people on every closure

The person who closes an alert is not the one who acknowledged it. A closed alert can be reopened, with the reason.

### A sealed log

Every step is kept in order. A changed or deleted entry is detected, so the record can be trusted.

### A work-order file

One row per chiller alert: reference, chiller, what was seen, urgency grade, the team's last step, extra energy and its cost, and the check to make after the repair. It opens in a spreadsheet, for maintenance planning.

### Kept with the plant

A saved project carries the alert history into next month's file.

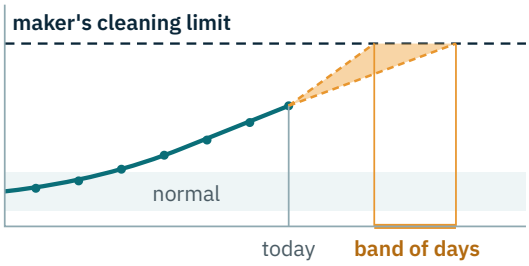
**Reads only.** CARI-Chiller never writes to a chiller or its controls. The plant stays in your team's hands.

WHAT YOU GET · CLEANING TIME, ENERGY AND THE REPORT

# Answers a plant head can plan with.

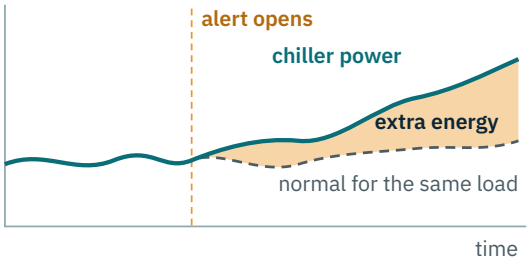
When will the condenser need cleaning? What is a drifting chiller costing while we wait? CARI-Chiller answers both from your own records and puts them in a report that prints.

## Days to the cleaning limit




Condenser approach, the gap between condensing temperature and leaving condenser water, is followed day by day against **your chiller maker's cleaning limit**. You get a band of days, redrawn with every new file, so cleaning is booked ahead.

## Extra energy and its cost




The power a chiller draws above its normal while an alert is open is added up and priced with **your own electricity price, in any currency**. Open chiller alerts are ranked by cost, largest first.

CARI-Chiller · printable report: plant summary

### CARI-Chiller report

### Plant summary

### Finding on: AHU Level 5, Cooling tower 2, Data hall B, Free cooling B, South loop, South pumps.

#### Other plant units

Each unit type is checked when its columns are present; otherwise it names the columns it needs.

| unit | type | result |
|---|---|---|
| Cooling tower 1 | Cooling tower and condenser-water loop | No change found. |
| Cooling tower 2 | Cooling tower and condenser-water loop | Finding: tower cell weak (fill or spray nozzles), cell 2 (from 2026-05-07 00:00) |

The printable report opens with a one-page plant summary for the plant head, then gives a sheet for each chiller and each plant unit. It saves as a single file.

### Your limit, your source

The cleaning limit and where it is printed are yours to enter, and both are shown beside the result.

### Your price, your currency

Type the electricity price once. It is kept with the plant and applied to every new file.

### One report for the plant

Chillers, towers, loops, pumps, air handlers, data-hall units and free cooling in one document.

HOW IT FITS

# One export. Your PC. Nothing leaves it.

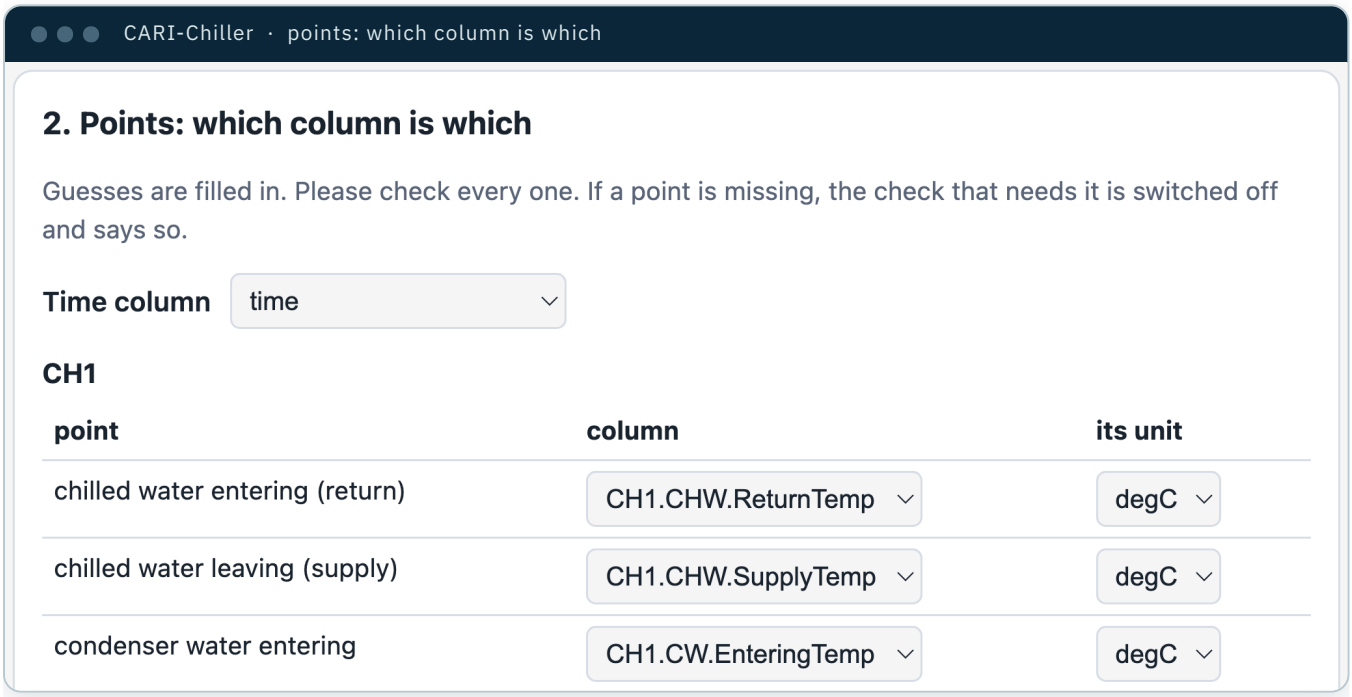
CARI-Chiller works beside the systems you already run. It needs no connection to the building management system and no change to the controls: you load a file, on your own computer.

**1**
**Export**
From your BMS or historian as CSV. One row per time step, one column per point.

**2**
**Confirm the points**
The app proposes which column is which. Your engineer confirms each one and adds the plant units.

**3**
**Pick the normal weeks**
The dates your team calls normal; price and cleaning limit if used.

**4**
**Read the plant page**
Status, alerts, findings, cleaning time, energy and the report.




The points screen. Each point is matched to a column of your export and to its unit. Further plant units are added by name on the same screen.

### Your units, as they are
Temperatures in °C, °F or K; flows in L/s, L/min, m³/h, gpm, kg/s or kg/h; power in kW, W, MW, hp or BTU/h. Units are read from the column names and confirmed by your engineer.

### Your date format
Day first or month first is read from the file. When the file cannot settle it, the app asks.

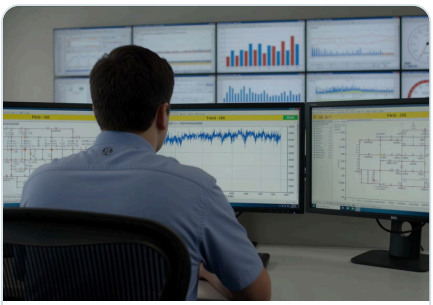
### Saved projects
Next month's file starts from last month's point choices, units, dates, electricity price and cleaning limit, with a timeline of every run.

### Runs on your own PC
Opens in your web browser from your own computer. Your records are not sent anywhere.

WHERE IT WORKS

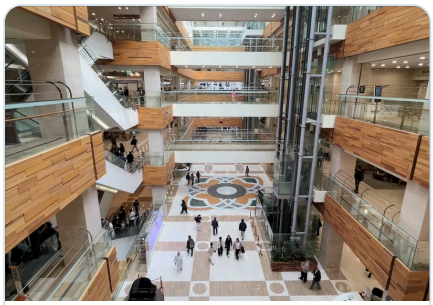
# Wherever cooling carries the building.

The same application serves a single tower block and a campus-wide plant. A unit is checked whenever its points are in your export, so the plant page grows with your plant. Name the towers, loops, air handlers and hall groups in your export and read their findings together.



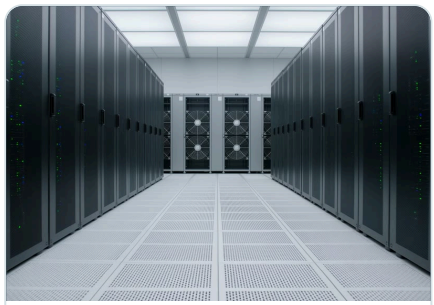
### Commercial buildings and building automation

Your building management system already keeps the trends. CARI-Chiller turns its export into a plant page the facility head reads in minutes.



### Malls and retail

Long opening hours and large air handlers. See heating fighting cooling in an air handler, and the chiller that drifts through the season.



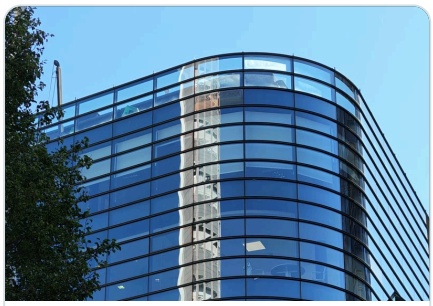
### Data centres

Know which hall unit is out of step, which rack row runs hot, and the dated findings on free cooling.



### Hospitals

A plant that cannot stop. Plan condenser cleaning ahead of the limit, with a record of who acted on every alert.



### IT parks

Several buildings, one facility team. A saved project for each, with its history month after month.



### Pharma and process cooling

Chilled water the process depends on. See a weak pump or deficit flow in the loop named, with the dates.

### Hotels

Guest comfort with a lean engineering team. Open chiller alerts ranked by what they cost, in plain words.

### Airports

Large terminals, many air handlers and towers working all day, on one plant page.

### District cooling

Many chillers in one plant, each judged on its own, with the towers, loops and pumps beside them on the same page.

**A saved project for each site.** Each plant keeps its own points, electricity price, cleaning limit and history. The plant page and the report read the same way everywhere.

GETTING STARTED

# Start with one plant. See your plant page.

Choose one cooling plant and export a few months of its records. We set CARI-Chiller up on your PC with your team, confirm the points together and walk through the first plant page, the alerts and the report. Your records stay on your site.

1

### You export

One CSV file from your building management system or historian, and the weeks your team calls normal, ready on your PC.

2

### We set up together

Points and units confirmed with your engineer, plant units added by name. Your electricity price and your chiller maker's cleaning limit entered once.

3

### Your team reads

The plant page, chiller alerts with urgency, named findings on the plant units, cleaning time, energy cost, work orders and the report.

WRITE TO US

contact@carimo.tech

WEB

carimotech.com

PART OF THE FAMILY

**CARI-Loops finds the loops and valves that need you. CARI-Tune retunes them.**