

Advanced Renewable Energy Digital Twin

EDUCATIONAL REAL-TIME SIMULATOR · WINDOWS 10 / 11

Seven real reference plants as 3D digital twins driven by live physics. Watch them run, change their numbers, analyse the response — or build a plant of your own.

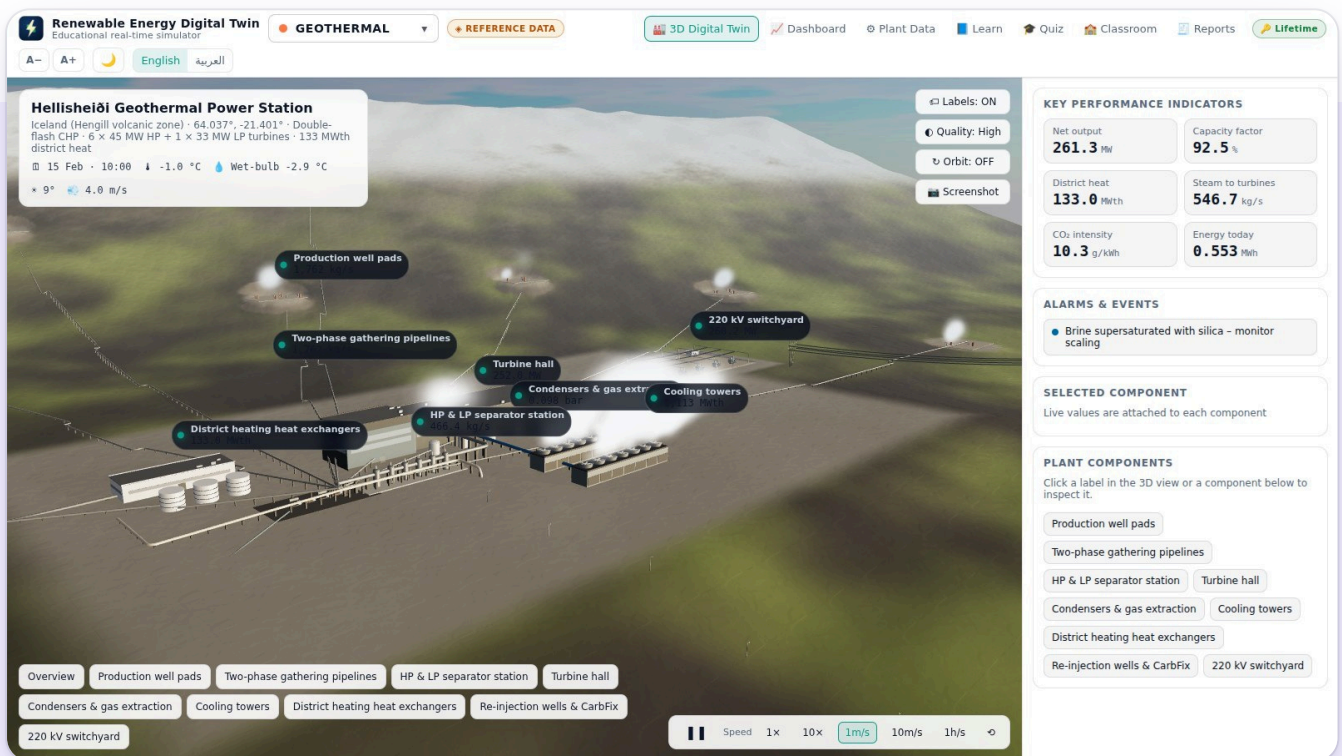


DIGITAL TWIN

A power plant running in front of you.

Every plant in the software is a **digital twin**: a 3D model of a real site whose components move second by second on a physical process model. The values on the labels, gauges and charts are computed live from weather, fuel, water, sun and wind — and from the operating parameters you choose.

One interface: 3D Digital Twin · Dashboard · Plant Data · Learn · Quiz · Classroom · Reports



Live labels on every component

Click any component in the scene to read its description and its live values in the side panel.

Real day, night and weather

Lighting follows the simulation clock, weather follows the site season and climate, over satellite imagery of the real terrain.

Time under your control

From real time up to one simulated hour per second — a full month passes in minutes.

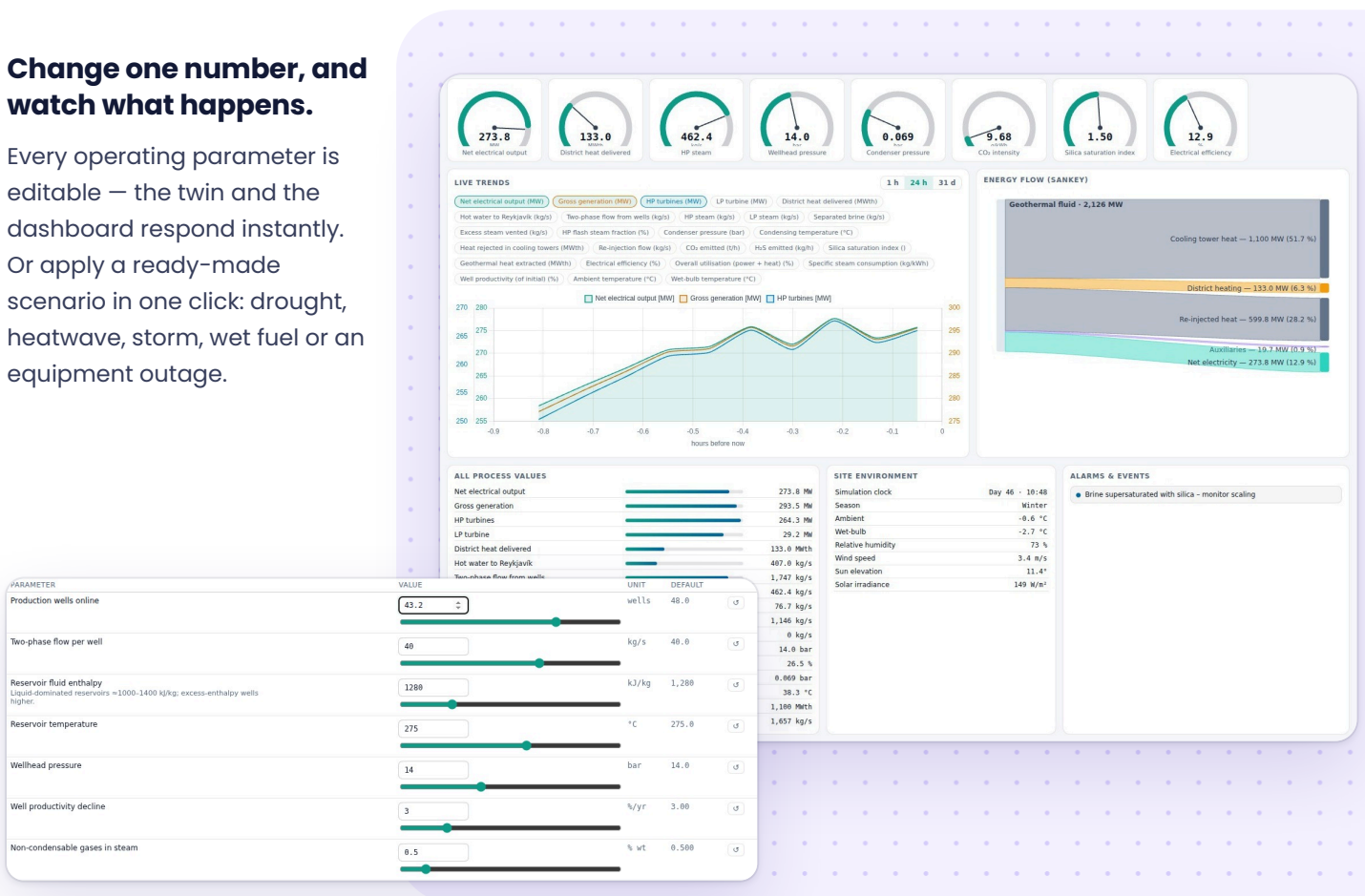
LIVE DASHBOARD

From watching to analysing.

The running plant as a control room shows it: gauges with operating limits, live trends, an energy-flow diagram, and every process value the physical model computes.

Change one number, and watch what happens.

Every operating parameter is editable — the twin and the dashboard respond instantly. Or apply a ready-made scenario in one click: drought, heatwave, storm, wet fuel or an equipment outage.



01 Watch

Fly freely around the plant with live labels on the components.

02 Run

Play, pause, set the simulation speed, restart.

03 Change

Edit design and operating parameters, or apply a scenario.

04 Analyse

Read gauges, trends, alarms and the energy-flow chart.

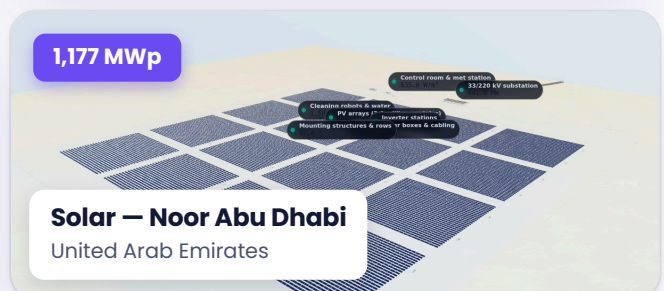
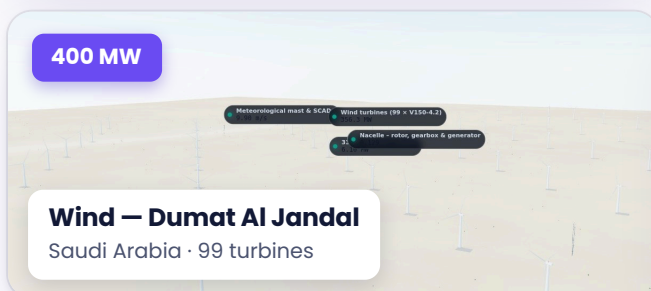
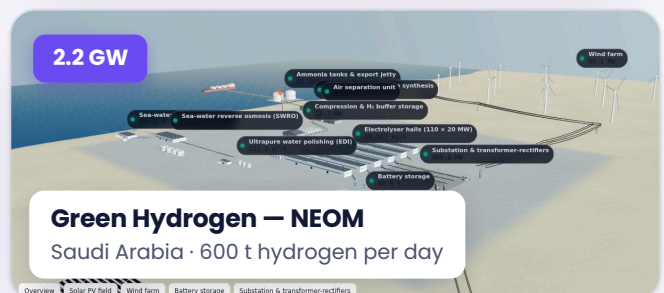
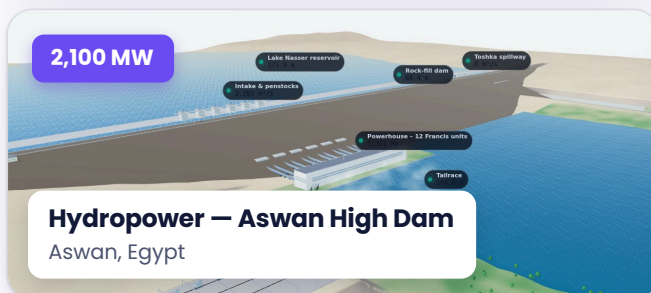
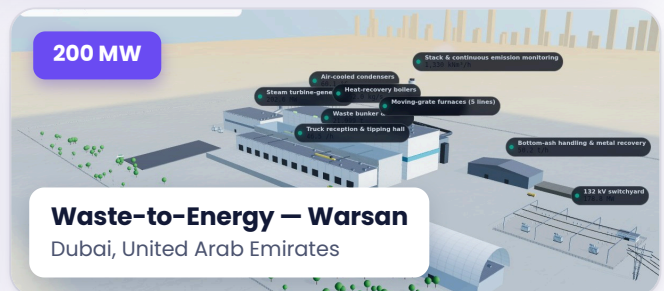
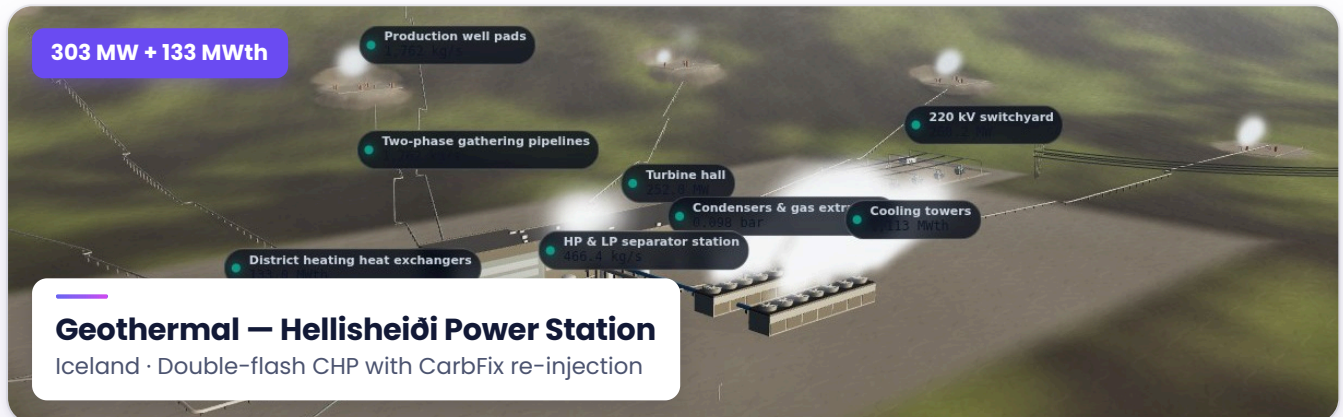
05 Build

Create a complete plant from your own design data.

SEVEN TECHNOLOGIES

Plants you know, with their published figures.

7 technologies · 7 real sites

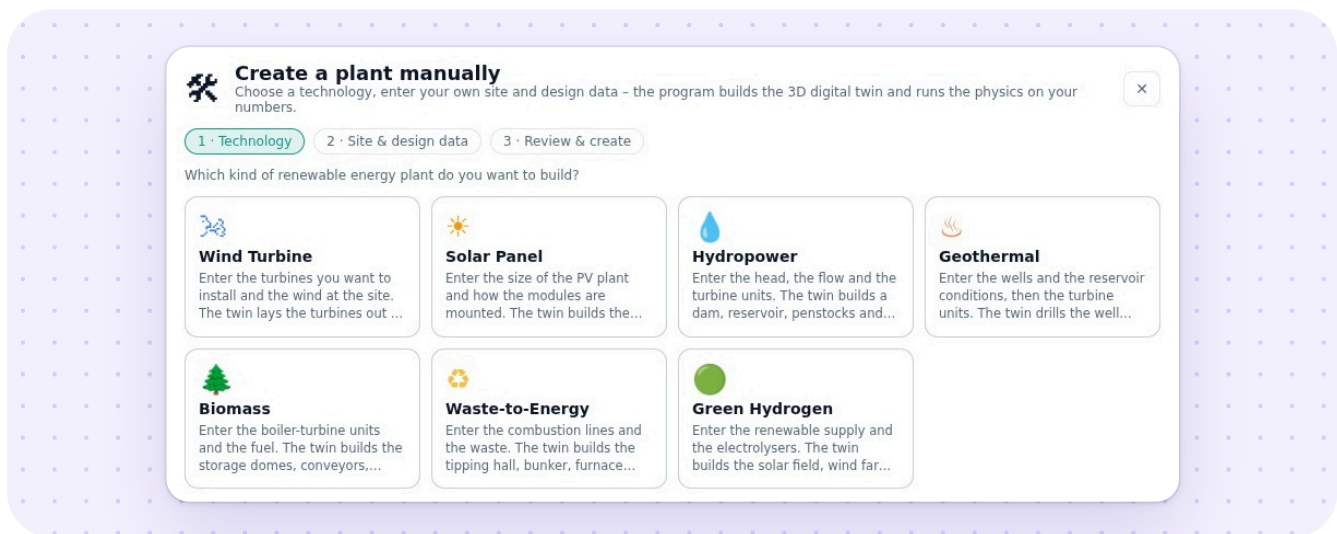


Each plant comes with its 3D twin on real terrain, its physical model, a data sheet of the real site, its own scenarios, and Learn and Quiz pages written for its technology.

PLANT BUILDER

Build your own plant and run it on your numbers.

Beside the seven reference plants, the software builds a complete plant from design data you enter: a wind farm you are planning, the solar plant in your city, or a project from a case study.



01 Choose the technology

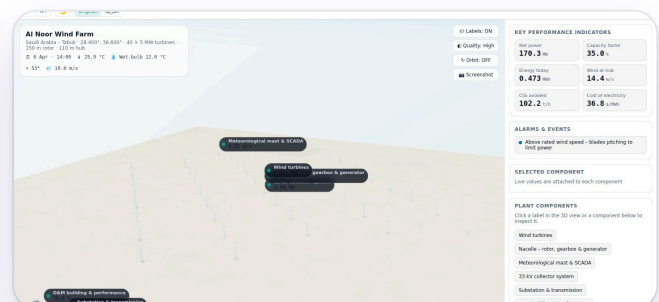
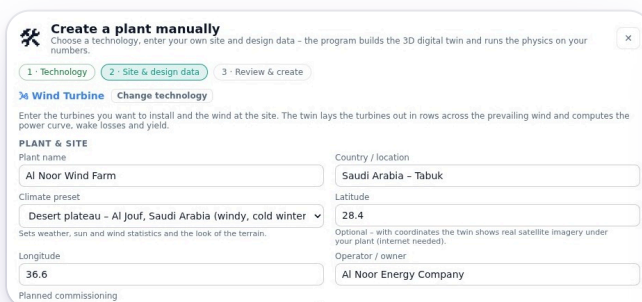
All seven technologies are available in the builder, on the same models that drive the reference plants.

02 Enter the design data

Site, climate and the few design values that define the plant – every field with its allowed range.

03 Run the twin

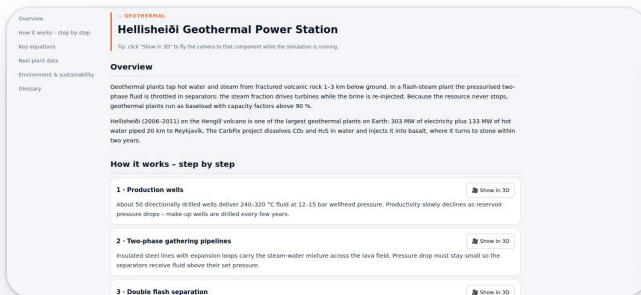
The 3D model is built from your numbers in seconds, and the physics runs on it straight away.



Your numbers become the reference: every remaining operating parameter is derived from typical values for the technology and stays editable, dashboard gauges scale to the size of your plant, and the Learn, Quiz and Reports pages follow your plant by its name and technology.

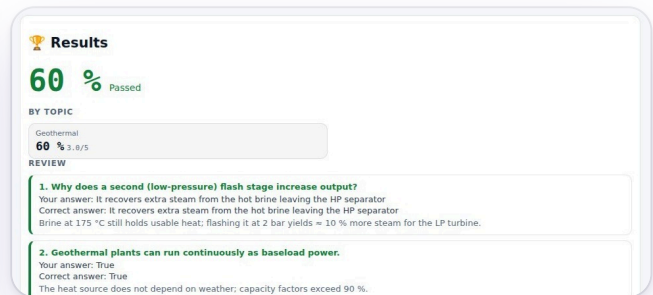
LEARN · TEST · REPORT

From simulation to certificate and report.



Learn

A short course for every technology: the process step by step, the core equations, the real plant data sheet, environment and sustainability, and a glossary — each step with a Show in 3D button that flies the camera to that component in the running twin.



Test

Auto-marked questions in practice and exam modes, including live-data questions read from your own simulation at that moment, with a per-question review and a printable certificate.

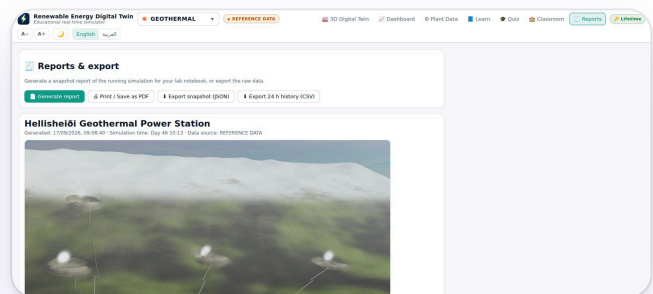
STUDENT	STUDENT ID / NUMBER	ATTEMPTS	EXAMS	BEST	AVERAGE	LAST ATTEMPT
Layan Khalid	2024103	3	1	80 %	67 %	13 Sept 2026, 04:28
Mohammed Ali	2024102	2	1	100 %	75 %	15 Sept 2026, 06:52
Nour Eddin	2024105	2	1	60 %	50 %	8 Sept 2026, 23:40
Omar Hassan	2024104	1	0	40 %	40 %	11 Sept 2026, 02:04
Reem Salah	2024106	3	1	90 %	63 %	6 Sept 2026, 21:16
Sara Ahmed	2024101	1	0	67 %	67 %	17 Sept 2026, 00:16

DATE	TOPIC	MODE	QUESTIONS	SCORE	DURATION	RESULT
13 Sept 2026, 06:52	Solar Panel	Practice	5	100 %	4:37	✓ Verified
14 Sept 2026, 13:04	Hydropower	Exam	10	50 %	5:30	✓ Verified

MOHAMMED ALI - SOLAR PANEL - PRACTICE - 15 SEPT 2026, 06:52 - 100 % 1. Ambient 38 °C, irradiance 900 W/m², wind 2 m/s. Using the Faïman model $T = T_{amb} + G(25 + 6.84 \cdot v)$, what is the cell temperature in °C? Student answer: 61.3 °C Correct answer: 61.3 °C Result: correct (100 %) $900 / (25 + 13.68) = 23.3 \text{ K}$, 61.3 °C, $At = -0.37 \text{ N/K}$ that costs 13 % of the STC power. 2. Why is the DC capacity of Nour Abu Dhabi (1,177 MWp) larger than its inverter AC capacity (= 935 MW)?	Hide answers
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Classroom mode

Students send every finished quiz to a shared folder, and the supervisor sees each student's answers and scores in one table — with no server and no internet connection.



Document & export

A printable report with the twin image, key indicators, active alarms and every parameter used, plus raw data export as JSON and CSV for Excel.

- Windows 10 / 11 (64-bit)
- English & Arabic — full RTL interface
- Runs offline, no server
- 14-day trial version


ASFAN

For a quotation or a classroom trial licence

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ASFAN Trading

The software is an educational simulator; its values are estimates from a physical model built on published design data — not measurements from the real plants. Plant names and data are used for educational purposes, and the software is not affiliated with the operators of the reference plants. © 2026 ASFAN Trading.