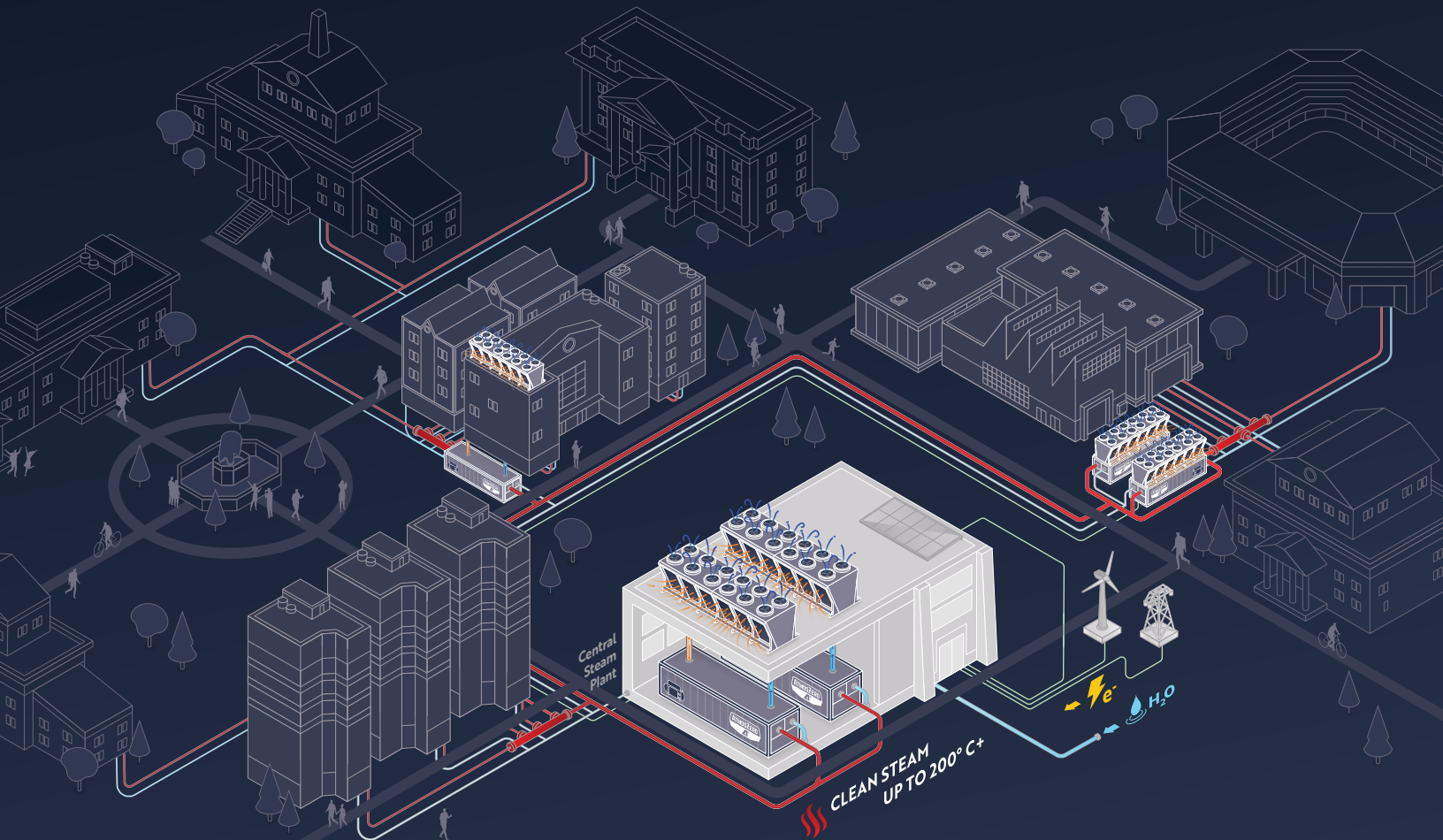




Don't lose steam

Eliminate scope 1 emissions

Clean steam makes zero-emissions campuses a reality



A new school of thought for powering campuses

AtmosZero is reimagining the way universities and college campuses power district heat and steam resources with its flexible and distributed emissions-free electrified boiler that delivers zero on-site carbon, NO_x, SO_x, or PM emissions. Instead of the traditional intrusive and expensive approach of

gutting steam networks and replacing them with hot water or using electric resistive boilers, **AtmosZero's Boiler 2.0 cost-effectively produces electrified steam while keeping campus infrastructure intact.** This minimizes disruptions to campuses and helps universities reach their sustainability goals faster.

2X

**the efficiency
compared to
traditional boilers***

**Less than
10%**

**of the cost of
converting campus
to hot water**

**District heating
accounts for over
50%**

**of scope 1
emissions on
campus[†] per year^{††}**

The challenge with zero-emissions district steam

Today's college campuses are rapidly working toward zero-emissions goals while increasing efficiencies and cutting costs. Historically, universities have had two options for eliminating emissions from their steam operations:

- Use electric resistive boilers, which are expensive because of higher electricity costs and boiler efficiencies of less than 100%.
- Replace the campus' entire steam network with geothermal heat pump-powered hot water lines. Replacing steam networks requires digging up campus and disrupting campus life. It's a time-intensive process, taking 5+ years, and costs hundreds of millions of dollars to implement.

**INSTALLATION IN
DAYS
VS. MONTHS AND YEARS**

While both options result in cleaner heat, the high cost and length of time to implement does not provide a viable path to zero emissions for campuses. The quickest way for universities and campuses to go emissions-free and reach their sustainability goals is to minimize integration effort and cost while maximizing efficiency.

* Performance depends on the source temperature and delivered steam pressure

† Colorado State District Energy Master Plan

†† IEA CO₂ Emissions in 2022 Report and IEA District Heating Overview

The solution: AtmosZero Boiler 2.0

AtmosZero boiler: Capable of producing electrified steam at up to

➔ **250–307°F**
121–153°C

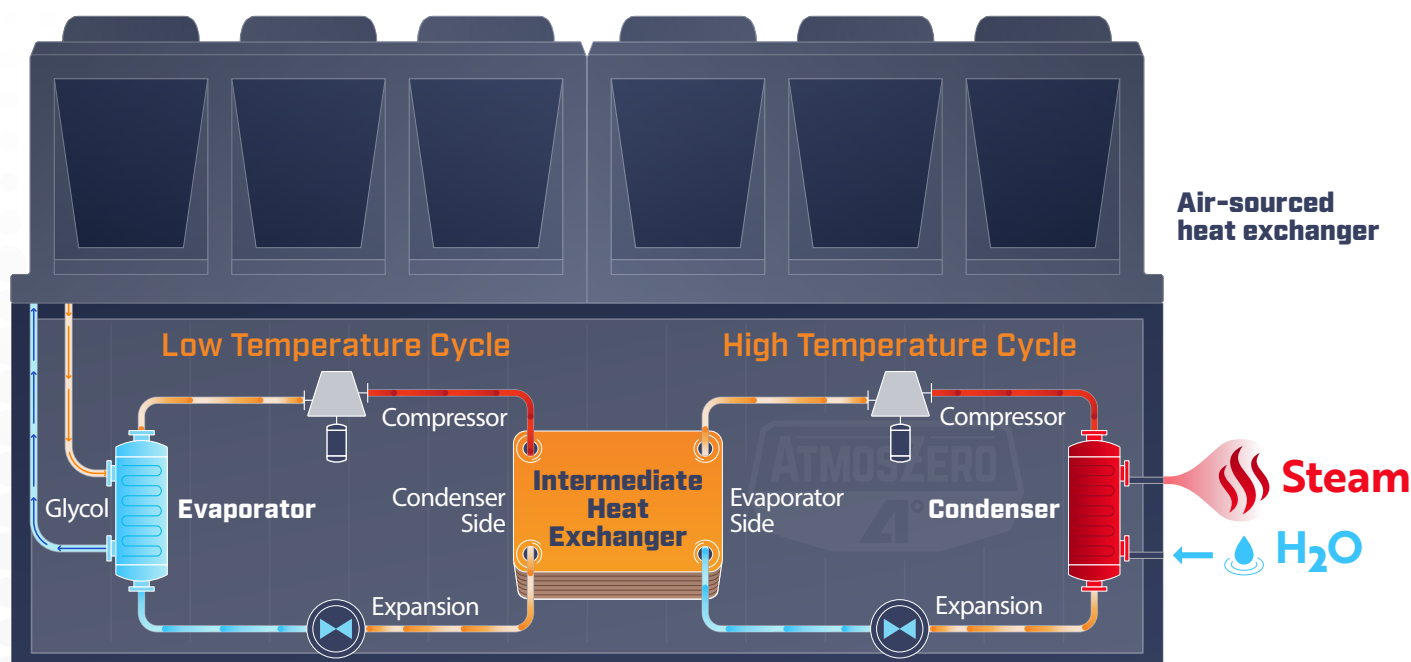
➔ **14–60 PSIG**
1.0–4.1 bar(g)

➔ **24/7**

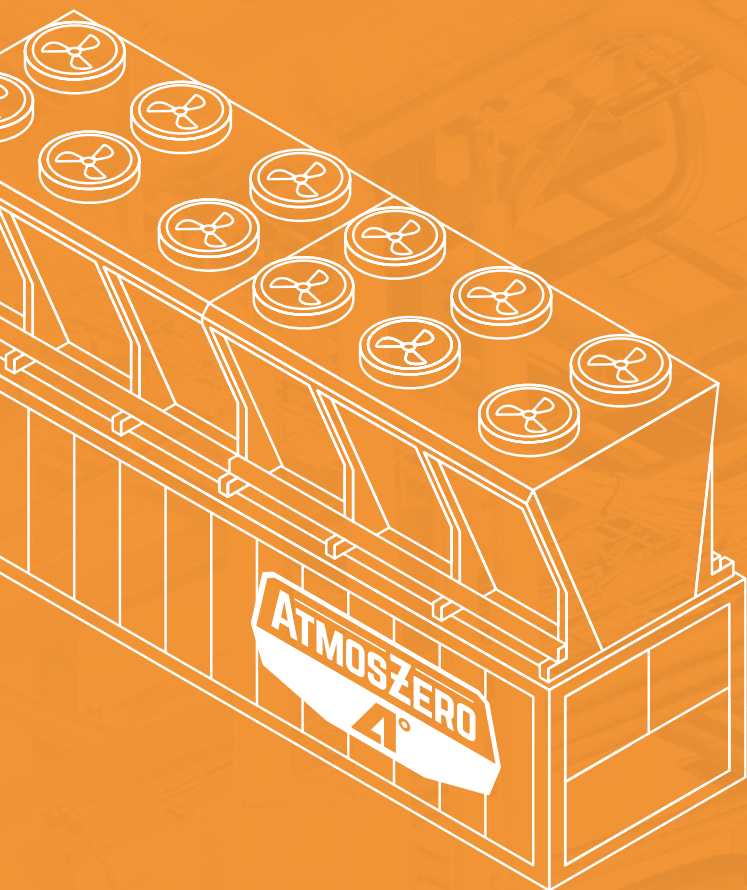
AtmosZero's emissions-free boiler is the ideal solution for tackling district steam cost and installation challenges. Boiler 2.0 is a drop-in, modular solution that can be customized to fit any university's or college's needs. AtmosZero's unique steam solution harvests heat from ambient air and uses it to produce steam at efficiencies much greater than 100%. **The air-sourced nature of Boiler 2.0 also minimizes integration costs and challenges, truly enabling a plug and play solution.**

Whether it's a direct replacement at the main boiler facility or a distributed network across campus, Boiler 2.0 provides flexibility and scalability for campuses of all sizes to electrify their steam operations cost-effectively and quickly.

AtmosZero heat pump



Schematic not to scale



Boiler 2.0

is the solution campuses need to meet their ambitious sustainability goals and to be leaders in climate and clean energy action.

A survey by UNESCO* found that 91% of students believe their place of study should actively incorporate and promote sustainable development — though only 17% rate their university as 'very good' in relation to the action taken to limit negative impacts to environment and society.

* UNESCO—Student Sustainability Findings Report (2018)

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