U.S. Heating Market Affected By Pandemic in 2020

Contributed by BSRIA Worldwide Market Intelligence

BRACKNELL, BERKSHIRE, U.K.—Looking back at the U.S. market for residential and commercial boilers in 2020 shows how hard it was hit by the COVID-19 pandemic. Overall, the heating industry, including furnaces, boilers and heat pumps, is worth—in terms of products sold—$3.2 billion in U.S. dollars. The industry fell by 6% in 2020.

As with other countries, lockdowns and their impact on construction and redundancies have meant consumers have been reluctant to spend. Heating manufacturers have been trying to conserve cash; wholesalers are reducing their inventories; contractors are staying away from work; and supply chains are interrupted. At the same time, the costs of components, transport and labor have been going up, but the market has seen only a very moderate price increase in products.

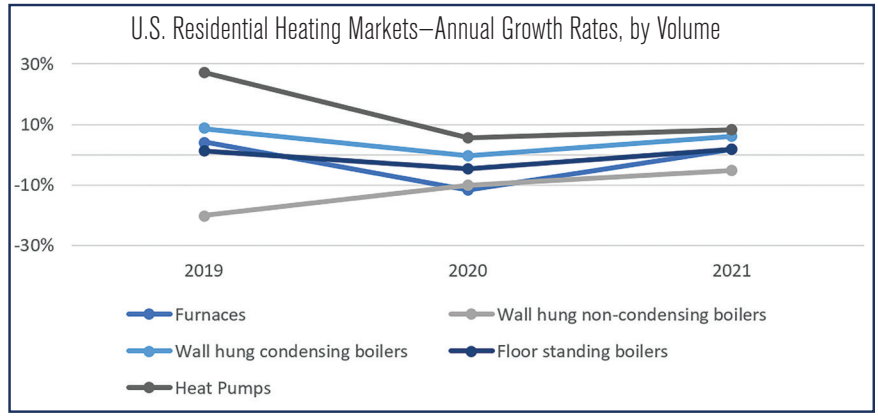
The pandemic has meant many people are spending more time at home, which has been a driver for replacement, and, in some cases, has been helped by financial support mechanisms such as the COVID-19 relief plan.

The U.S. heating market's recovery will depend on the country's ability to control COVID-19. It is recognized that a strong and sustainable economic recovery is strongly correlated to strong and sustainable health recovery.

Risks to the expected rates of recovery include new variants of the virus, the logistical distribution of vaccines and people's behavior, which may lead to more lockdowns.

U.S. Boiler Market

Forced air systems for heating and cooling are the norm in the U.S. Furnaces are typically a residential application, and hydronic heating is a niche application. In terms of efficiency, under the pressure of regulation, both gas furnaces and boilers have seen growth in the past few years, and condensing types with annual fuel utilization efficiency (AFUE) above 90% have significantly increased in numbers.



The U.S. boiler market is quite stable and mature, with most growth in the combination and wall-hung boilers segment, and the emphasis is on competitive pricing. With furnaces dominating (about eight furnaces are sold for each boiler sold), the hydronic heating market is replacement-based, and floor-standing boilers are still a valid, like-for-like replacement option.

There is a lot of discussion of the new presidential administration's intentions and some states' policies (such as California's) on the electrification of heating. Large manufacturers are looking at how this will affect them. The traditional boiler manufacturers' greatest concern is the development of air-to-water heat pumps and whether this market will come to resemble the solid growth seen in Europe.

At the moment, air-to-water heat pump costs are higher, and they require greater skill and knowledge to install. Also, they need to be able to operate in a harsh climate. Hydronic heating is mostly concentrated in the Northeast, where average winter temperatures are low. The drivers to change would be better energy efficiency, growing demand for all-electric homes and the ability to cool as well as heat.

It is thought residential sales of boilers will not reach 2019 levels before 2022. In comparison to the residential market, the commer-

cial boiler market was affected worse by the COVID-19 pandemic, and the bounce back is slower, with sales expected to be back to 2019 levels by 2023. However, COVID-19 has accelerated the potential use in office buildings, for example. Heating can be seen as an extra benefit for retrofit opportunities with energy-efficient technologies with return on investment justification.

Environmental awareness will be another driving force, such as San Francisco's moratorium banning gas boilers or anything gas for new commercial buildings. However, the greatest concern, from the end-user's point of view, is not their emissions but if they will provide a reduction in energy costs and more comfort, which points to their faster adoption by the commercial sector.

Demand for energy will keep increasing—as seen with the blackouts in Texas in February—but electricity prices fell in 2020 and are likely to stay low up to 2022, continuing to be among the lowest globally, which in itself does not drive change.

While building regulations are helpful in pushing certain technologies and subsidies and rebates that may not be consistently available, ultimately market forces are the most likely to promote greener heating, including heat pumps. COVID-19 is only one of the challenges the U.S. heating industry is facing, alongside the climate crisis and targets, urbanization, adoption of greener gas solutions, increasing demand for electricity and integration of heating solutions. These create challenges and opportunities and are likely to make the landscape look quite different by 2030. ■

Industry Roundup

ASHRAE Epidemic Task Force Updates Airborne Transmission Guidance

ATLANTA–The ASHRAE Epidemic Task Force has released an updated, unequivocal statement on the airborne transmission of SARS-CoV-2 in buildings. The statement says, "Airborne transmission of SARS-CoV-2 is significant and should be controlled. Changes to building operations, including the operation of heating, ventilating and air-conditioning systems, can reduce airborne exposures."

This replaces the April 2020 statement that said airborne transmission was "sufficiently likely." At that time, both the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) contended that transmission of SARS-CoV-2 was by droplet and fomite modes, not airborne. Subsequently, both have acknowledged the risk of airborne transmission indoors. *Source: ASHRAE*

Organic Material May Help Develop the Next Generation of HVAC Technologies

COLLEGE STATION, TEXAS–Texas A&M University researchers are studying polyimides—an organic material that may improve dehumidification efficiency in HVAC systems. Polyimides use less energy to dry air and could bring down the price of HVAC systems and leave a smaller carbon footprint. The researchers studied an existing and rather robust polymer and then improved its dehumidification efficiency. *Source: Texas A&M University*

Microsoft Tests Immersion Cooling Technology from Bitcoin Mining

REDMOND, WASH.–Microsoft is seeking ways to manage new artificial intelligence hardware in its cloud computing operation. It is test-driving a setup in which servers are dunked in tanks of cooling fluid. The immersion cooling technologies are currently used in bitcoin mining operations. Because immersion cooling uses sealed tanks that do not require the raised floors or room-level air-cooling found in most commercial data centers, it can deliver significant power efficiency. *Source: Data Center Frontier*

Washington Integrates PNNL's HVAC Analysis Method Into Code

RICHLAND, WASH.–The Washington State Energy Code now includes an HVAC energy system efficiency analysis method created by Pacific Northwest National Laboratory. The total systems performance ratio (TSPR) takes a holistic approach to energy-efficiency analysis to evaluate system performance by requiring designers to evaluate HVAC system performance as a whole. The TSPR is calculated by dividing the sum of a building's annual heating and cooling loads by an HVAC system's annual energy use. *Source: PNNL* ■