



**Guidehouse**  
INSIGHTS

Research Report

**Executive Summary:**

**Commercial and Residential HVAC**

Regulations, Market Trends, and Technologies for Sustainable Cooling and Heating: Global HVAC  
Market Analysis and Forecasts

**NOTE:** This document is a free excerpt of a larger report. Click on  
the link above to purchase the full report.

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# Section 1

## Executive Summary

### 1.1 Introduction

HVAC has changed civilization, bringing wealth and education to Earth's hottest regions. However, its operation is one of the key causes of climate change. The detrimental environmental impact of running HVAC leads the industry and governments to seek a sustainable cooling and heating solution.

Local governments regulate system efficiency and high global warming potential (GWP) refrigerants, while innovative market players develop highly efficient advanced products. Notable technology examples include heat pump water heaters, heat pumps, and variable speed compressors. Heat pump water heaters can efficiently heat water at higher temperatures, heat pumps drive electrification in the market, and variable speed HVAC systems allow flexible operation of cooling and heating. A heat pump water heater equipped with natural refrigerant R-744 (CO<sub>2</sub>) is an excellent example of how regulation and industry innovation have resulted in a sustainable solution.

### 1.2 Market Drivers and Barriers

Some policymaker efforts such as refrigerant regulations and efficiency-supporting incentives help drive the market; however, numerous non-policy drivers aid HVAC market growth:

- Cooling demand in hot places and the heat island effect
- Technical advancements in HVAC systems
- User-friendly functions
- District heating (DH) and cooling (DHC)
- New business models and new construction demand

Although multiple drivers lead growth, the market still faces barriers:

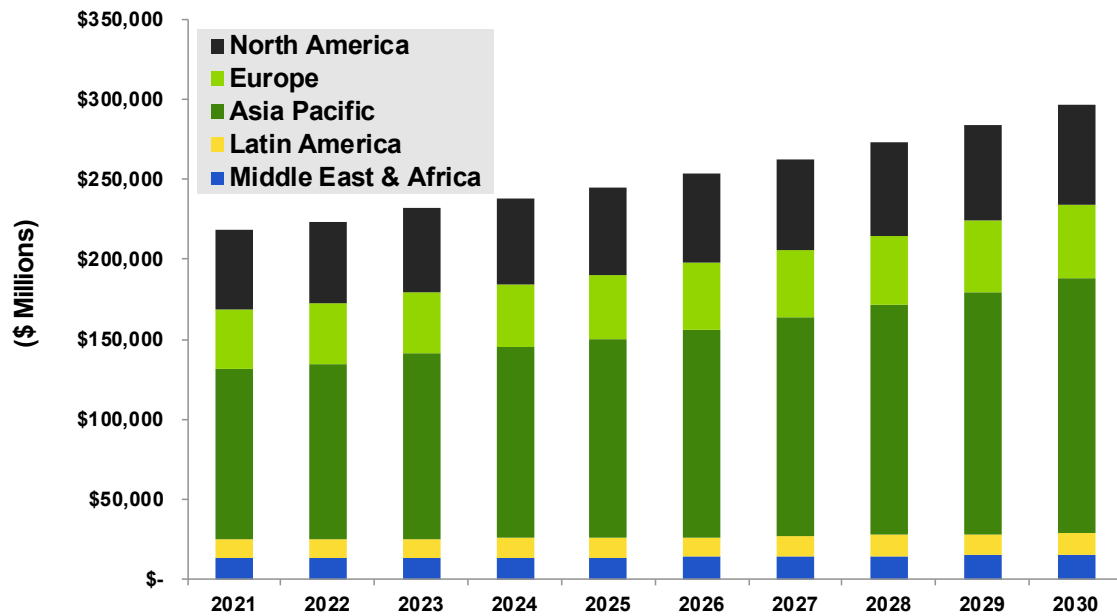
- High costs for efficient HVAC equipment
- Fossil fuel-powered HVAC limitations on sustainability
- Grid burden and Insufficient grid infrastructure
- Lack of product knowledge
- Shortage of well-trained experts and a lack of system design knowledge
- Passive cooling advancements

Although the HVAC industry has a long history, technology and policy are never stagnant. Indeed, the industry has been transforming toward sustainability, showing higher efficiency and environmental friendliness.

### 1.3 Market Forecast

This Guidehouse Insights report forecasts shipments and market size for residential and commercial HVAC. The global HVAC market is anticipated to be \$218.8 billion in 2021, growing at a compound annual growth rate (CAGR) of 3.4% from 2021 to 2030. The 2030 market size is anticipated to reach \$ 296.7 billion. Asia Pacific will likely be the largest market in 2021, representing 48.7% of the total market value. Asia Pacific will likely grow at a CAGR of 4.6% by 2030. China, India, and some Southeast Asian countries are expected to lead market growth in Asia Pacific.

**Chart 1-1. HVAC Equipment Revenue by Region, World Markets: 2021-2030**



(Source: Guidehouse Insights)

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# Scope of Study

This Guidehouse Insights report provides an analysis of the global HVAC market forecast between 2021 and 2030. This forecast includes North America, Europe, Asia Pacific, Latin America, and Middle East & Africa. The market is segmented by residential and commercial, defining products as follows:

- **Residential:** Central AC, heat pump (including RAC, central AC, and heat pump water heater), RAC (window and ductless split), furnace, and boiler
- **Commercial:** Chiller, VRF (heat pump VRF, non-heat pump VRF), rooftop, and boiler

The forecast (with Excel data) includes a split by energy efficient and non-energy efficient HVAC segmentation.

## Sources and Methodology

Guidehouse Insights' industry analysts use a variety of research sources in preparing Research Reports. The key component of Guidehouse Insights' analysis is primary research gained from phone and in-person interviews with industry leaders including executives, engineers, and marketing professionals. Analysts are diligent in ensuring that they speak with representatives from every part of the value chain, including but not limited to technology companies, utilities and other service providers, industry associations, government agencies, and the investment community.

Additional analysis includes secondary research conducted by Guidehouse Insights' analysts and its staff of research assistants. Where applicable, all secondary research sources are appropriately cited within this report. These primary and secondary research sources, combined with the analyst's industry expertise, are synthesized into the qualitative and quantitative analysis presented in Guidehouse Insights' reports. Great care is taken in making sure that all analysis is well-supported by facts, but where the facts are unknown and assumptions must be made, analysts document their assumptions and are prepared to explain their methodology, both within the body of a report and in direct conversations with clients.

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## Notes

CAGR refers to compound average annual growth rate, using the formula:

$$\text{CAGR} = (\text{End Year Value} \div \text{Start Year Value})^{(1/\text{steps})} - 1.$$

CAGRs presented in the tables are for the entire timeframe in the title. Where data for fewer years are given, the CAGR is for the range presented. Where relevant, CAGRs for shorter timeframes may be given as well.

Figures are based on the best estimates available at the time of calculation. Annual revenue, shipments, and sales are based on end-of-year figures unless otherwise noted. All values are expressed in year 2021 US dollars unless otherwise noted. Percentages may not add up to 100 due to rounding.

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## Commercial and Residential HVAC

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