AFEC
asociación de fabricantes
de equipos de climatización

Spain HVAC market report
2025

Momentum and resilience

Annual market statistics and industry outlook in Spain
HVAC and heat pumps

Original report — February 2026
Updated edition — August 2026

asociación de fabricantes
de equipos de climatización

Disclaimer

The statistical data presented in this report are based on information provided by companies participating in AFEC's market studies and reflect sell-in sales to the professional channel, as described in the corresponding methodological note. Any comparison with sell-out data or other external sources should take into account potential time lags related to distribution, inventory, project execution and commissioning.

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Annual market statistics and industry outlook

HVAC and heat pumps, Spain 2025

Content

Note on this edition

This report was finalised in February 2026 and retains in full the market statistics, analysis and outlook available at that time.

This updated edition includes developments up to August 2026 that are relevant to the HVAC market. The original text has been retained to preserve both the context and the assessment made at the time of publication.

The update makes clear what has been adopted, what remains under consideration and what has subsequently changed in the market.

WHAT HAS CHANGED SINCE FEBRUARY

Over the six months since the report was published, several of the issues shaping the outlook for 2026 have moved forward. Four are particularly relevant to the Spanish market: **the revision of primary energy conversion factors, implementation of the EPBD, the strengthening of the CAE scheme and renewed European momentum behind electrification**.

PEF · e revision moves forward on a forward-looking basis

In February, this report identified the revision of the **primary energy factor (PEF)** as a critical issue in ensuring that building energy performance assessments properly reflect changes in the electricity system and avoid distortions between electricity and fossil fuels.

In May, Spain's Ministry for the Ecological Transition and the Demographic Challenge (MITECO) opened a public consultation on a new Recognised Document[1] for building energy certification, updating both the methodology and the conversion factors from final to primary energy, together with the CO_2-equivalent emission factors.

The proposal explicitly adopts a **forward-looking approach**, based on the projected evolution of Spain's energy mix under the 2023–2030 National Energy and Climate Plan (NECP). It will have a direct bearing on building energy certification and on the comparative assessment of different heating and cooling solutions. As of August 2026, the new Recognised Document remains under consideration.

The revision confirms the direction anticipated in this report: the factors used to assess building energy performance need to evolve in line with changes in the energy system.

EPBD · Implementation enters a new phase

The report identified 2026 as a decisive year for incorporating the recast **Energy Performance of Buildings Directive (EPBD)** into the Spanish regulatory framework, with implications for the CTE, RITE, building energy certification, ventilation, IAQ, automation and controls.

[1] MITECO · Proyecto de Documento Reconocido sobre factores de paso

Spain submitted its draft **National Building Renovation Plan**, and the European Commission published its first assessment in July[2]. National Building Renovation Plans set out pathways for renovating and decarbonising the building stock and are one of the principal instruments for implementing the EPBD. Member States must submit their final plans by 31 December 2026.

The adaptation of the CTE and RITE remains under way. Attention is now focused on translating European objectives into coherent, technically feasible national requirements geared towards real-world performance.

EPBD implementation reinforces the importance of renovation, systems integration and real-world building performance within the energy transition.

CAE · Stronger support for thermal electrification

The report identified Spain's **Energy Savings Certificate (CAE) scheme** as an instrument capable of linking investment to verified energy savings and supporting efficiency measures with measurable economic returns.

In March, **Royal Decree-law 7/2026**[3] introduced a correction factor with a multiplier effect on certified energy savings where a heat pump replaces fossil-fuel equipment. The measure is intended to improve the economics of these investments for both individual consumers and homeowners' associations.

The scheme is also continuing to scale up. The Royal Decree-law itself records an increase from around 700 applications in 2024 to approximately 4,000 in 2025, with more than 8,000 expected in 2026.

The CAE scheme is gaining importance as an economic signal for thermal electrification and strengthening the link between investment, efficiency and verified energy savings.

Electrification · The economic signal gains importance

The report identified OPEX, the price differential between electricity and fossil fuels, and energy taxation as critical variables for the deployment of electrification in buildings and industry.

On 17 July 2026, the European Commission published its **Electrification Action Plan**[4], reinforcing the role of electrification within European policy on decarbonisation, competitiveness and energy security.

[2] Comisión Europea · Planes Nacionales de Renovación de Edificios

[3] BOE · Real Decreto-ley 7/2026

[4] Comisión Europea · Electrification Action Plan

For the HVAC sector, this development increases the importance of economic and regulatory signals that are consistent with the real-world efficiency of technologies and with the objective of reducing fossil-fuel consumption.

Electrification is gaining strategic importance, while OPEX, taxation and grid capacity continue to shape the pace of deployment.

Other updates

ETS2 · ull operation deferred to 2028

The timetable for the new EU Emissions Trading System for buildings, road transport and additional sectors (ETS2) has changed since the report was published. The European Commission now places its full operation in 2028, rather than 2027 as stated in the February edition[5]. Monitoring and reporting of emissions began in 2025.

Social Climate Fund · Spain sets out its proposal

In May, Spain presented its draft **Social Climate Plan**[6], with funding of €9.099 billion for 2026–2032. Of this amount, €4.723 billion is allocated to the buildings component, covering energy renovation, renewable heating and cooling, and electrification measures targeted particularly at vulnerable households and micro-enterprises. As of August, the plan remains under consideration.

F-Gas · Spain advances its national implementation framework

In May, MITECO opened a consultation[7] on the qualifications and professional competence standards required for certification covering fluorinated greenhouse gases and their alternatives. The initiative forms part of the development of the new national framework that will replace Royal Decree 115/2017 and align Spanish rules with Regulation (EU) 2024/573.

This development confirms the operational nature of the refrigerant transition and the importance of training, professional competence and safety in its implementation.

Fans ecodesign · New requirements now apply

The new EU ecodesign requirements for fans laid down in Regulation (EU) 2024/1834 have applied since 24 July 2026[8]. The new framework tightens efficiency requirements, introduces information requirements for part-load performance and includes provisions relating to spare parts, repair and maintenance. It reinforces the move towards more efficient, controllable ventilation solutions optimised for real-world operation.

[5] Comisión Europea · ETS2

[6] MITECO · Plan Social para el Clima

[7] MITECO · Consulta sobre cualificación profesional y gases fluorados

[8] Comisión Europea · Nuevos requisitos de ecodiseño para ventiladores

Digital Product Passport · The supporting infrastructure moves forward

In July, Commission Implementing Regulation (EU) 2026/1778[9] was adopted, laying down the arrangements for the EU Digital Product Passport registry established under the Ecodesign for Sustainable Products Regulation (ESPR).

The Regulation establishes the common infrastructure for the registry. Specific requirements for HVAC equipment will depend on subsequent regulatory measures for individual product groups.

Data centres · Greater emphasis on measurement and traceability

Implementation of the Energy Efficiency Directive (EED) requirements for data centres continues to progress. The European database collects information on energy performance and water footprint, and in 2026 the Commission published further guidance to support compliance with reporting obligations[10].

The Commission is also preparing a dedicated data centre energy efficiency package, including an EU-wide rating scheme and work towards minimum performance standards.

Heat pumps · European market recovery confirmed

Full-year data published after the EHPA report was finalised confirm the recovery in the European market identified in February. Heat pump sales increased by 13% in 2025, reaching 2.9 million units across 21 European countries[11].

Industrial heat · Results-based financing moves forward

The first **IF25 Heat Auction**[12] has selected 65 projects to proceed to grant agreement preparation. Support is provided through a premium linked to verified production of decarbonised heat, covering technologies including heat pumps, electric heating, solar thermal and geothermal energy.

The Commission plans a second auction in December 2026, with a budget of **€1 billion**.

[9] Reglamento de Ejecución (UE) 2026/1778

[10] Comisión Europea · Eficiencia energética de los centros de datos

[11] EHPA · Datos del mercado europeo de bombas de calor

[12] Comisión Europea · IF25 Heat Auction

WHAT THIS REPORT ANTICIPATED — AND WHAT HAS SINCE BEEN CONFIRMED

Six months is a limited period over which to assess structural trends. Even so, several subsequent developments support issues identified by the report in February as significant for the HVAC market.

PEF and regulatory coherence. The report highlighted the need to update primary energy conversion factors and adopt forward-looking values that reflect changes in the electricity system. The proposal submitted by MITECO for public consultation follows this approach.

CAE and verified performance. The report identified the CAE scheme as an instrument capable of linking investment to actual energy savings. The multiplier introduced for replacing fossil-fuel equipment with heat pumps specifically strengthens this role.

Electrification and OPEX. The report identified operating costs, the price differential between electricity and fossil fuels, and taxation as key variables for electrification. The Electrification Action Plan reinforces the importance of these factors within European energy policy.

EPBD and real-world performance. The development of National Building Renovation Plans confirms the growing importance of renovation, building-stock planning and systems integration identified in the report for the 2026–2030 period.

Ventilation and ecodesign. The new ecodesign requirements for fans have applied since July, in line with the timetable set out in the report. Part-load performance, controls and repairability now carry greater weight within product requirements.

Digitalisation and traceability. The adoption of the operating arrangements for the DPP registry puts in place one of the first elements of the European product traceability infrastructure envisaged under the ESPR.

Heat pumps. Final 2025 data confirm the recovery in the European market that was beginning to emerge when the report was finalised, with sales increasing by 13% after two years of contraction.

Industrial electrification. The first European heat auction has translated into specific projects the results-based financing model identified in the report as one route to accelerating the decarbonisation of industrial heat.

DEVELOPMENTS SINCE FEBRUARY REINFORCE THE CENTRAL ASSESSMENT OF THIS REPORT.

MOMENTUM EXISTS, BUT MOMENTUM ALONE IS NOT ENOUGH.

THE EXTENT TO WHICH THAT MOMENTUM TRANSLATES INTO REAL-WORLD PERFORMANCE DEPENDS ON COHERENCE ACROSS REGULATION, ECONOMIC SIGNALS, FINANCING AND TECHNOLOGY, TOGETHER WITH THE CAPACITY FOR HIGH-QUALITY DELIVERY.

1. Introduction – Momentum and resilience

In last year's report, the pieces of a puzzle served as a metaphor to explain the market's reconfiguration following a period of disruption.

In **2025**, however, the puzzle metaphor no longer suffices. The market is better understood as a map of **forces** pushing in different directions, creating gaps when they fail to align.

There is no single lever at work. Climate conditions and thermal resilience, operating costs and energy taxation, accelerated — and at times non-harmonised — regulation, the momentum of construction and renovation, the evolution of the industrial base and data centres, and the capacity of the value chain to deliver quality in installation, commissioning, operation, maintenance and end-of-life management all converge simultaneously.

The reading of 2025 is framed around **TRACTION** and **RESILIENCE**.

The market continues to advance, but within a demanding environment. Structural drivers remain in place and continue to support growth; however, their effectiveness depends on coherence between economic signals, the regulatory framework and technical execution.

Traction is underpinned by solid technical and economic fundamentals. The efficient electrification of thermal demand, decarbonisation targets, climate adaptation requirements and the dynamism of specific industrial segments sustain volumes and foster an increasingly renewable energy mix.

Resilience is reflected in the sector's capacity to absorb stress without losing direction. Energy price volatility, regulatory complexity and geopolitical pressures have not halted market development, but they have required greater rigour in design, control and operation.

Gaps persist that condition the pace of progress. Fiscal misalignments, uncertain tariff signals, complex transpositions, shortages of specialised talent, minimum-compliance decision-making and insufficient on-site coordination limit the real performance of installed solutions. These are not technological shortcomings, but rather issues of alignment between design, economic signals and execution.

In this context, AFEC's **market perspective** serves a dual purpose: to **measure**, by providing comparable and traceable data; and to **interpret**, through a technical and economic lens that identifies where tensions accumulate and where opportunities emerge. When forces pull in opposing directions, evidence becomes indispensable for rational decision-making.

On a more personal note, we deeply value the **contribution of all the companies** participating in AFEC's statistical studies and the work of the teams who collect, upload and validate the data with rigour, adhering to established protocols and deadlines.

It is this collective effort that makes it possible to maintain a reliable, neutral and comparable reference framework: a first-class tool enabling companies to size the market, identify trends and support their strategic decisions; and, at the same time, an objective information base for public authorities and for the sector as a whole in monitoring market developments and designing effective policy measures.

I would like to extend special recognition to my colleague **Cecilia Salamanca**, whose technical judgement, patience and ability to build consensus ensure that this report is finalised each year with the level of quality required for a statistical exercise of this nature. Her in-depth knowledge of the platform, the market, the companies and the product ranges, together with her continuous follow-up and her work in verification and cross-checking, are decisive in guaranteeing the consistency of the final results and the robustness of their interpretation.

In a market shaped by concurrent forces — regulation, CAPEX, OPEX, taxation, electrification, decarbonisation, construction, renovation, industry, digitalisation, skills availability, indoor air quality and sustainability, and the performance of the value chain — a single figure is not enough.

At AFEC, we contribute three layers of analysis: neutral and validated sell-in statistics, an assessment of current market conditions, and a technical-economic interpretation that separates signal from noise and highlights structural gaps. Together, these elements enable companies to size and anticipate the market, while allowing Public Administrations to fine-tune policies with greater effectiveness.

Our market shows momentum, but it is not enough on its own; it shows growth, but it demands adaptability and quality of execution. That has been the reality of 2025.

And it has been positive, because the balance of forces has improved — and this report explains why.

Marta San Román
Director general, AFEC

2. Executive summary

2025 confirms **real growth in the Spanish HVAC market**. This expansion is supported by a combination of factors including price effects, volume dynamics and a progressively more professionalised market mix, with shifting relative weight among residential, commercial and industrial segments. Electrification continues to gain structural presence in both supply and demand, although its pace remains conditioned by the economic signal of OPEX and by energy taxation.

The **macroeconomic environment** in Spain has been moderately favourable, with GDP growth above the European average and a labour market that remains dynamic, albeit showing signs of deceleration in certain sectors. Monetary policy has entered a phase of stabilisation following the tightening cycle, reducing financial pressure but not eliminating uncertainty.

The **energy market** remains a determining factor. The electricity-to-gas price relationship, together with the structure of charges and taxation, directly influences the competitiveness of technologies such as heat pumps compared to fossil-based solutions. The European trend towards greater renewable penetration in electricity generation strengthens the system-wide consistency of thermal electrification; however, the final signal to end users ultimately depends on fiscal and regulatory design.

Geopolitical conditions continue to generate volatility, requiring prudence in procurement planning and cost-risk management. Tariffs, trade defence instruments and adjustments in international material flows indirectly affect supply chains, although without altering their structural functioning.
In construction and renovation, the market shows mixed signals. New non-residential construction has lost traction compared to previous years, while renovation, retrofit and asset repositioning have gained weight. Ventilation and **indoor air quality (IAQ)** remain underrepresented in certain renovation projects, despite their direct impact on health, comfort and efficiency.

Digitalisation is advancing as an operational requirement rather than an optional add-on. Regulation and control, interoperability and performance verification in operation are becoming essential conditions to transform installed capacity into actual performance. The market is beginning to value measured performance and effective consumption reduction, rather than technical specification alone.

Aggregate growth recorded in AFEC's sell-in data **for 2025 stands at 11.4%**, accompanied by an internal recomposition of the market mix, shifting from a product-centric logic towards one based on integration, operation and data.

Air conditioning units, heat pumps and domestic hot water production equipment grew by 6.5% in 2025, following a year of adjustment in 2024 (not structural contraction), consolidating a trend marked by increasing acceptance of air-source and ground-source heat pump solutions as essential technologies. Growth was broadly similar across residential, commercial and industrial segments.

The market for **AHUs (air handling units) and ventilation units** with heat recovery remained broadly flat (+0.9%), as did the market for air diffusion and distribution equipment. However, ventilation — both residential and industrial — and heat recovery units recorded significant growth, driven by regulatory factors, strong demand from data centres and stricter operational requirements in industry.

With regard to **regulation and control**, European legislation clearly promotes digitalised buildings and installations; however, real adoption of advanced regulation and control systems remains uneven. The gap between regulatory requirements, technological potential and construction practice will condition energy, environmental and operational performance in the coming years, as well as the evolution of the **BACS** market.

Financing plays a relevant role in the transition. CAE mechanisms demonstrate scalability potential in industry and the non-residential sector, while European programmes highlight the need to balance quality control, accessibility and administrative agility in order to maintain credibility and effectiveness.

The 2025 market retains structural momentum, while its development remains dependent on coherence between regulation, economic signals and technical delivery. The robustness of future growth will depend on closing gaps in skills, coordination and fiscal design.

Finally, 2026 is shaping up as a year of consolidation. The HVAC systems sector continues to gain specific weight within Spain's socio-economic landscape. **HVAC**, **BACS** and **IAQ** solutions constitute strategic infrastructure underpinning economic activity, essential services and energy security in an increasingly demanding geopolitical, social, climatic and economic environment.

2025 confirms real growth in the Spanish HVAC market. This growth reflects a combination of price effects, volumes and an increasingly professionalised market mix, with different relative weights across residential, commercial, non-residential and industrial segments. Electrification is gaining structural importance in both supply and demand, although its pace remains conditioned by OPEX signals and energy taxation.

3. AFEC`s industry perspective

3.1 About AFEC

As an association of manufacturers supplying essential sectors of society, **AFEC** promotes a sustainable, efficient and responsible **HVAC** industry, integrating and representing the shared values of its member companies and of related sectors including **heating, refrigeration, air conditioning, heat pumps, air-source and ground-source heat pumps, domestic hot water (DHW) production, industrial process heat generation, ventilation, air distribution and diffusion systems, data centre cooling, regulation and control systems, indoor air quality (IAQ) solutions**, and related technologies.

With direct turnover of approximately €2 billion and around 13,000 direct jobs, AFEC brings together knowledge, effort and resources to foster business growth and competitiveness, promote innovation and digitalisation, and generate BESA — Well-being, Energy Efficiency and Environmental Health — alongside wealth and employment.

Commitment: AFEC provides strong support to manufacturers and plays a key role in developing **professionalised communication channels**, both internal and external. These channels enable coordinated initiatives across conferences, workshops, congresses, technical seminars, publications, statistical reporting and other activities, always with a focus on **improving and advancing the market, the industry and society**.

3.2 Technical and institutional activity 2025

Representing its member companies, AFEC **actively participates in legislative and regulatory decisions** affecting the sector at local, regional and national levels, and serves as a bridge to **European Union** institutions. It engages directly in European decision-making forums and through strategic alliances with leading European industry associations.

In addition, AFEC is a member of the **Board of Directors** and serves as **Secretariat of Technical Committee CTN100 on HVAC at UNE** (Spanish Association for Standardisation). It also collaborates with UNE in promoting the importance of market surveillance through its **Market Surveillance Observatory** (OVM).

WE REPRESENT THE INDUSTRY AT NATIONAL AND EUROPEAN LEVELS, ACROSS ALL DECISION-MAKING TIERS

AFEC is a member of the **Board of Directors and Commission of Eurovent** (European Industry Association for Indoor Climate, Process Cooling, and Food Cold Chain Technologies), and of the **Board of Directors and National Associations Committee of EHPA** (European Heat Pump Association).

Active participation in the decision-making bodies of these two organisations — both of which operate at the core of major European regulatory and policy developments affecting the sector — enables AFEC to keep its members informed through up-to-date intelligence, while simultaneously conveying the consolidated position of Spanish manufacturers in the development of European industry position papers.

Beyond its engagement with EHPA and Eurovent, AFEC maintains dialogue with other European bodies on matters related to building automation and control systems and their implementation under forthcoming European regulations (for example, **Eu.BAC** – European Building Automation and Controls Association), as well as on refrigerants, their use and market placement within Europe.

3.3 OUR MEMBERS SPEAK FOR US

The active participation of member companies ensures that technical positions accurately reflect the operational reality of the market. The diversity of profiles — manufacturers, importers and technology developers — provides a transversal and balanced perspective, strengthening the credibility and representativeness of the industry's voice.

Empresas asociadas

Socios institucionales

Socios impulsores

3.4 WHY AN INDUSTRY OUTLOOK ON THE HVAC MARKET

An industry perspective and its wider context become necessary when the sector combines high technological complexity, multiple distribution channels and investment decisions conditioned by accelerated, fragmented and sometimes erratic regulation, a continuously evolving energy framework, and an unpredictable construction cycle.

THE HVAC SECTOR IS AN UNSTABLE BALANCE OF FORCES:
THIS SECTOR REPORT PROVIDES THE SCALE AND DELIVERS AN OBJECTIVE, TRACEABLE READING

The HVAC market operates within an unstable balance of forces: regulation that accelerates and shifts direction, energy dynamics that reshape **OPEX**, and construction cycles that either delay or trigger project activity.

This report brings scale and context to those forces, combining comparable data with sector analysis to help distinguish signal from noise.

The market evolves through cross-currents: electrification drives momentum while execution constraints limit deployment; efficiency requirements become more demanding while investment remains selective; energy price volatility distorts signals while regulation reconfigures the framework — or attempts to.

In the HVAC sector, public narratives often oscillate between short-term readings and ideological positioning, increasing the risk of partial or distorted diagnoses.

AFEC provides precisely what is most lacking in such an environment: **comparable data and a neutral interpretation** capable of separating signal from noise and ensuring temporal continuity to understand structural trends rather than isolated headlines. Its function is not to express opinions, but to **establish a shared evidence base for companies**, specifiers and decision-makers.

In AFEC's case, this report delivers value on two levels.

1. **For companies**
   It provides a solid foundation to **size the market, identify shifts in the market mix and anticipate inflection points**, supporting planning, investment and capacity deployment.

2. **For the sector and public authorities**
   It offers a technical benchmark to **assess the impact of policies** (incentives, taxation, regulation, efficiency requirements and IAQ standards) and to design more effective measures with lower risk of unintended consequences. In a transition process where efficient electrification, ventilation and digitalisation gain increasing weight, the existence of an independent industry report becomes a practical condition for ensuring that public debate is grounded in **verifiable evidence** rather than unsupported narratives.

3.5 SCOPE AND STATISTICAL METHODOLOGY

AFEC provides an industry perspective on the Spanish HVAC market through a stable statistical framework with a long historical track record and progressively expanding market coverage.

The scope of the statistics is structured by **product categories** and, where applicable, by **technology and channel segments**, defined to ensure comparability over time and relevance for decision-making.

The objective is not only to quantify the market, but to **interpret its evolution** based on technical criteria (performance, application and product typology), while ensuring representativeness and confidentiality. Participation is therefore based on **direct data submission by companies**, **aggregation of results and validation through Market Committees**, so that the annual report serves as a consistent reference for the sector.

The full development of the methodology and detailed category breakdown can be found in Section 9. This section also explains the data reading framework (**sell-in** sales to the **professional channel**, not final sales to end users or **sell-out**), the impact of **inherent time lags** associated with distribution, warehousing, project execution and commissioning, and the distinction between recorded sales value and **final economic value**.

This methodological note enables AFEC statistics to be used as an objective basis for sizing the market and identifying trends, avoiding simplistic interpretations. It also ensures that both companies and public authorities share a common analytical framework for market assessment, monitoring and policy design.

4. Macroeconomic, geopolitical and resilience context

4.1 Macroeconomic environment in Spain and the European Union

Growth

The macroeconomic environment in Spain in 2025 was characterised by still-robust growth, albeit on a moderating path towards 2026–2027. Following estimates by the Banco de España and the European Commission placing Spain's GDP at around 2.9% in 2025 — primarily supported by domestic demand, with contributions from the labour market and investment[1] — the final figure closed at **2,8%**[2].

The Bank of Spain projects a **slowdown to 2.2% in 2026 and 1.9% in 2027**, noting that activity indicators remained resilient at the end of 2025[3].

Across the EU and the euro area, the picture is more subdued: the European Commission projected growth of approximately **1.4% in the EU and 1.3% in the euro area in 2025**, with 2026 expected to be similar or slightly lower in the euro area (around **1.2%**), reflecting a scenario of moderate expansion in a still-demanding environment [4].

Inflation

2025 closed with CPI at 2.9%[5], confirming the disinflation trend, although with relevant implications for investment and operating costs. The European Commission projected that Spain's headline inflation would continue **moderating** and gradually converge towards around 2% in in 2026**Error! Bookmark not defined.**. At euro area level, the Commission anticipated inflation declining from 2024 levels and stabilising close to target in 2026–2027 (with values **around 2%** over the horizon), consistent with a normalising environment, albeit without ruling out episodes of energy price volatility.

In this context, monetary policy has already shifted from a tightening stance towards a more accommodative position. The ECB **reduced interest rates by 25 basis points** in June 2025 and has maintained them unchanged[6] since then. In practical terms, this makes **project financing less costly and more predictable**. When rates stabilise or decline, borrowing costs fall or stop increasing, improving the investment climate. **Developers, industrial players and asset managers** are less inclined to postpone CAPEX decisions as financial risk decreases.

For the HVAC sector, a more accommodative monetary policy generally supports **activity in construction, retrofits and equipment replacement**. However, the extent of that support depends on other factors, including construction costs, project lead times, regulatory uncertainty and energy-related costs.

Employment

The labour market continues to display a favourable tone, which is key to demand and investment in construction and renovation. The year closed with an **unemployment rate of 10%**[7], below the European Commission's projection of around 10.4% for 2025, with forecasts pointing to a decline below 10% in subsequent years. **Employment performance** in Spain**Error! Bookmark not defined.** has been particularly **resilient**, supported in part by migration flows that have expanded the labour force.

At European level, aggregate unemployment remained at relative lows. Eurostat[8] reported an unemployment rate of **6.2% in the euro area in December 20**25 (EU: 5.9%), reflecting a labour market that remains tight overall, albeit with signs of deceleration in some countries.

For the HVAC sector, this combination of moderate growth, more contained inflation and resilient employment supports underlying demand. However, the translation into investment remains uneven due to sensitivity to interest rates, cost dynamics and project execution constraints.

Investment

Investment momentum remains selective. Productive investment and construction activity coexist with capacity constraints and public policy priorities focused on housing, energy and infrastructure.

An illustrative indicator is the role of the European Investment Bank. Between 2024 and 2025, the **EIB doubled its housing financing in Spain to nearly €2 billion**[9], linking it to affordable and sustainable housing objectives, and maintained Spain as one of the main recipients of EIB Group financing in 2025.

From a sectoral perspective, this is relevant because investment cycles tend to shift towards projects benefiting from stronger financial and regulatory backing, while other segments — such as parts of the non-residential and office market — show greater intermittency. This pattern will be reflected in the subsequent market analysis.

The 2025–2026 macroeconomic scenario describes an economy growing above the European average, with more contained inflation and stabilised interest rates, but with a less uniform pattern of investment and construction activity. This environment requires a precise reading of forces, structural gaps and demand drivers, particularly for OPEX-intensive technologies whose returns are sensitive to the cost of capital.

In the HVAC market, this translates into a more delicate balance. There are forces providing momentum, such as renovation and projects with verifiable energy savings, the selective recovery of investment, the electrification of thermal demand, and certain aspects of regulatory pressure.

At the same time, specific gaps are widening. A less uniform construction cycle and still-demanding CAPEX conditions are generating divergence in demand: solutions with competitive OPEX and clear returns continue to advance, while decisions with payback highly sensitive to the cost of capital are slowing.

4.2 GEOPOLITICS AND VALUE CHAINS

In 2025, geopolitical and trade developments once again act as first-order factors affecting European industrial value chains, including HVAC, through four main levers:

- Tariffs and trade defense measures
- Logistics
- Material and energy costs
- Supply risk in critical components

The EU is intensifying the use of trade policy instruments in response to practices deemed unfair, including the imposition of **countervailing duties** on certain imported equipment. Although these measures do not currently target HVAC products specifically, they signal that the **European trade framework is becoming more interventionist and less predictable**, influencing procurement planning and price risk management for industrial goods.

In 2025, the HVAC value chain in Spain operates within an international environment that is **increasingly sensitive to trade frictions and cost signals**. It is prudent to monitor price and lead-time stability for certain components and materials, given the combined effects of trade policy, climate regulation and logistical adjustments.

The EU–US trade relationship adds another layer of uncertainty. **US tariffs on steel and aluminium** — and their potential reconfiguration — remain an active issue, sometimes accompanied by contradictory signals, introducing volatility in goods with high metal content.

While the Spanish HVAC sector does not depend exclusively on direct trade flows with the United States, these developments have **indirect effects** through the reallocation of global trade flows, changes in raw material prices and strategic adjustments by multinational manufacturers.

From a logistics perspective, 2024–2025 have consolidated an environment of **greater variability in transport conditions and transit times**, requiring improved planning.

The operational response involves strengthening demand forecasting, maintaining reasonable buffers for critical references, qualifying alternative suppliers and coordinating engineering and installation activities in advance to minimise impacts on **construction schedules and commissioning**.

In this context, the **CBAM**[10] (Carbon Border Adjustment Mechanism — the EU's environmental policy tool aimed at ensuring fair carbon pricing) entered its definitive regime on 1 **January 2026**. The effective settlement of certificates follows a timetable that shifts coverage of 2026 imports to 2027.

CBAM links the carbon cost embedded in imports — such as steel and aluminium — to the **EU ETS** CO_2 price, gradually introducing additional pressure in traceability, supplier selection and cost control for typical HVAC elements (casings, heat exchangers, ducts and structural components).

Complementarily, **ETS2** for fuels used in buildings and road transport will become **fully operational in 2027**, applying a **carbon price to fuel suppliers**.

This does not imply an immediate or uniform increase in costs for all consumers, but it points towards a scenario in which **CO_2 costs may progressively be reflected in the OPEX of fossil-based technologies,** particularly gas and oil boilers, reinforcing the economic rationale for **efficient electrification** where the electricity/gas differential and fiscal framework allow.

Although the EU ETS continues to exhibit episodes of volatility, the structural direction is clear: **carbon is increasingly being incorporated into the cost structure of both energy and materials**.

4.3 CLIMATE AND RESILIENCE: FROM COMFORT TO CRITICAL INFRASTRUCTURE

In 2025, climate shifts from being a contextual factor to becoming an operational determinant for the HVAC sector. Demand for cooling and ventilation is increasingly explained by episodes of extreme heat, longer heatwaves and greater exposure of both population and economic activity.

Once again, the warmest year on record

Copernicus[11] describes 2025 as a year of **exceptional temperatures** and significant extreme events, placing the European summer among the warmest on record, with particular intensity in southern and western Europe.

AEMET[12] (Spanish State Meteorological Agency) confirms that extreme heat is no longer an anomaly. **The summer of 2025 was the warmest since 1961 in Spain** (peninsular average 24.2°C, +2.1°C compared with the 1991–2020 baseline). The Ministry of Health estimates 3,832 heat-attributable deaths during the year[13].

At European scale, excess heat has led to tens of thousands of deaths in recent years, exceeding 70,000 in 2022 and approaching 48,000 in 2023.

The result is a shift in scale: **thermal resilience and Indoor Environmental Quality (IEQ) become requirements for business continuity, service delivery, health and productivity**.

The adaptation of the existing building stock and actual performance — design, verification, operation and peak demand management — move to the centre of the agenda.

In parallel, Spain's public policy agenda is reinforcing the adaptation approach. AdapteCCa[14], a new tool developed by the Spanish Office for Climate Change (OECC), incorporates **updated climate change scenarios** and visualisation tools to support technically grounded sectoral decision-making.

Thermal resilience is no longer understood solely as comfort; it is consolidating as a structural condition for operational continuity in non-residential buildings and critical activities.

Implications for the market

This shift translates into three practical implications for the market:

1. The value of solutions that reduce heat exposure without penalising consumption is increasing: **efficient heat pumps, advanced regulation and control, properly dimensioned ventilation and energy recovery systems**.

2. The importance of **adapting the existing building** stock is growing. The Evaluation of Climate Change Risks and Impacts in Spain (ERICC-2025) [15] provides a national framework for prioritising impacts and adaptation measures.

   *This report highlights significant interdependencies related to the **combined impact of extreme heat on health, energy systems and labour productivity**. During periods of intense heat, healthcare systems and labour markets face increased demand alongside reduced response capacity, with **effects on morbidity and mortality**, particularly among vulnerable groups.*

   ***Prolonged heatwaves increase electricity consumption for cooling**, placing pressure on energy system capacity precisely when efficiency is reduced. Rising demand coincides with peaks in air pollution and productivity losses in sectors involving outdoor work or dense urban environments. The result is economic losses, saturation of healthcare services and greater exposure for vulnerable workers. Over the longer term, the persistence of such events alters work organisation and social behaviour, requiring structural measures in occupational health, urban design and energy management.*

3. Climate is reshaping the role of the HVAC sector within the economy. The European Environment Agency (EEA) [16] has underlined, from a health and well-being perspective, that **Europe is overheating and insufficiently prepared** in terms of exposure and resilience, reinforcing the message that adaptation is not optional and that **thermal and indoor environmental quality infrastructure form part of the response**.

Macroeconomic impact of climate change

The energy dimension of the HVAC market cannot be analysed in isolation from the macroeconomic impact of climate change. In its report *Climate change and potential GDP: far from neutral*[17], BBVA Research highlights that climate change is not neutral for growth: in the absence of mitigation, it reduces potential GDP over the medium and long term; however, a well-designed transition can become a lever for structural growth.

The analysis refers to previous OECD (2015) estimates indicating that, under high-emissions scenarios with limited adaptation**, global GDP could decline by between 0.7% and 3.3%** by 2060, and between 2% and 10% by 2100. Conversely, an early, credible and growth-consistent climate strategy could raise G20 GDP by up to an additional 2.8% by 2050.

This is directly relevant to the HVAC sector: efficient electrification, energy renovation and digitalisation are not merely environmental measures; they form part of the productive investment base that sustains potential GDP. Moreover, delaying the transition does not preserve the status quo; it widens the negative gap relative to the baseline scenario. Within this framework, electrification ceases to be a transition cost and becomes instead a vector of competitiveness and economic resilience.

Is there still doubt about climate change?

HDD, or Heating Degree Days, measure the severity of winter conditions and are used to estimate heating demand. They are calculated as the difference between a base comfort temperature — typically 18°C — and the average daily outdoor temperature when it falls below that base. CDD, or Cooling Degree Days, represent the inverse: the intensity of summer conditions and cooling demand. They are used to estimate the energy required to cool a building and are calculated as the difference between the average daily temperature and the 18°C base when the outdoor temperature exceeds that threshold.

Official Eurostat[18] data on HDD and CDD transform the discussion from subjective impressions ("it feels warmer") into **comparable statistical series**, leaving little room for interpretative uncertainty.

In temperate or warm countries, the line associated with **heating (HDD)** tends to **decline** while the **cooling line (CDD) rises**. When **both converge or even intersect** — as is increasingly the case in southern Europe and Spain — the evidence leaves little room for doubt: the annual thermal balance shifts towards greater cooling needs and lower heating demand, not due to a single anomalous year but as the result of an **accumulated trend**. In Nordic countries, by contrast, the pattern is typically reversed: **HDD remains dominant while CDD stays close to zero**.

Climate sceptics are, paradoxically, in a position to move beyond unfounded opinion and confront the measurable reality of climate change through indicators such as HDD and CDD.

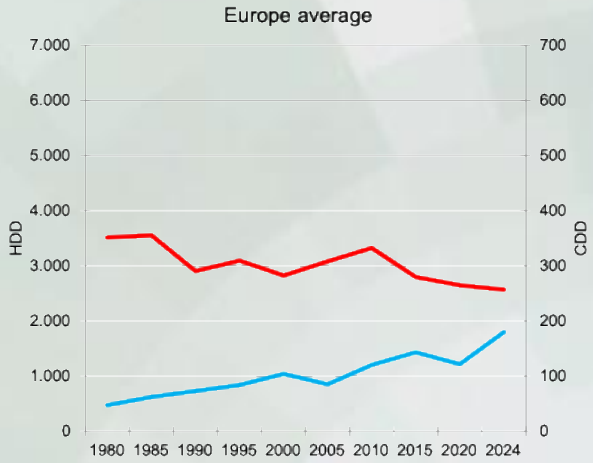
When the HDD trend declines persistently — even in the coldest countries — and the CDD trend rises — particularly rapidly in southern Europe — **this is not a matter of perception or narrative**: it is a direct statistical signal that the climate has already changed and has been doing so for years.

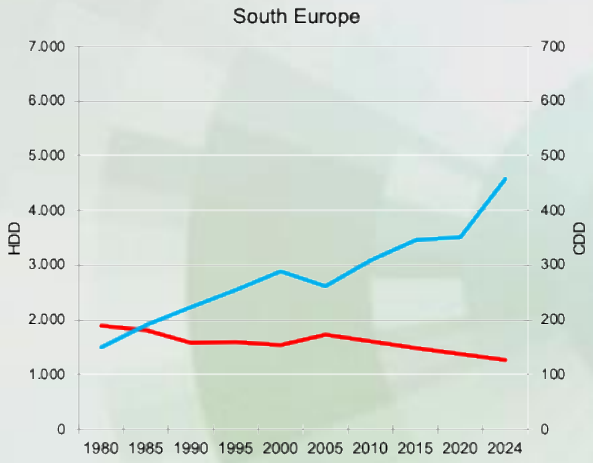
Average HDD and CDD in Europe and selected regions

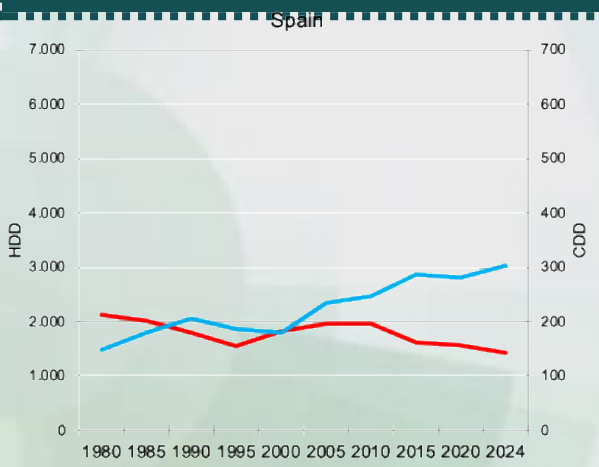
Red line: HDD / Blue line: CDD

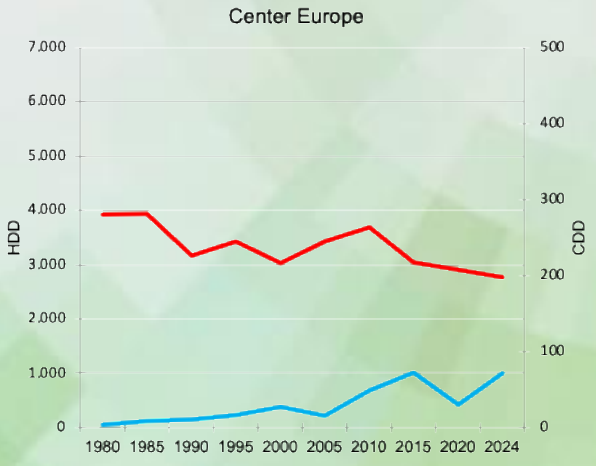
Nordic countries, the **CDD indicator remains close to zero**. With virtually no cooling demand, the decarbonisation of thermal demand is significantly less complex than in Spain: air-source and ground-source heat pumps are primarily designed for heating applications.

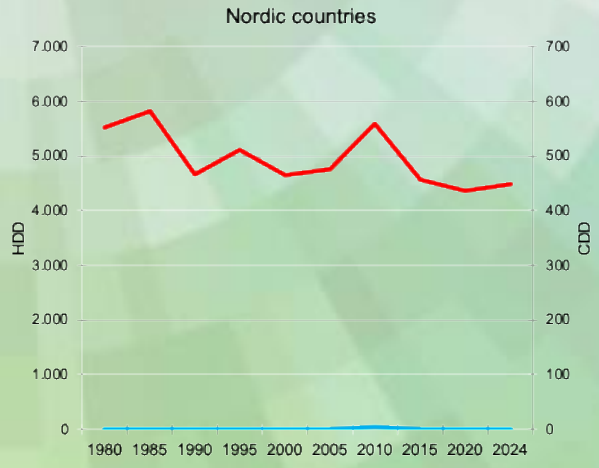
In southern Europe, efficient electrification is essential, as the challenge is to deliver **two services — heating and cooling**. The heat pump is the only mature and commercially available technology capable of providing both within a single integrated solution.











Graphs: HDD (Heating Degree Days) and CDD (Cooling Degree Days) in Europe. Source: Eurostat[18]

4.4 INFORMATION INTEGRITY: NOT EVERYTHING "GREEN" IS GREEN

The thermal transition requires sustained investment, and investment requires a framework of trust.

However, countervailing forces are emerging, often based on misleading arguments, vested interests or claims lacking scientific rigour and peer validation, creating a significant trust gap.

In 2025–2026, **information integrity** becomes a sectoral factor because public debate on climate and energy has become increasingly polarised: **simplified narratives, greenwashing and misinformation** are on the rise, increasing the risk of misguided decisions or social resistance.

The *Global Risks Report 2026* of the World Economic Forum ranks environmental risks among the most significant over the 10-year horizon and identifies misinformation as a first-order short-term risk with systemic effects[19].

For a sector such as thermal installations and HVAC, this has tangible consequences: if the public and some decision-makers do not trust the evidence, acceptance of key measures and technologies (efficient electrification, deep renovation, ventilation/IAQ) weakens, and there is a greater tendency to favour simplistic solutions or narratives of rapid substitution without real emissions reduction.

The European response is beginning to translate into **anti-greenwashing regulatory frameworks**.

Directive (EU) 2024/825[20], aimed at empowering consumers in the green transition, strengthens protection against unfair practices and requires greater rigour in environmental communication (claims, labels and information).

In parallel, the European Commission continues to advance the **Green Claims** initiative as a framework to ensure that environmental information is verifiable and comparable. However, its legislative process has faced political frictions and recent adjustments, reinforcing the report's diagnosis: the regulatory framework is relevant, but also **volatile**[21].

For AFEC and the HVAC sector, the implications are twofold:

1. Communication must become more technical and traceable: real performance, OPEX, installation quality, commissioning and measurable IAQ outcomes.

2. Information integrity is not merely a marketing issue; it is a precondition for companies and public authorities to design policies and procurement decisions that reward genuinely sustainable solutions, based on performance data and actual emissions rather than labels alone.

Spain starts from a social baseline broadly supportive of climate action, which makes protecting trust even more important.

The Spanish Office for Climate Change (OECC) has published the document *Prevention of Climate Misinformation*[22], systematising the problem and providing tools to identify misleading claims and false narratives — a reminder that information integrity is a prerequisite for trust, investment and a performance-based thermal transition.

At the same time, a recent document from MITECO cites Eurobarometer 2025 results indicating that a broad majority of Spanish citizens consider climate change a serious problem. In January 2026[23], the Ministry launched its first institutional climate awareness campaign, focusing on science, sustainability and innovation[24].

Within this framework, AFEC contributes a distinct sector-wide perspective, combining **data and contextual analysis** to help separate signal from noise and reduce the scope for unverifiable claims about technologies, costs or impacts.

> Not everything labelled “green” is truly green.
>
> Without trust and informational rigour, the balance of market forces becomes distorted.
>
> With evidence and real data, the sector can direct investment towards solutions that deliver genuine impact in efficiency, resilience and Indoor Environmental Quality (IEQ).

4.5 SOCIAL JUSTICE: VULNERABILITY, AFFORDABILITY AND A JUST TRANSITION

The **heat transition** can only be sustainable if it is also **affordable** and protects households and groups most exposed to energy risk. The European Commission defines **energy poverty** as a situation in which a household is forced to reduce energy consumption to a level that harms health and well-being, linking it to three root causes: **low income, inefficient housing and a high share of energy expenditure**[25].

In Spain, this diagnosis is particularly relevant for two mutually reinforcing reasons:

1. The building stock presents significant envelope and HVAC performance deficits.
2. The climate intensifies risk not only in winter but increasingly in summer. The proposed **National Strategy against Energy Poverty 2025–2030** (MITECO)[26] incorporates this broader reading of the problem and frames energy vulnerability as a structural issue of equity and public health.

For the HVAC sector, the implications point towards efficient electrification: heat pumps, control systems and properly executed ventilation must be deployed alongside mechanisms that prevent an adoption gap driven by CAPEX and OPEX constraints. The critical issue is not only the **upfront technology cost**, but the total cost of use for vulnerable households, which depends on building efficiency, the relative electricity/gas price and the design of tariffs and support schemes.

Available social evidence shows that vulnerability remains significant and that affordability shapes basic energy behaviour, such as under-heating or under-cooling, with direct impacts on health.

Under these circumstances, a just transition requires prioritising:

1. **Renovation and efficiency improvements** in vulnerable housing (the most structural measure, as it reduces demand).

2. **Effective energy social protection mechanisms**, including well-designed support schemes and targeted assistance.

3. **Properly dimensioned and verified HVAC solutions** that ensure comfort and IAQ with controlled consumption. The National Energy Poverty Strategy (ENPE) and associated MITECO frameworks have historically emphasised this combination of efficiency, information and consumer protection; the new strategy seeks to consolidate and scale this approach towards 2030.

5. Energy Market: Price – Volatility – Security

In 2025–2026, the European energy market remains shaped by geopolitical and security factors. At the beginning of 2026, gas prices reached levels that do not imply immediate scarcity, but do reflect heightened market sensitivity to external disruptions.

Europe's dependence on US LNG remains significant: in 2025, more than **55% of LNG imported by the EU originated from the United States**, representing close to **25% of total European gas consumption** (based on economic and energy analyses published in 2025). At the same time, countries such as Finland and Sweden have publicly reiterated the need to maintain strategic pressure on Russia and strengthen European energy security, in a context of vulnerability affecting Baltic energy infrastructure[27].

In this environment, **electrification ceases to be solely a climate measure and consolidates its role as an energy security instrument**.

The IEA report *Electricity 2026*[28] indicates that electricity demand growth through 2030 will be driven primarily by electrification in transport, buildings and industry. By comparison, data centres are expected to account for roughly **8% of total incremental demand**.

5.1 ELECTRICITY/GAS RATIO

For the HVAC sector, the critical factor is not only the absolute level of gas or electricity prices, but the ratio between them. When electricity carries a structural or fiscal penalty relative to gas, heat pump adoption slows, even where technical efficiency is clearly superior. The economic signal directly conditions investment decisions.

Efficient electrification depends on **alignment in OPEX signals**. In environments where the electricity/gas differential improves, heat pumps offer structural advantages in total cost and real emissions. Where the differential does not improve, payback periods lengthen and decisions are postponed.

Alongside gas price volatility and the debate on energy security, the structure of the European power system continues to transform. According to Ember's 2026 report[29], **wind and solar generation have, for the first time, jointly surpassed fossil fuels in EU electricity production**. In 2025, the two technologies accounted for approximately **30% of European electricity generation**, while coal, oil and gas fell to around **29%**. Solar reached a record 13% of total electricity, with year-on-year growth above 20%, even in countries with lower solar resource, while wind consolidated its position as the second structural pillar of the system at **17%**.

This structural shift reinforces the rationale for thermal electrification: as the electricity mix decarbonises, heat pumps reduce final energy consumption and systemic emissions.

Ember[29] further underlines that the challenge is no longer solely renewable generation, but investment in grids, storage and **flexibility**.

This is where HVAC systems — through demand management, modulation, energy recovery and integration with solar energy— acquire strategic relevance within the energy system.

Across much of the EU, electricity bears a significantly higher fiscal and parafiscal burden than natural gas.

While electricity finances renewables, grids and broader energy policies, gas maintains comparatively lower relative taxation and benefited from fiscal reductions during the energy crisis. The result is an **end-user electricity/gas ratio that in some cases exceeds 2.5–3x**, even as the power system becomes increasingly renewable.

A heat pump with a COP of 3–4 can be clearly more efficient than a gas boiler, but if the final electricity price is penalised by regulatory design, the OPEX signal discourages investment.

Energy taxation acts as a direct signal to consumers and industry. If Europe aims to accelerate thermal electrification for climate and energy security reasons, the electricity/gas ratio cannot continue to send the opposite signal.

5.2 FLEXIBLE DEMAND AND HVAC AS A SYSTEM ASSET

behind-the-meter solar PV (on-site generation) in Spain continued to grow in 2025, albeit at a somewhat slower pace than in 2024[30]. This deceleration does not imply structural regression, but rather normalisation after a phase of intense expansion. On-site generation, combined with storage and demand management, transforms **HVAC into a system asset**.

Heat pumps and controllable HVAC systems enable load shifting, optimisation of consumption during lower-price periods and contribution to grid stability. In a system with higher renewable penetration, flexibility acquires economic value. Heat pumps and certain HVAC systems can act as prosumers and participate in active demand-side management.

5.3 PEF, TAXATION AND REGULATORY COHERENCE

The **PEF (Primary Energy Factor)** is a technical parameter with highly practical implications for the HVAC market, as it translates **kWh of electricity consumed at building level into primary energy** (and, by extension, indirect emissions) for purposes of building code compliance (**CTE), energy certification and renewable contribution requirements**.

> *Example: although a heat pump may deliver 3–5 kWh of thermal energy per kWh of electricity (SCOP), the regulatory framework values its contribution according to a PEF that can artificially **penalise** efficient electrification when based on outdated, non-forward-looking values.*

The issue is not the concept itself, but the PEF values currently applied and their lack of timely updating.

In Spain, coefficients used in recognised CTE/EPBD documents assign electricity a high **non-renewable** component (**1.954**) and a low **renewable** component (**0.414**), values constructed on a historical mix that no longer reflects the current — and even less the 2030-bound — Spanish and European electricity systems.

When PEF looks backward rather than forward, **electricity enters the building with a regulatory footprint higher than its real one, distorting decisions**:

- It complicates renewable justification under CTE.
- It worsens the indirect carbon balance.
- It may downgrade the energy rating of electrified buildings even when their real OPEX and CO_2 performance are superior.

This matters more in 2025–2026 due to structural change: European electricity is reducing fossil weight and increasing renewable generation, reinforcing the systemic logic of heat pumps — provided that conversion factors are not outdated. In 2025, **wind and solar generation surpassed fossil fuels in the EU for the first time**, with wind + solar accounting for around 30% of total electricity generation and fossil fuels falling to approximately **29%**, according to Ember[29].

> The regulatory framework must remain coherent and avoid penalising efficient electricity while declaring electrification and decarbonisation as priorities. decarbonisation.
>
> Maintaining PEF values that structurally penalise electricity **slows the traction of efficient solutions** precisely as the power system improves its climate profile.

A PEF misaligned with the real energy mix, combined with a fiscal framework that taxes electricity more heavily than fossil fuels, introduces **structural distortion into the HVAC market**. This is not a technical nuance; it conditions projects, certifications, collective decisions and multi-million-euro investments.

If the objective is to reduce emissions and final energy consumption, **fiscal and regulatory signals must be technologically neutral and environmentally coherent**:

- The solution with the lowest real primary energy should prevail.
- The technology with the lowest verified emissions should prevail.
- The system with the highest in-use performance should prevail.

Fiscal or methodological biases that indirectly favour fossil technologies over efficient electrification delay the transition, increase renovation costs and weaken the credibility of energy policy.

Message from AFEC for 2026[13]

The PEF (Primary Energy Factor) must **cease discriminating against electricity relative to fossil fuels** within the building regulatory framework.

The coherence required from the market — efficient electrification, verifiable savings and real emissions reduction — demands that **conversion factors and associated accounting rely on current data and a trajectory consistent with 2030 targets**. Maintaining factors based on outdated historical mixes artificially penalises technologies such as heat pumps under **CTE, RITE and energy certification schemes**, distorting project and investment decisions precisely when electricity is becoming increasingly renewable.

At the same time, the revised **EPBD** strengthens the focus on **building stock planning and modernisation**, making it even more critical that **calculation rules do not introduce bias against technologies that best** integrate efficiency, electrification and CO_2 reduction. If regulation pushes for improved real performance, but conversion factors penalise the most efficient pathway, a regulatory gap emerges that slows renovation and favours minimum-compliance solutions or incomplete transitions.

Additionally, at national level it would be advisable to **proactively prioritise** — through CTE, RITE and complementary frameworks — three lines of action:

1. **Avoid leaving a difficult-to-decarbonise legacy in new construction**. Experience following the 2018 CTE revision shows that performance-based approaches facilitated significant deployment of individual boilers, complicating future deep renovation. New buildings should be **oriented towards centralised heating and cooling architectures** (or at least solutions that preserve the option of future centralisation and electrification), to **avoid reproducing structural challenges** in today's building stock.

[13] In 2025, at AFEC's 5th Heat Pump Forum, MITECO indicated its intention to revise the PEF using forward-looking values. At the time of publication of this report, the revised PEF is expected to be formally adopted in 2026 as a Recognised Document, with a value below that recommended by the European Commission.

2. **Coordinate building envelope and heating and cooling system upgrades where both form part of the renovation pathway.**
   Where an intervention is limited to the building envelope, the future renewal of the heating and cooling system should be anticipated at design stage so that the works do not create technical constraints, service routes or space limitations that could hinder or increase the cost of a subsequent solution. Where feasible, coordinating both interventions within the same renovation cycle allows provision for future installation, technical space and distribution solutions to be optimised in support of efficient electrification.

   This coordination does not imply making the renewal of the heating and cooling system conditional on prior work to the building envelope. Where envelope renovation is not planned in the short term, no decision has yet been taken, or the heating and cooling system requires replacement, it may be more efficient to proceed directly with an electrified solution rather than extend the use of fossil-fuel technologies while waiting for a future intervention. In such cases, the heat pump can be sized for the building's current conditions and subsequently operated efficiently at lower thermal demand once the envelope has been improved.

3. **Prioritise the building stock relying on fuel oil and LPG**. Renovating the approximately 2.3 million buildings using fuel oil and LPG should be an **explicit objective due to energy impact and externalities:** local emissions (including NOx with health impacts), safety burdens associated with storage and supply logistics, and economic vulnerability to price volatility. Acting on this segment offers rapid effectiveness: reducing emissions, improving air quality and accelerating modernisation of the most lagging stock.

It is not an ideological urgency,
but a technical, economic and climate imperative.

PEF: neutralidad fiscal y señal correcta

Energy accounting must accompany the transition, not hinder it. In 2026, PEF must align with current data and a trajectory consistent with 2030 to avoid structural penalisation of electricity relative to fossil fuels. Without such coherence, regulatory bias is introduced into CTE/RITE and certification schemes, reducing traction for high-efficiency solutions such as heat pumps.

With the EPBD reinforcing building stock planning, Spain should concentrate efforts on:

1. Orienting new construction towards centralised or easily centralisable solutions.
2. Coordinatubg building envelope renovation and heating and cooling system renewal where both interventions are planned, without delaying system modernisation where it needs to be undertaken earlier.
3. Accelerating renovation of fuel oil and LPG stock (≈ 2.3 million buildings) on the grounds of efficiency, health and reduction of externalities.

UPDATE · AUGUST 2026

MITECO has submitted new forward-looking PEFs for public consultation. The proposal remains under consideration. *See "PEF · The revision moves forward on a forward-looking basis", p. 5.*

5.4 RENEWABLE GASES AND HEATING AND COOLING DECARBONISATION

Renewable gases — such as biomethane — form part of the European energy debate. Their development can enhance resilience and diversification, particularly in sectors that are difficult to electrify. However, their potential availability and cost limit their capacity to massively substitute fossil gas in conventional thermal uses.

Biomethane can contribute to the energy mix, but its technical potential does not cover current total consumption. Moreover, traceability and real emissions accounting are essential to avoid confusion between labels and performance.

Several European analyses and consumer organisations agree that renewable hydrogen is a strategic vector for industry and hard-to-electrify uses, but its generalised application in residential heating raises significant concerns regarding efficiency, cost and availability. For buildings, direct and efficient electrification currently offers stronger technical and economic foundations.

Within the HVAC sector, renewable gases may complement the transition, but efficient electrification will remain the dominant structural vector[31].

Implications for HVAC investment

The energy market is one of the structural forces explaining HVAC market traction and will shape investment decisions in 2026.

Efficient electrification does not fail due to lack of technology, but due to **misaligned economic signals**.

1. Electrification is strategic, not only environmental, responding to both climate objectives and energy security.
2. The electricity/gas ratio and fiscal design will determine the pace of heat pump adoption.
3. Flexibility and **on-site generation add systemic value** to HVAC systems.

The pace of electrification will depend on coherence between technical efficiency, fiscal framework and final economic signal. When these variables align, the market accelerates. When they diverge, the transition slows, even if the structural direction remains clear.

6. Construction, renovation and demand drivers

The real framework of HVAC demand

The HVAC market cannot be analysed solely through technology or regulation. It is fundamentally shaped by construction and renovation activity, and by where and how new floor area requiring HVAC systems comes to market.

In 2025–2026, the market is not experiencing a classic expansion cycle driven by new construction, but rather a **mixed scenario: weaker momentum in large non-residential developments, stronger activity in renovation and asset repositioning, and growing weight of industrial segments and high operational-demand applications**.

This pattern explains clear differences across product ranges and helps to correctly interpret the AFEC data presented in the following chapters.

Building and renovation: cycle signals and installed demand

New non-residential construction has lost traction compared with previous years, particularly in large-scale developments (offices, shopping centres, landmark facilities). In cities such as Madrid and Barcelona, the delivery of new office space declined significantly in 2025 compared with 2024, in a context of higher vacancy rates and consolidation of remote working.

In parallel, energy renovation remains active, albeit at uneven pace and conditioned by incentives, taxation and execution capacity. Demand is progressively shifting away from systems serving newly built floor area towards upgrades to the existing building stock.

Implications for the HVAC sector

- Greater weight of equipment replacement compared with full-system installations in new buildings.
- Higher sensitivity to OPEX and real performance.
- Increased need for integration within existing environments subject to technical and spatial constraints.

Renovation: execution gaps

Renovation depends on delivery capacity as well as budget.

In numerous projects — particularly in residential and light non-residential segments — gaps emerge between:

- Design intent and available space.
- Planned pre-installation and the networks actually executed.
- Coordination among trades.
- Commissioning and verification.

Inadequate provision for ventilation ductwork, insufficient technical space for regulation and control, and weak integration between heating and cooling plant and distribution systems ultimately constrain overall performance. This gap helps explain why certain segments — such as residential ventilation, air distribution, and regulation and control — are not expanding at the rate that technical necessity would otherwise warrant.

Implication for HVAC

The transition can advance through equipment replacement, but without coordinated execution the resulting energy and environmental performance remains below its projected potential.

Non-residential and industrial: operational continuity and measurable efficiency

In contrast to the moderation in traditional new construction, industrial segments and critical services (food processing, pharmaceuticals, logistics, data centres) remain dynamic.

Here, the determining criterion is not built surface area but operational stability. Ventilation, regulation and thermal control are dimensioned according to process stability, regulatory compliance and measurable efficiency.

The Energy Efficiency Directive (EED) strengthens monitoring obligations for large energy consumers and data centres, increasing demand for integrated and controllable systems.

Implications for the HVAC sector

- Growth in advanced industrial ventilation and modular solutions.
- Greater weight of system integration, control and performance verification.
- Increasing value of measured performance over nominal specifications.

6.1.1 Health, IAQ and ventilation: why deployment is not keeping pace

The climate context — with more frequent and prolonged heatwaves — together with recent public health experience reinforces the importance of indoor air quality (IAQ). However, deployment of efficient ventilation in renovation does not advance at the intensity required by climate adaptation needs.

The reasons are structural:

- Budgetary priority given to heating and cooling plant over ventilation.
- Perception of ventilation as an additional cost rather than a health and efficiency asset.
- Absence of systematic commissioning and verification in part of the interventions.

In high-occupancy new buildings or critical industrial facilities, ventilation is treated as a strategic component. In less extensive renovation projects, it is still often treated as a secondary consideration.

Implications for the HVAC sector

There is a gap between climate necessity and actual deployment. Closing this gap is a prerequisite for thermal resilience to translate into measurable operational outcomes.

The HVAC market in 2025–2026 cannot be explained solely by technology, regulation or macroeconomic conditions. The location of construction activity, the type of renovation and the quality of execution are determining factors in sector evolution.

- Fewer large traditional non-residential developments.
- More repositioning and upgrading of the existing building stock.
- Greater requirements in industry and critical services.
- Persistence of execution gaps in renovation.

This framework allows for a more precise interpretation of market figures by category presented in the following chapters. Differences across product ranges are not anomalies; they reflect the prevailing demand drivers.

7. Regulatory framework 2026–2030

The 2026–2030 period will be shaped primarily by the effective implementation of an already adopted regulatory package with a direct impact on the HVAC sector, rather than by major new policy announcements. European regulatory ambition remains high; the main risks lie in consistency of transposition, the market's technical capacity, and coordination between energy, climate and industrial policies.

This framework has structural implications for product and system design, installation, operation, data, safety, circularity and financing.

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7.1 POLITICAL CONTEXT IN EUROPE

These are times of change. The new Parliament is exerting increasing influence over the European Commission, within an institutional landscape where the balance of power between the three governing bodies is at times uneven.

Parliament

The EPP (European People's Party) holds the key to parliamentary majorities.

Commission

The Commission seeks to maintain its level of ambition, but follows shifting political priorities.

Council

The Council and the Member States face difficulties in implementing the Green Deal.

European political commentary speaks of a shift to the right, accompanied by a moment in which political forces are changing direction.

- Geopolitics and policy delivery are gaining weight over policy design.
- Climate, green priorities and renewables are losing political prominence.
- Energy security, competitiveness, strategic autonomy and simplification remain central.

The 2026–2030 European framework affecting the HVAC sector is no longer driven by isolated legislative files, but by a **coherent block of industrial, energy and climate policy**. The EU is pursuing three objectives simultaneously, which at times pull in different directions: **industrial competitiveness ("Made in Europe"), energy security (electrification and grids), and credible decarbonisation (measurable rules, traceability and market surveillance)**. The principal policy files are structured within this triangle.

In practice, the structured regulatory framework follows a structured intervention logic, as a chain of cause and effect. **Industrial policy** (Industrial Accelerator Act / Made in Europe, and the Product and Energy Omnibus) aims to accelerate manufacturing, deployment and regulatory simplification, without lowering technical discipline.

That discipline materialises in the **product** axis (Ecodesign and Energy Labelling, Lot 1 and Lot 2): defining what is efficient, comparable and verifiable; raising the minimum market threshold; and accelerating the uptake of technologies with demonstrable real-world performance. In parallel, the **refrigerants** axis (F-Gas Regulation, PFAS restrictions, RoHS exemptions) reshapes the design, safety and service roadmap: it conditions equipment architecture, installation and maintenance practices, and turns operational skills into a factor of competitiveness.

Built on this regulatory hardware sits the **energy policy** axis (Grids Package, Electrification Action Plan, Heating and Cooling Strategy, Governance): this is where the real pace of electrification is determined and aligned with grid development, flexibility and planning. To ensure that the market does not depend solely on intermittent CAPEX cycles, **financing** instruments (ETS2 and the Social Climate Fund, the Innovation Fund for industrial process heat, and public procurement mechanisms) channel investment towards segments where returns are OPEX-sensitive and where adoption barriers persist (vulnerable households, industry and the public non-residential sector).

Finally, implementation of the **European Green Deal** (Fit for 55 and REPowerEU) functions as the backbone: setting direction and timelines, while **digitalisation** (network codes, technical certification annexes, demand response, energy data frameworks) turns HVAC into a **system asset** — controllable, measurable and interoperable. Taken together, the operational message for the sector is clear: the market increasingly rewards **verified performance, enforceable compliance, security of supply, and the capacity to integrate equipment with grids and data**.

7.2 KEY EUROPEAN POLICY FILES

Competitiveness and industrial policy

Industrial Accelerator Act, "Made in Europe", Energy Product Omnibus, Circular Economy

The compass is shifting: beyond decarbonisation, the EU aims to **produce and scale** within Europe. For HVAC, this translates into two structural tensions:

- **Industrial capacity** (equipment, components, electronics, compressors, EC fans, heat exchangers, alternative refrigerants).
- **Quality and reliability** as a competitive advantage vis-à-vis imports. Omnibus packages typically seek simplification and coherence; the risk is that overly broad simplification may create **gaps in market surveillance** or ambiguous signals for investment.

In parallel, the Circular Economy and **Ecodesign for Sustainable Products Regulation** (ESPR) introduces the **Digital Product Passport** (DPP), requiring open and interoperable architectures, traceable lifecycle data and measurable real-world performance. It also expands the scope towards durability, reparability, material efficiency and structured environmental information.

HVAC is now fully embedded in the circular economy agenda. Modular design, data-driven maintenance and traceability are no longer competitive differentiators; they are progressively becoming baseline requirements.

UPDATE · August 2026

In July 2026, the operating arrangements for the EU Digital Product Passport registry were adopted. HVAC-specific requirements will depend on subsequent measures for individual product groups. See "Digital Product Passport · The supporting infrastructure moves forward", p. 8.

Ecodesign and Energy Labelling

Ecodesign & Energy Labelling: Lots 1 & 2

This is the silent axis that defines the market: **what can be sold, under which requirements and how products are compared**. For heat pumps and ventilation systems, the focus is on **seasonal performance, part-load behaviour, control, noise and verification**, with decreasing tolerance for marginal catalogue specifications. This layer sets the technical floor of the market and shifts differentiation towards verified real-world performance.

Refrigerants

F-Gas, PFAS, RoHS exemptions

Three dimensions converge here: **climate (GWP), safety (A2L/A3 flammability) and chemistry/material compatibility**. Regulation (EU) 2024/573 on F-gases accelerates the transition towards lower-GWP refrigerants and consequently drives redesign, training and changes in installation and servicing practices. In parallel, the broader PFAS debate may introduce regulatory uncertainty for certain substances, blends and compatibility aspects. For the sector, the operational message is clear: the refrigerant transition is an **industrial and skills transformation**, not merely a change of gas.

Energy policy energética

EED, ETS, EPBD, European Grids Package, Electrification Action Plan, Heating & Cooling Strategy, Governance Regulation/post-2030, , CBAM, ETS update

This is what connects heat pumps to the energy system: **grids, flexibility, price signals and planning**. Electrification does not advance through narrative; it advances when there is (i) **grid capacity**, (ii) **faster connection procedures**, (iii) **coherent end-user price signals**, and (iv) a framework that recognises HVAC as a flexibility asset (demand-side management, thermal storage, well-designed hybrid systems). The Commission has activated this line through the **Electrification Action Plan** and the Grids Package, precisely in response to grid and connection bottlenecks.

The revision of the ETS (ETS1 and ETS2) increases carbon cost embedded in the OPEX of fossil fuels and reinforces the economic rationale for efficient electrification. This operates alongside the Carbon Border Adjustment Mechanism (**CBAM**). While CBAM does not directly target natural gas, it affects carbon-intensive materials, like steel or aluminium, increasing the cost of industrial components.

UPDATE · AUGUST 2026

ETS2 timetable changed since the report was finalised. The EU Commission now expects the system to become fully operational in 2028. See "ETS2 · Full operation deferred to 2028", p. 7.

The **recast EPBD** requires **transposition and introduces obligations with direct impact on HVAC**, including:

- A strengthened role for **BACS** (Building Automation and Control Systems).
- Consolidation of the **Smart Readiness Indicator** (SRI).
- Progressive improvement requirements for the existing building stock.
- Greater emphasis on measured rather than calculated performance.
- The end of incentives for individual fossil boilers from 1 January 2025.

UPDATE · AUGUST 2026

The European Commission has assessed Spain's draft National Building Renovation Plan. Spain must submit its final plan by 31 December 2026. See "EPBD · Implementation enters a new phase", p. 5.

The directive shifts the focus from isolated equipment to integrated and monitored systems, reinforcing regulation, control, interoperability and verification.

The **EED** introduces monitoring and reporting obligations for large data centres and energy-intensive consumers. They must report energy consumption, efficiency, heat recovery and harmonised indicators. This strengthens the value of efficient thermal design, advanced ventilation and continuous control.

Financing

ETS2 + SCF, Innovation Fund: auctions/pilots for industrial heating, public procurement

Without executable financing, the market risks remaining confined to "lighthouse projects". ETS2 (covering buildings and road transport) and the **Social Climate Fund** are designed to mitigate social impacts and sustain accompanying measures.

For industry, Innovation Fund pilots and auctions for process heat promote a results-based approach: remuneration linked to avoided CO_2, clean heat delivered or verified performance, rather than CAPEX alone.

UPDATE · AUGUST 2026

The ETS2 timetable has changed since the report was finalised. The European Commission now expects the system to become fully operational in 2028. See "ETS2 · Full operation deferred to 2028", p. 7.

Implementation of the Green Deal

Fit for 55 and REPowerEU

This is no longer about new legislation, but about **implementation**: transposition, guidance, eligibility criteria, market surveillance and enforcement. The principal risk is not ambition, but **uneven implementation** across Member States and segments, as well as minimum-compliance approaches that leave real performance gains unrealised.

Industrial heat pumps and district heating

This area links industry, thermal networks and waste heat recovery. The key question for 2026–2030 is the degree to which solutions become industrialised (repeatable engineering, standardisation, measurement and verification) and how integration barriers are addressed (temperature levels, hydraulics, permitting, contracting structures and liability allocation).

Digitalisation

Grid Connection Code: anexo HP certification, Network Code on Demand Response, data for energy, SRI, DDP

The digitalisation that matters is operational: data, interoperability, commissioning, verification and demand response. As the EU regulates grid codes and demand response, HVAC shifts from passive consumption to controllable capacity — provided systems are properly designed and integrated.

Heat Pump Accelerator Platform

Its practical function is coordination, deployment acceleration, value chain strengthening, skills development and removal of bottlenecks. If effectively implemented, it reduces the gap between policy targets and real-world execution.

The overarching conclusion is that **competitiveness, ecodesign, refrigerants, grids, financing and digitalisation** are converging in the same direction:

THE MARKET WILL INCREASINGLY REWARD VERIFIABLE REAL-WORLD PERFORMANCE AND PENALISE ADMINISTRATIVE, TECHNICAL AND OPERATIONAL FRICTION.

Summary of European policies

	Block	Policy files	Objective	Impact on HVAC and heat pumps	Typical implementation risk
1	Competitiveness and industry	Industrial Accelerator Act ("Made in Europe") / Energy Products Omnibus	Accelerate industry, simplify, strengthen the EU value chain	Greater focus on manufacturing capacity, availability, lead times, market access and harmonised requir.	Partial simplification (greater speed, same friction)
2	Product: efficiency and comparability	Ecodesign and Energy Labelling (Lots 1 and 2)	Raise minimum requirements, ensure comparability of performance, remove inefficient products	Stricter performance, labelling and documentation requirements; pressure towards real efficiency	Misalignment between regulation and testing/market capacity; uneven interpretation
3	Refrigerants and substances	PFAS / F-Gas / RoHS exemptions	Lower GWP, restrict substances, redesign products	Equipment redesign, safety implications, changes in installation &servicing; training need	Installer bottlenecks, component availability, safety challenges
4	Energy policy	Grids Package / Electrification, Action Plan / H&C Strategy / Governance Regulation	Electrification supported by grids and planning; coherence of the post-2030 framework	Real deployment pace of heat pumps; flexibility and demand-side role; heat planning	Grid and permitting slower than policy ambition; inconsistent OPEX signals
5	Financing and economic signals	ETS2 and Social Climate Fund / Innovation Fund (process heat auctions) / Public procurement	Monetise carbon; protect vulnerable households; accelerate industry; demand pull through public procurement	Shifts the business case from fossil fuels to electrification; scaling in industry and non-residential sector	Complexity, delays, fragmentation and high transaction costs
6	Green Deal implementation	Fit for 55 and REPowerEU (implementation phase)	Consolidate direction; accelerate energy security and renewables	Reinforces narrative and political priority of efficient electrification	Regulatory fatigue; political pressure linked to cost impacts
7	Industrial heat pumps and heating&cooling networks	Industrial and District Heating Heat Pumps	Decarbonise process heat and networks; recover waste heat	New applications, standardisation, integration with district systems and industry	Lack of bankable projects, engineering and M&V capacity; high CAPEX
8	Digitalisation and grid codes	Grid Connection Code (heat pump certification annex) / Network Code on Demand Response / Energy data framework	Interoperability, certification, flexibility, data as infrastructure	Heat pumps as flexible assets; technical requirements for connection and certification; M&V	Real interoperability, cyber/IT risks, incomplete data, skills gaps
9	Sector-specific governance	Heat Pump Accelerator Platform	Coordination, acceleration and removal of barriers	Stakeholders aligned, best practices, monitoring of implementation	Excessive coordination without effective delivery if not translated into concrete measures
10	Joint perspective	Integrated view of all policy files	Coherence and prioritisation	Explains why and in what sequence the rules of the game are changing	Risk of duplication and contradictory signals

7.3 SPAIN: REGULATORY AGENDA

In Spain, legislative activity affecting the HVAC sector centres on three operational priorities.

Regulatory and calculation frameworks aligned with efficient electrification

CTE, RITE, EPC and PEF

Thermal electrification through heat pumps already competes on **real-world performance and OPEX**. In the buildings sector, however, investment and technology choices are still influenced by calculation methodologies for primary energy, indirect emissions and renewable energy contributions, which can introduce distortions. Unless the primary energy factor (PEF) and the associated calculation methodologies are updated to reflect the current energy mix and a trajectory consistent with 2030 targets, electricity may be **artificially disadvantaged relative to fossil fuels**, distorting technology choices in both renovation and new-build projects. This is specially relevant to compliance calculations under the CTE and to building energy performance certification (EPC).

Delivering performance as a requirement

RITE, CTE and CAE system (Energy Savings Certificate)

Spain needs to move beyond minimum compliance and **deliver performance**: properly sized ventilation, control of airflows and pressures, energy recovery where applicable, and control systems that convert nominal capacity into **verifiable savings**. The CAE scheme acts as a lever by changing the incentive structure: it does not reward the "equipment" itself but **verified kWh savings**. That same logic — measurement, verification and documentary traceability — should permeate RITE/CTE practice: more commissioning, more verification, and fewer solutions that perform "on paper" but fail to deliver "in operation".

Safety and delivery capacity as a bottleneck

RSIF, Royal Decree 115 and the refrigerant transition

The refrigerant transition under the F-Gas framework presents a major operational challenge in Spain, spanning safe design, installation, maintenance, documentation, qualifications and market surveillance. Two national instruments are relevant here, excluding tax-related provisions:

- RSIF (regulation for safety of refrigeration installations) requires the sector to deploy refrigerants with new safety classifications without compromising safety or availability.
- Royal Decree 115/2017 (placing on the market and handling of F-gases and certification requirements) provides part of the regulatory infrastructure underpinning fair competition and technical quality. If delivery falls short — through insufficient training, weak inspection or inadequate control of poor practice — the consequences extend beyond environmental performance to safety and reputation, ultimately slowing market development.

Policy file	Impact on HVAC	Status 2026	Rationale (maturity / implementation risk)	AFEC operational position
AE scheme (Royal Decree 36/2023 + implementing framework)	Structural incentive based on **verified kWh savings**. Strong potential in industry and non-residential sector; applicable to heat pumps, ventilation, heat recovery and control systems.	**Green (mature)**	The mechanism is established and operational. The main challenge is **scalability**, including consistency across Autonomous Communities, administrative burden and verification capacity.	Advocate simplification and greater consistency; expand the range of HVAC measures covered by the catalogue; promote M&V and traceability as standard practice.
RITE (current framework + EPBD-driven revision)	Requirements for design, operation and maintenance, including ventilation, controls, seasonal efficiency and in-use performance.	**Amber (under development)**	The technical direction is well established, though revision is inherently complex due to coordination requirements, timelines and inspection and enforcement capacity.	Prioritise in-use performance, commissioning and maintenance; align RITE with the CAE scheme through verification and with IAQ and ventilation requirements.
CTE (current framework + amendments)	Requirements that directly shape the market through the HE and HS sections, including ventilation, airtightness, energy demand and consumption, and consistency with electrification.	**Amber/Red (implementation risk)**	High risk of **unintended consequences** if regulatory changes create practical barriers, f.i. to mechanical ventilation with heat recovery, or introduce signals inconsistent with electrification.	Ensure that energy renovation does not compromise IAQ; prevent compliance requirements on paper from creating barriers to efficient solutions; ensure consistency with PEF and associated calculation methodologies.
RSIF (Royal Decree 552/2019)	Safety requirements for the installation and servicing of systems using new refrigerants, covering procedures, components, design and maintenance.	**Amber (implementable, but demanding)**	Regulatory framework is in place, but the refrigerant transition places greater demands on **technical capability** and on control throughout the installation and servicing chain.	Strengthen guidance, training and consistent implementation criteria; avoid market disruption caused by divergent interpretations.
Royal Decree 115/2017 (fluorinated gases / certification)	Market surveillance, fair competition and professional qualifications are a key foundation for a safe and traceable refrigerant transition.	**Amber (pressure from regulatory updates and enforcement)**	The main risk lies less in the regulatory text itself than in **implementation**, including market surveillance, inspection, available skills and market discipline.	Strengthen market surveillance and simplify requirements where they create unnecessary friction; ensure coordination with the F-Gas transition and RSIF.

Timeline 2025–2030

Spain

- Adaptation of RITE and CTE
- Consolidation of the CAE scheme
- Adjustments to RSIF
- Operational rollout of digitalisation

EU energy taxation alignment

- 2025–2025–2026: EPBD transposition
- 2026: CBAM enters its definitive phase
- 2026–2028: F-Gas implementation phase
- 2026–2030: progressive implementation of the DPP
- Development of SRI and EED reporting requirements

These are multiple, overlapping regulatory layers. The national challenge is to **align** them — both domestically and at EU level — and to **implement them with technical coherence**. AFEC therefore participates actively in working groups, advisory bodies and public consultations, submitting technically robust proposals developed in consensus with sector experts.

8. Health, comfort and IAQ

References to ventilation and IAQ appear throughout this report, and certain aspects are addressed in more than one section. Nevertheless, a dedicated chapter is warranted for a topic as critical as health. Ventilation is at a pivotal point in the thermal transition. Indoor environmental quality is where climate, energy and operation converge. If underinvestment occurs at that intersection, the transition remains incomplete.

The structural increase in cooling degree days (CDD), the higher frequency of heatwaves and the pressure on operational continuity in non-residential and industrial buildings (see section 4.3 Climate and resilience) have shifted ventilation and environmental control from a comfort-driven logic to one centred on functional stability. At the same time, efficient electrification and OPEX management (see Chapter 5) have reinforced the value of integrated solutions combining ventilation, heat recovery and control.

However, market behaviour sends an ambivalent signal: while **industrial ventilation and high-demand operational systems are accelerating their modernisation, ventilation in residential and light non-residential renovation continues to show signs of underinvestment**.

8.1 HEAT RECOVERY AND DEMAND-CONTROLLED VENTILATION

Heat recovery and demand-controlled ventilation represent one of the strongest points of technical coherence between energy efficiency and health.

From an energy perspective, heat recovery reduces thermal losses without penalising air renewal, particularly relevant in increasingly airtight building stock. From an operational perspective, sensor-based modulated ventilation (CO_2, humidity, occupancy) connects directly with regulation and control systems (see section 10.3), optimising part-load consumption.

In industrial environments and data centres, ventilation is no longer sized solely for comfort, but for thermal and environmental stability, with direct implications for process reliability (see section 10.3). In high-occupancy non-residential buildings, regulatory and reputational pressure around IAQ continues to intensify.

The market for AHUs and heat recovery systems remained stable in 2025. This does not reflect a decline in technical relevance, but rather a reallocation of investment priorities towards heating and cooling plant (see section 10.3). System-wide coherence requires the integration of both.

Structural signal

Efficiency and IAQ are compatible and mutually reinforcing when design and control are properly integrated.

8.2 RISK OF UNDERINVESTMENT IN VENTILATION IN RENOVATION

The main market weakness lies in uneven deployment and in the gap between regulatory intent and real-world performance. In renovation projects, investment priority frequently focuses on replacing thermal equipment, while ventilation is relegated to minimum compliance or partial intervention.

This creates a structural gap between regulatory requirements, climate necessity and on-site execution. Inadequate pre-installation planning, insufficient technical space for ductwork and limited commissioning culture constrain the final performance of the overall system. This gap is directly linked to skills and execution capacity.

In scenarios of extreme heat, such underinvestment does not merely reduce efficiency; it increases health and energy vulnerability.

Gap	**Heating and cooling plants upgraded without properly integrated ventilation result in an incomplete transition.**

8.3 DESIGN, PRE-INSTALLATION, OPERATION AND MAINTENANCE

Closing this gap requires technical coherence at four levels:

1. **Integrated design from project inception: Integrated design from project inception: ventilation must be designed and dimensioned alongside heating and cooling plant and control systems, rather than treated as a secondary add-on.**
2. **Pre-installation in renovation:** provision for duct routes, technical spaces and maintenance access reduces future barriers and incremental costs.
3. **Commissioning and verification:** thermal resilience is not declared; it is demonstrated in operation. Measurement and control must be embedded.
4. **Structured operation and maintenance:** indoor environmental quality depends on filtration, balancing and periodic adjustment. Without maintenance, projected efficiency degrades. Maintenance costs must be considered as an economic variable from the outset of the project.

IAQ is the clearest indicator of whether market momentum translates into genuine **resilience of the building stock**. Ventilation, filtration and IAQ are where the energy transition becomes tangible: the technology is available, the climate signal is unequivocal and electrification is advancing.

How can the gap between regulatory intent and real-world performance be minimised?

By ensuring **coherence in planning, investment and project design**, and by integrating ventilation with heating and cooling plant and control systems, the sector can deliver measurable gains in health, operational stability and efficiency..

9. Spanish HVAC Market 2025

9.1 METHODOLOGY FOR STATISTICAL ANALYSIS OF HVAC MARKET

Data collection and methodology

Launched in 1977, AFEC's HVAC market statistics have built a strong reputation for independence, objectivity and data reliability. Over time, they have evolved both in the number of participating companies — steadily increasing the representativeness of the sector — and in the range of solutions covered, reflecting technological developments and changing market needs.

The different HVAC solution categories are segmented by product, taking into account technical characteristics, performance, application and use, as well as their relevance to the market in terms of both current sales and future market outlook. Some studies also include segmentation by sales channel.

The data are provided directly by the participating companies, which enter them into a dedicated *ad hoc* digital platform incorporating multiple layers of protection and security. The data are managed and safeguarded to preserve their integrity, security and confidentiality: each participating company has access only to its own data and to the aggregated market totals. As platform administrator, AFEC always verifies that each segment includes a minimum number of participating companies, ensuring both market representativeness and confidentiality.

> *The relevant, contextualised insights generated by these statistics provide each company with a comprehensive view of the market, its size and its underlying trends. This provides a valuable information base for strategic planning and enables companies to proactively track the latest market developments and emerging trends.*

Participation is open to AFEC members and non-member companies that manufacture, import or otherwise carry out productive activity in the Spanish HVAC market and that choose to participate voluntarily.

The use of a transparent, secure procedure that complies with competition rules enables AFEC's published market information to be used by Spanish public authorities and European Union bodies in official statistical studies, as well as by a wide range of industry stakeholders.

As an independent and impartial body with extensive market knowledge and experience, AFEC administers the platform, safeguards the integrity of the process and monitors the information collected.

Data governance

Product categories are governed by category-specific rules under the authority of the Market Committees. These committees comprise participating member companies, together with an AFEC representative who acts as Secretary.

Companies must demonstrate that they market products in Spain within each segment of the relevant product categories in order to participate in that segment.

The platform aggregates the individual data submitted for each product category and segment, processes them in a structured manner, and then provides participating companies with access to aggregated data only.

Once data have been submitted within the specified deadline, the Secretariat reviews the procedure and assesses the consistency of the aggregated results by cross-checking contextual information against predefined criteria. Where inconsistencies or possible errors are identified, the relevant Market Committee carries out a review and the study is reopened so that each participant can check its own individual data.

Once it has been confirmed that there are no data-entry errors, the system automatically generates the totals for review. After the totals have been closed and validated by the Market Committee, the platform retains only the aggregated results. The individual data submitted by each participant — to which AFEC has no access — are permanently and irreversibly deleted. Before deletion, participants are informed so that they can download their own data.

The validated totals form the basis of the annual summary published in this report and on AFEC's website www.afec.es.

Sell-in data and market value considerations

AFEC's statistical data reflect *sell-in* sales to the professional channel. Any direct comparison with *sell-out* sales to end users should take into account the potential time lags inherent in distribution, warehousing and market placement.

The statistical data presented in this report correspond to *sell-in* sales, i.e. equipment supplied by manufacturers to the professional channel.

For the purposes of this study, the professional channel includes distributors, wholesalers, installation companies, contractors, buying groups within the mass-market domestic appliance channel, and other professional operators purchasing equipment for integration into building, renovation or industrial projects. This may also include developers, construction companies or asset managers where equipment is purchased directly as part of a professional project.

These figures do not represent direct sales to end users (*sell-out*), but rather the entry of products into the professional supply chain. Any direct comparison between *sell-in* and *sell-out* must therefore take into account potential time lags arising from distribution, warehousing, market placement, project execution and system commissioning.

In addition, the final market value associated with these sales is significantly higher than the *sell-in* value, as it includes components outside the equipment supply itself, such as installation costs, engineering, system integration, commissioning, margins applied by different channel participants and applicable indirect taxes.

9.2 PRODUCT CATEGORIES

AFEC's statistical study covers the following product categories:

- Air conditioning equipment, heat pumps and domestic hot water (DHW) production
- Industrial and non-residential ventilation
- Ventilation with heat recovery
- Air distribution and diffusion
- Air handling units (AHUs)

The study records both volume (units) and value (sales revenue) for a defined reporting period, with the frequency varying by category. Results are also compared with the corresponding period of the previous year. Annex A provides a sector-by-sector breakdown of the equipment included in each category.

9.3 STATISTICAL ANALYSIS OF THE HVAC MARKET

Total HVAC market

HVAC Market (Mill €)	2025	25vs24%	2024	24vs23%	2023
Air conditioning, heat pumps and DHW production	1.585,08	6,5%	1.488,61	-0,1%	1.489,99
Residential ventilation	61,38	114,5%	28,62	-1,8%	29,15
Industrial / non-residential ventilation	220,49	55,9%	141,47	-1,1%	143,10
Air distribution and diffusion	69,70	0,4%	69,41	1,9%	68,13
AHUs + ventilation units with heat recovery	105,23	0,9%	104,33	19,1%	87,62
TOTAL	2.041,88	11,4%	1.832,44	0,8%	1.817,98

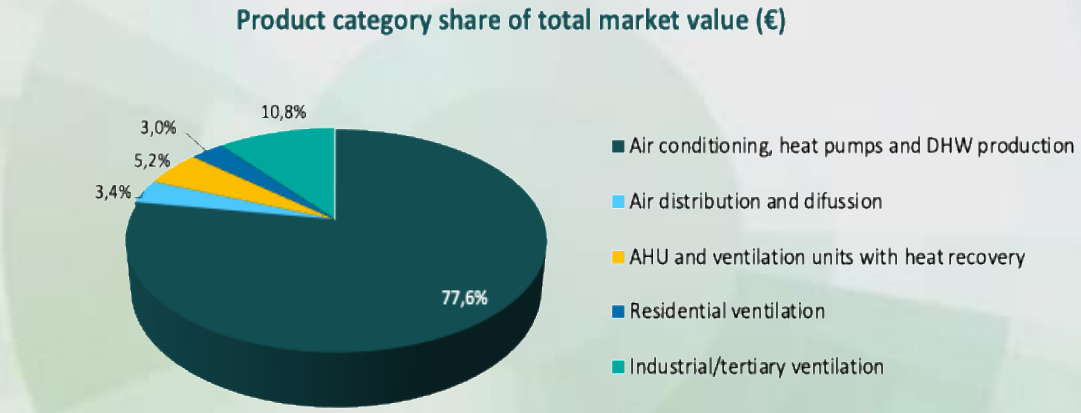
Considerations

1. These figures represent aggregated *sell-in* sales reported through AFEC's statistical study.

2. The figures should be interpreted from a market intelligence perspective, drawing on knowledge of market dynamics and estimates based on AFEC's sector expertise and experience.

3. Residential ventilation: the significant increase reflects not only market growth, but also a number of additional factors, including the addition of new participants reporting data across different product ranges and possible adjustments in the allocation of products common to different sectors (residential, commercial, etc.). See the comments in the relevant section.

The following chart shows the share of the 2025 total represented by each product category analysed:



2025 confirms solid growth in the HVAC market, driven not only by the core air conditioning, heat pump and DHW segments, but also by very significant growth in ventilation.

The sector is evolving towards more comprehensive, integrated solutions — supported by digitalisation, control systems and BACS — with energy efficiency, indoor environmental quality and operational reliability playing an increasingly important role in investment decisions.

Francisco Perucho (Panasonic)
President of AFEC

Air conditioning, heat pumps and DHW production

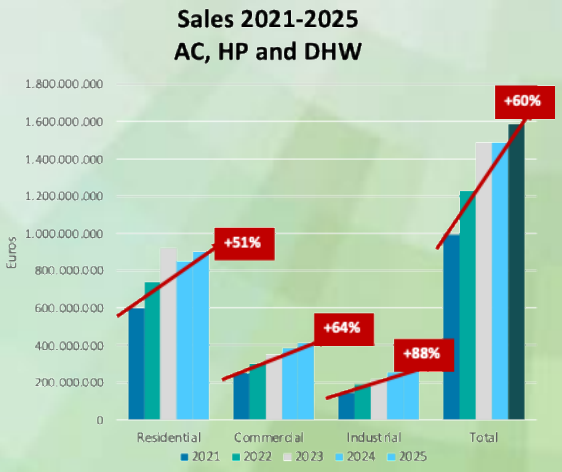
Sector (mill €)	2025	25vs24%	2024	2023	24vs23%
Residential/Domestic	902,3	6,1%	850,2	921,5	- 7,7%
Commercial	410,9	6,7%	385,0	350,3	9,9%
Non-residential/Industrial	271,9	7,3%	253,4	218,2	16,1%
TOTAL	1.585,1	6,5%	1.488,6	1.490,0	- 0,1%

In the residential/domestic segment, which accounts for 57% of the value of the air conditioning, heat pump and domestic hot water market, 1,399,507 units were sold in 2025, representing €902.30 million in value. For split systems, only outdoor units are counted.

The HVAC market appears to be entering a phase of genuine growth, supported by higher volumes and reinforced by a rebalancing of the sector mix, with commercial and non-residential/industrial segments growing faster than residential.

The data are best understood by looking at the **full 2021–2025 series**, which shows a clearly upward trend in both volume and value:

- 2023 was an exceptional year, with unusually strong growth that broke away from the underlying trend.
- 2024 did not fall below trend; rather, it corrected the excess seen in 2023 and returned to a level consistent with the longer-term trajectory.
- 2025 resumed growth from that normalised base.



Sell-in sales of air conditioning, heat pumps and domestic hot water systems, 2021–2025, by sector

Sell-in sales trend for air conditioning equipment, heat pumps and domestic hot water systems, 2021–2025, by year

Between 2021 and 2025, the HVAC market maintained a **sustained growth trend**. The exceptional surge in 2023 created a temporary deviation from the underlying trajectory, which was corrected in 2024. In 2025, the market returned to growth from a base aligned with the structural trend.

Following 2024, a year of market adjustment rather than structural contraction, the sector returned to growth in 2025, reinforcing a trend driven by the increasing adoption of air-source and ground-source heat pumps as essential solutions.

Luis Mena (Daikin)
Air conditioning, heat pump and DHW production statistics committee

Residential ventilation

HVAC Market (Mill €)	2025	25vs24%	2024	24vs23%	2023
Residential ventilation	61,38	114,5%	28,62	-1,8%	29,15

The **growth in residential ventilation** in 2025 can be explained in part by a **structural factor**: improvements to the building envelope in both new construction and renovation increase airtightness and reduce infiltration, making ventilation a necessary condition for proper building performance rather than an optional add-on. Without adequate ventilation, there is a greater risk of deterioration in IAQ, moisture problems, discomfort and, in certain areas, increased exposure to radon. This is consistent with the health and hygiene requirements of the Spanish Technical Building Code (CTE, DB HS 3), which requires adequate ventilation and extract airflow rates in dwellings.[32]

At European level, the recast EPBD[33] reinforces the shift towards real building performance and consolidates indoor environmental quality (IEQ) as part of the operational approach, increasing the value of ventilation solutions that can be properly designed, verified and maintained as an integrated system. In this context, the 2025 trend is reflected not only in installed units, but also in growth in components such as air terminals, air inlets and ductwork, which provide an indication of higher installation activity, the upgrading of existing systems and the progressive standardisation of installation practice.[34]

WHAT ARE THE KEY *DRIVERS* OF THE RESIDENTIAL VENTILATION MARKET?

Residential ventilation grows as buildings become more **airtight**: it is no longer an optional extra, but a prerequisite for proper building performance, ensuring IAQ and preventing moisture-related problems.

Actual market uptake depends on **installation quality**: provision for services, adequate space, system balancing, commissioning and maintenance.

If the market remains focused on **minimum compliance** — single-flow ventilation and individual components — balanced mechanical ventilation with heat recovery will not scale at the pace supported by its regulatory and energy-efficiency potential.

Single-flow ventilation units

- Compliance and cost: the predominant solution where the objective is to meet required airflow rates while keeping CAPEX under control, particularly in partial renovation projects.[1]
- Renovation involving the building envelope: as infiltration is reduced, single-flow ventilation becomes the technical minimum needed to prevent moisture and condensation problems.
- Existing building stock: replacement driven by noise, equipment failure and the need to improve reliability in multi-dwelling buildings with communal systems, with a strong focus on operational continuity.

Double-flow ventilation units

- Efficiency + IAQ: increasingly attractive where projects aim to maintain IAQ without increasing OPEX, thanks to heat recovery, specially in well-insulated new homes and deep renovation.
- Regulation and market trends towards operational efficiency: the EPBD's focus on real-world performance and IEQ favours integrated solutions that can be verified and maintained, making balanced mechanical ventilation with heat recovery particularly well suited where installation quality is assured.[2][3] However, specification can sometimes be constrained by insufficient space for ductwork, acoustic requirements, system balancing, commissioning or maintenance access.

Air terminals

- Room-by-room interventions: installation/replacement in individual rooms, airflow adjustment, noise correction and system rebalancing following renovation works or commissioning.
- Growth in unit sales is accompanied by increased distribution and balancing work to ensure that ventilation performs correctly throughout the dwelling.
- In renovation, replacements are common in residential applications for aesthetic reasons, dirt build-up, noise or functional improvements such as airflow adjustment or diffuser performance.
- Growing trend towards standardised solutions and modular installation to reduce installation time, rework, call-backs and variability in performance between projects. This involves:
  - Less on-site improvisation: standard duct routes and components, fewer bespoke adaptations.
  - Greater compatibility and modularity: air terminals, air inlets and ductwork designed to work together and with commonly used system configurations.
  - More consistent quality: fewer installation errors, lower noise levels and reduced imbalance caused by variability in workmanship.
  - Easier maintenance: simpler replacement and cleaning using common components.

Air inlets

- They are essential in single-flow ventilation systems: the need to upgrade an existing system often arises on the **air intake side**, rather than the extract side, where insufficient or poorly designed air inlets can result in noise, draughts and uncontrolled air infiltration.[1]
- More airtight buildings: improvements to the envelope reduce uncontrolled outdoor air infiltration through cracks and gaps, making air inlets necessary.
- Improved perceived indoor quality: properly sized air inlets help maintain balanced airflow and reduce common complaints such as odours, condensation and discomfort.

Plastic ductwork

- Industrialisation and faster installation support quicker, more repeatable installation with fewer on-site constraints, particularly where space is limited.
- Renovation: plastic ductwork allows more compact layouts and easier routing through confined spaces than more rigid alternatives.
- Growth in distributed residential ventilation ductwork: increasing use of room-by-room air distribution drives demand for ductwork.
  - Communal single-flow ventilation: upgrading or replacing the extract network — including risers, branches and connections — increases demand for ductwork.
  - Balanced mechanical ventilation with heat recovery: the impact is greater because two ductwork networks are required — supply and extract — together with more extensive room-by-room distribution and greater requirements for acoustic control and airtightness.

Industrial ventilation

HVAC Market (Mill €)	2025	25vs24%	2024	24vs23%	2023
Industrial/non-residential ventilation	220,49	55,9%	141,47	-1,1%	143,10

In 2025, industrial ventilation recorded strong growth, while a technology shift also accelerated: plug fans — and fan arrays — continued to gain ground over traditional centrifugal fans.

The explanation is twofold:

1. **A regulatory push** that raises the efficiency threshold and drives the progressive phase-out of solutions that will no longer be able to meet the requirements.

2. **New applications and production requirements** in which ventilation becomes part of process infrastructure, supporting operational continuity, control and traceability.

ErP and Ecodesign: the regulatory driver behind the technology shift

The key regulatory driver is the update of the Ecodesign (ErP) framework for fans, through the Regulation (EU) 2024/1834[35].

It applies from 24 July 2026 and introduces more stringent requirements for performance, verification, and operation at both full and part load.

The European Commission presents this update as a **regulatory step change** aimed at reducing energy consumption and updating the scope of the Regulation.

These tighter requirements help explain the **displacement of traditional centrifugal fans** with AC motors by more advanced plug-fan technology, which can improve the efficiency of the fan-motor-control assembly, enhance modulation, reduce system losses and simplify integration into equipment.

This technology shift, enabled by more efficient aerodynamics and EC motors with more advanced electronics and controls, goes beyond point efficiency. Plug fans enable remote control, part-load operation and more precise system tuning, features that are increasingly valued in industrial and non-residential applications.

UPDATE · AUGUST 2026

The requirements of Regulation (EU) 2024/1834 have applied since 24 July 2026. See "Fan ecodesign · New requirements now apply", p. 7.

New applications and operational requirements

The performance of this market segment in 2025 cannot be explained by replacement alone. The technology shift is also driving **activity among system integrators** incorporating standardised plug fans into their equipment, while additional net growth is being generated by other *drivers*:

- **Strong demand from data centers**
  Air movement and thermal control requirements are substantial and continuous — 24/7/365. At the same time, the European regulatory framework is increasing the emphasis on measurement, reporting and efficiency under the EED[36] and delegated legislation on indicators and the European database. This increases the value of efficient, controllable ventilation.

- **Growing demand for AHUs** and the ongoing **retrofit** of air handling units
  Traditionally, each AHU incorporates a limited number of conventional fans. In retrofit projects, these are increasingly replaced by a larger number of EC-motor fans to improve efficiency, operational continuity and maintainability.

- Significant changes in **industrial operations**
  Environmental and operational requirements are becoming more demanding, including higher temperature requirements, tighter emissions constraints, harsher operating environments and greater expectations for continuity of service. In demanding industrial applications, ventilation is increasingly integrated into process stability, maintaining the thermal and environmental conditions needed to reduce failures and avoid unplanned downtime.

Industrial ventilation appears to be entering a new phase, driven by a combination of technology change and new demand. Data centres, AHU retrofits and more demanding industrial processes are accelerating the adoption of efficient, controllable solutions such as plug-fan modules and EC fans.

Increasingly, ventilation is being valued for its **in-use performance** — stability of operating conditions, fault tolerance and total cost of ownership — rather than solely for airflow capacity or like-for-like equipment replacement.

Damián Fernández (Soler & Palau)

Industrial ventilation statistics committee

Air distribution and diffusion

HVAC Market (Mill €)	2025	25vs24%	2024	24vs23%	2023
Air distribution and diffusion	69,70	0,4%	69,41	1,9%	68,13

The **air distribution and diffusion** market (diffusers, grilles, dampers, VAV boxes, plenums and associated accessories) acts as a **very direct indicator of construction activity**, particularly in the **non-residential sector**. Unlike other product families that are more exposed to technology replacement, demand is driven primarily by the **construction phase** and by the physical installation of air distribution networks and terminals. It grows when new floor area is added to the building stock and when **major refurbishment projects** involve the replacement or reconfiguration of air distribution systems.

In 2025–2026, the market remains **flat** because its main volume driver — **new non-residential construction** with intensive air conditioning and ventilation requirements, such as hospitals, shopping centres, major sports facilities and other high-occupancy buildings — is showing **weaker momentum**.

There are fewer new urban developments and large-scale projects capable of generating substantial additions to installed floor area. Investment is shifting towards **renovation and refurbishment**, which sustain replacement demand but do not always trigger the same degree of air distribution network renewal as new construction.

This is compounded by practical challenges in project delivery and contracting. Public works are facing pressure from rising prices and resource constraints. Where contracts do not adequately reflect actual costs[37] — materials and, increasingly, labour — **delays, slower execution and even the risk of project abandonment** increase as projects lose economic viability.

This creates a more cautious approach to risk-taking, increasing perceived financial uncertainty across the value chain, particularly among contractors and subcontractors, and delaying private investment decisions linked to major projects. In healthcare, the effect can be amplified where new hospitals or extensions involve **private-sector participation** through concessions or mixed financing models. When there are signs of pressure on delivery times, commercial terms or regulatory framework, investors tend to prioritise projects with lower exposure and delay project starts.

Overall, this is consistent with a **mature and stable market**, supported by steady replacement activity but without the additional momentum provided by major non-residential developments.

Air diffusion is closely tied to construction activity: when little new non-residential floor area is being delivered and there are few major demand-driving projects, the market tends to stabilise, as replacement and partial refurbishment do not fully offset the lack of new-build activity.

José Tomás Susarte (Koolair)
Air distribution and diffusion statistics committee

AHU and heat recovery

HVAC Market (Mill €)	2025	25vs24%	2024	24vs23%	2023
AHU + Ventilation units with heat recovery	105,23	0,9%	104,33	19,1%	87,62

The recent market development of air handling units (AHUs) and ventilation units with heat recovery (MVHR units) shows combined growth of around 1%, significantly more moderate than in the previous year and with a **trend towards stability**.

One of the key ***drivers*** for these systems is office construction, which lost momentum in 2025. New office completions in the two markets accounting for most activity — Madrid and Barcelona — fell from a combined 352,000 m² in 2024 to 222,000 m² in 2025 (approximately -37%)[38], with a particularly sharp adjustment in Madrid, where completions fell from 247,000 m² to 102,000 m², while Barcelona remained more stable and even recorded an increase, from 105,000 m² to 120,000 m². Office vacancy rates also continued to rise, reaching 11% in Madrid and 12% in Barcelona, partly reflecting the consolidation of remote working.

The **decline in office take-up**[39] may be contributing to the emerging trend of converting office buildings to residential use[40], driven in part by stronger residential demand.

At the same time, **investment momentum in the healthcare segment** following the pandemic — including cleanroom construction — has **slowed**.

Investment is also increasingly being **prioritised towards heating and cooling plant**, particularly the replacement of fossil-fuel boilers and conversion to air-to-water and water-to-water systems, where the business case is currently more attractive. For AHUs, returns are generally lower and investment decisions are therefore more likely to be deferred, except where upgrades are necessary to maintain required indoor air quality levels.

In parallel, AHU modernisation is consolidating modular ventilation architectures. Where systems previously relied on a small number of conventional fans, retrofit projects increasingly use multiple EC fans to improve modulation, simplify balancing, reduce part-load energy consumption and enhance maintainability without operational shutdowns.

It has been a stable year for AHUs and heat recovery systems. New construction in the non-residential sector has declined, particularly in offices and healthcare, while currently more subdued public and private investment in renovation is prioritising the replacement of heating and cooling plant, where returns on investment are more attractive. The market is being sustained by retrofit activity in installations with specific IAQ or operational requirements.

Rafael Moral (Systemair)
AHU and heat recovery statistics committee

Reflections on the ventilation market

There is broad technical consensus on the **role of ventilation in building health, comfort and energy efficiency**. IAQ, demand-controlled ventilation and heat recovery are critical to meeting objectives for energy efficiency, decarbonisation, health and well-being in buildings.

However, market evidence suggests that these systems still do not occupy a central position in renovation and property development, where **lower-upfront-cost solutions** are often prioritised or approaches are adopted that **minimise investment in ventilation**, even at the expense of limiting future system development.

In renovation, this can result in incomplete interventions, with iInadequate provision for future installation and insufficiently sized ventilation systems, making subsequent integration more difficult.

In new-build development, **strategies focused on meeting minimum regulatory requirements through compromise solutions** remain common, limiting the uptake of advanced ventilation and energy recovery systems.

This is particularly relevant in a context where building digitalisation and continuous monitoring of indoor air quality make it possible to optimise ventilation and reduce its energy impact.

The weaker momentum in the AHU and heat recovery ventilation market highlights the **gap between technical consensus and construction practice**, with potential consequences for the real-world performance of buildings throughout their service life.

In this context, **ventilation** should be treated as a **fundamental element of building infrastructure**, with a direct impact on efficiency, health and **asset value**.

REGULATORY ASPECTS AFFECTING THE VENTILATION MARKET

In this context, AFEC has submitted comments to Spain's Ministry of Housing and Urban Agenda (MIVAU) on the draft amendment to the Spanish Technical Building Code (CTE), with the aim of strengthening indoor air quality (IAQ) and preventing regulatory requirements from creating barriers that could compromise energy efficiency, occupant health or the deployment of efficient ventilation technologies in new-build and renovation projects.

1. Energy renovation and indoor air quality: an essential balance

The draft amendment removes key references intended to ensure that interventions in existing buildings do not lead to a deterioration in IAQ. This is particularly relevant in energy renovation projects, where improvements often focus on increasing building airtightness through window replacement or upgrades to façades and the building envelope.

Unless these measures are accompanied by appropriate ventilation systems, they can result in **poorer indoor air quality**, with the accumulation of pollutants such as volatile organic compounds, moisture, mould and bacteria, directly affecting occupants' health and well-being.

Removing this provision, combined with the absence of clear criteria, could create uncertainty and lead to incomplete renovation projects in which energy efficiency is improved at the expense of healthy indoor conditions.

AFEC therefore considers it essential for the regulatory framework to make **explicit reference to the ventilation requirements** set out in CTE Basic Document HS 3, ensuring **that improvements in building energy performance are always accompanied by adequate indoor air quality**.

This would reduce uncertainty and support the **installation of appropriate ventilation systems that prevent conditions liable to harm occupants' health**.

2. Ventilation must be accounted for in building energy performance calculations

The draft CTE recognises ventilation as part of a building's energy use, alongside heating, cooling and domestic hot water. However, this recognition is not yet reflected consistently in the calculations used to determine actual building energy demand.

In practice, ventilation involves a direct exchange of energy between the indoor and outdoor environment. In well-insulated buildings, it can account for **a significant share of total heat losses**, particularly in more extreme climates.

If ventilation is excluded from energy demand calculations, the result is an **incomplete assessment that may favour solutions focused solely on insulation**, without ensuring adequate indoor air quality.

Mechanical ventilation with heat recovery can significantly reduce these energy losses by recovering energy from the extract air to temper the incoming outdoor air.

This **improves energy efficiency without compromising comfort or continuous air renewal**.

Ventilation also affects more than energy consumption. It has a direct impact on **occupant health and well-being**. Outdoor air is not always clean, nor does it always enter the building at a suitable

temperature, which can cause discomfort in both winter and summer. Controlled mechanical ventilation systems, particularly double-flow systems, can maintain appropriate indoor air quality throughout the year and can also make use of free cooling when outdoor conditions allow.

AFEC therefore proposes that the regulatory framework **explicitly incorporate ventilation into energy demand calculations**, distinguishing between basic solutions and advanced systems with heat recovery. This is necessary to **avoid regulatory incentives that work against energy efficiency, indoor air quality and comfort**, and to ensure that future buildings are genuinely more sustainable, safe and healthy.

3. Efficient ventilation: a key requirement that must not become a barrier

The proposed amendment to the Spanish Technical Building Code introduces an air-tightness requirement that is excessively stringent and particularly restrictive for buildings incorporating mechanical ventilation with heat recovery, one of the most effective technologies for reducing energy demand, improving indoor air quality and maintaining comfort in homes.

It is reasonable to require higher levels of airtightness in buildings with double-flow ventilation systems, since their correct operation depends on controlled air intake. However, the proposed threshold is disproportionate. In practice, it would create a regulatory barrier favouring lower-cost construction solutions with poorer performance, which do not provide the same level of protection for occupant health or the same benefits in terms of indoor air quality and energy efficiency.

This approach penalises the most efficient technology and creates an incentive that runs counter to the energy, environmental and health objectives of the CTE itself.

The requirement should therefore be revised to prevent double-flow ventilation from being effectively excluded from the residential market for regulatory reasons. This would preserve access to a mature, technically viable technology that is widely recognised for its proven benefits in terms of health, energy efficiency, indoor air quality and comfort.

AFEC therefore considers it necessary to adjust the airtightness requirements to technically achievable levels that ensure the correct operation of these systems without turning regulation into a barrier to the deployment of solutions aligned with the objectives of CTE Basic Document DB-HE.
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Regulation and control

Qualitative analysis

In 2025, developments in regulation and control systems are being driven less by the incremental addition of **new functionalities** and more by a structural shift in the regulatory and operational framework for buildings and industrial installations.

Digitalisation is increasingly becoming a **functional requirement** rather than a technology option, particularly in non-residential and industrial applications, where operational complexity, continuity of service and energy traceability are playing a growing role in **asset management**.

From a regulatory perspective, the revised Energy Performance of Buildings Directive (EPBD) **explicitly strengthens the role of Building Automation and Control Systems (BACS)**, extending their application in non-residential buildings and linking their deployment to improvements in real-world energy performance. The revised EPBD also consolidates instruments such as the **Smart Readiness Indicator (SRI)**, which provides a systematic assessment of buildings' smart capabilities, including **continuous monitoring, control, system interoperability and demand-response capability**.

In parallel, the Energy Efficiency Directive (EED) strengthens **metering, monitoring and energy management requirements** for large energy users, encouraging the use of advanced energy management systems and continuous operational data as a basis for optimisation and sustained reductions in energy consumption.

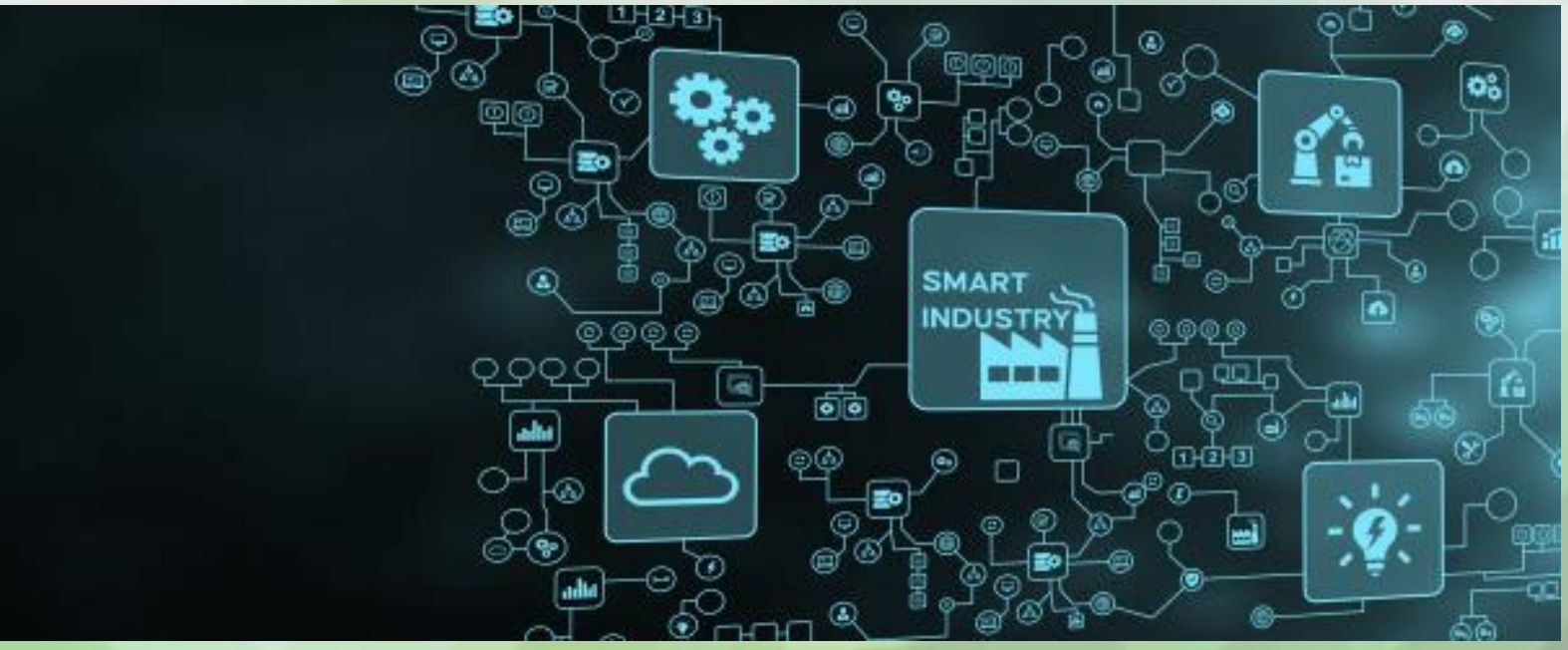
This is complemented by the **development of the European digital product and data ecosystem**, including initiatives such as the **Digital Product Passport**, together with new information requirements under the revised Ecodesign framework. These developments increase the need for control systems capable of generating, managing and transmitting reliable data throughout the full lifecycle of installations.

This regulatory environment is converging with **growing operational demand in energy-intensive sectors**, where regulation and control are critical to day-to-day operation. In **data centres**, thermal management, ventilation, heat recovery and precise control of environmental conditions have become strategic requirements, both for energy efficiency and for availability and resilience.

New **European energy transparency and reporting obligations** for these facilities further reinforce the role of advanced control systems as enablers of regulatory compliance and operational optimisation.

In the **industrial sector**, regulation and control systems are increasingly integrated with production processes, internal energy networks and **heat recovery strategies**. Digitalisation enables these installations to move from reactive approaches towards data-driven management models, supporting **preventive and predictive maintenance**, operational scenario modelling, energy optimisation and the reduction of unplanned downtime. In these environments, regulation and control systems form part of the critical operational infrastructure.

IAQ and ventilation are fully integrated into this **digital ecosystem**. Continuous monitoring of environmental parameters, combined with demand-controlled ventilation and energy recovery strategies, strengthens the **link between control, health, comfort and energy efficiency**, particularly in high-occupancy non-residential buildings and industrial facilities with specific environmental requirements.



A GAP BETWEEN THE REGULATORY FRAMEWORK AND REAL-WORLD ADOPTION

Despite the strong regulatory and technological momentum of recent years, a **significant gap** remains between the considerable potential of advanced regulation and control systems and their **effective deployment** across a substantial share of projects.

In renovation and, to some extent, in the non-residential and industrial sectors, advanced digitalisation continues to be constrained by **short-term approaches**, solutions focused on **minimum compliance** and **insufficient integration** between HVAC, ventilation and control. This gap risks leaving a legacy of buildings and industrial installations that are formally aligned with regulatory requirements but operationally underperform in terms of efficiency, indoor environmental quality and adaptability.

European regulation is moving decisively towards more digitalised buildings and installations. In practice, however, the uptake of advanced regulation and control systems remains uneven, particularly where **sensing, interoperability and subsequent use of operational data** are not planned from the outset. Early-stage procurement, coordination between disciplines, and the availability of commissioning, fine-tuning and operational capabilities are also critical. The gap between regulatory requirements, technological potential and real-world execution will shape the energy, environmental and operational performance of assets in the years ahead.

This regulatory and technological framework creates a market environment in which **regulation and control systems should play a central role in future market development**. Higher requirements for energy efficiency, digitalisation, continuous monitoring and real-world performance management in buildings and industrial installations point, from a technical perspective, to **structurally growing demand for advanced control, automation and data analytics solutions**.

European regulation is driving a decisive shift towards more digitalised buildings and installations, yet the real-world adoption of advanced regulation and control systems remains uneven.

The gap between regulatory requirements, technological potential and construction practice will shape energy, environmental and operational performance in the years ahead, as well as the development of the BACS market.

10. Heat pumps

10.1 Air-source heat pumps: a core technology in an evolving regulatory framework

Heat pumps have become a **core technology in Europe's energy transition**, reflecting not only their ability to harness renewable energy sources, but also their contribution to **energy efficiency, decarbonisation and reduced dependence on imported energy**. Their growing role in Europe's heating and cooling mix is underpinned by a combination of **technological maturity, scalability and compatibility with the electrification of the energy system**, rather than by short-term market stimulus.

This position is being reinforced by the evolution of the European regulatory framework, which in recent years has moved beyond broadly supporting renewable technologies towards explicitly shaping **investment decisions in heating and cooling systems**.

Against this backdrop, the recast Energy Performance of Buildings Directive (EPBD) marks a significant turning point by establishing clear criteria for the eligibility of heating technologies for public financial support.

In October 2024, the European Commission published its first guidance to support Member States in the transposition and implementation of the recast EPBD, clarifying the scope of the requirement set out in Article 17(15). Under this provision, Member States must, from 1 January 2025 at the latest, cease providing financial incentives for the installation of new stand-alone boilers powered by fossil fuels. The guidance provides detailed definitions of key concepts including 'stand-alone boiler powered by fossil fuels', 'hybrid heating system', 'installation' and 'financial incentive', with a view to ensuring consistent implementation across the European Union.

In particular, the Commission clarifies that grants, preferential loans and tax incentives, including reduced tax rates, must not be provided for the purchase, installation or commissioning of new stand-alone boilers powered by natural gas, oil or coal. This restriction applies irrespective of whether the installation forms part of a renovation or new-build project and covers all forms of financial support provided by public authorities at national, regional or local level, whether directed at end users, installers or other market participants.

This regulatory framework is effectively reshaping the **competitive landscape for heating technologies** in Europe, progressively shifting the focus away from fossil-fuel-based solutions towards **alternatives aligned with the EU's climate and energy objectives**.

In this context, heat pumps are consolidating their position not only as a technically viable option, but as a solution aligned with the direction of regulation and with both public and private investment criteria, thereby influencing short- and medium-term market decisions.

> The recast EPBD goes beyond driving energy efficiency: it explicitly redirects public incentives in heating and cooling, excluding new fossil-fuel boilers and strengthening the role of technologies aligned with electrification and decarbonisation.

10.2 HEAT PUMP MARKET DATA 2025

The following table presents the results of AFEC's heat pump market studies.

Units sold *(sell-in)*	**2025**	Δ% 25/24	**2024**	Δ% 24/23	**2023**	Δ% 23/22	2022
Reversible air-to-air * (6 a 10 kW)	131.579	16,4%	113.035	-5,0%	119.021	31,6%	90.439
Reversible air-to-water (1 a 500 kW)	95.632	13,0%	84.658	-6,4%	90.448	-2,6%	92.905
Reversible water-to-water (1 a 500 kW)	313	9,1%	287	120,8%	130	-24,9%	173
Total	**227.524**	14,9%	**197.980**	-5,5%	**209.599**	14,2%	**183.517**

* Air-to-air heat pump sales figures are weighted to account only for units used primarily for heating (*estimate and calculation: AFEC*).

In 2025, the European heat pump market saw an uneven recovery, with moderate growth overall and significant variation between countries. Against this backdrop, Spain stands out for solid growth across all heat pump technologies.

AFEC Heat Pump Promotion Plan

Since 2016, the **AFEC Heat Pump Promotion Plan** has served as a leading platform for raising awareness of heat pump technology across a wide range of audiences, including industry sectors, professionals, consumers, public authorities, training centres and other organisations.

The initiative combines technical outreach, regulatory proposals and sector collaboration. The technology is mature, and Spanish companies offer solutions across the full range of applications: residential, non-residential and medium- and high-temperature industrial uses, integrated with on-site generation, energy storage and smart controls.

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10.3 EUROPEAN MARKET

The evolution of the European heat pump market over the 2021–2025 period confirms an underlying growth trend, interrupted by short-term deviations of varying nature across the main national markets.

France, Germany and Italy — which account for the largest share of European market volume — have shown particularly high sensitivity to changes in incentive frameworks and national regulatory decisions, resulting in exceptional demand peaks followed by subsequent phases of market normalisation.

In 2025, available data point to a **gradual rebalancing of the market**, with clear signs of renewed momentum in Germany, adjustments still evident in certain technologies in France, and stabilisation in Italy following the end of extraordinary incentive schemes.

The United Kingdom, although starting from a smaller base, continues to gain relative weight and is gradually moving closer to the group of Europe's largest heat pump markets.

Against this backdrop, the European market should be viewed from a long-term perspective: a **process of structural growth shaped by volatility in public policy, with annual declines and recoveries reflecting cyclical adjustments**. Within that trajectory, 2025 is emerging as a transition year towards a more stable path of heat pump adoption.

With growth rates above the European average in 2025, Spain confirms its position as one of Europe's most dynamic markets as heat pump adoption continues to consolidate across residential and non-residential applications.

10.4 INDUSTRIAL AND HIGH-TEMPERATURE HEAT PUMPS

Decarbonisation is not limited to homes and non-residential buildings: industry must also decarbonise its energy use, and heat pumps are already part of the solution.

The greatest potential for electrification lies in industry, not only in homes and non-residential buildings. **Industrial electrification is the next frontier.**

An IDAE study based on more than 10,000 surveys indicates that **30% of industrial processes can be electrified**, while **23% of industrial heat demand is below 200°C**, a temperature range particularly well suited to heat pumps.

This creates a clear opportunity to **replace fossil-fuel-based thermal processes with clean electric solutions**, combining heat pumps with complementary technologies such as **thermal storage and high-temperature cycles**.

Spanish companies are already developing industrial heat pumps capable of operating above 200°C, extending their application to processes such as drying, washing, evaporation and pasteurisation.

For this transition to scale, **technology alone is not enough**. The market also needs **bankable business models, confidence, financing and certification frameworks** that support adoption.

More than **90% of the European companies** analysed by McKinsey are **actively considering the electrification of process heat**, although significant information gaps remain.

The potential is particularly significant among **SMEs**, which account for a substantial share of total energy consumption. Although numerous and dispersed, they often rely on similar process technologies, creating scope to **standardise solutions and reduce costs**.

For this reason, **industrial decarbonisation programmes should explicitly include SMEs**.

A relevant example is the **IF25 Heat Auction**, the world's first clean heat auction programme, designed to **accelerate industrial electrification**. A **multi-year framework with a dedicated SME component** would be particularly valuable, as existing support mechanisms are often complex and tend to favour larger corporations.

Industrial heat pumps are emerging as **one of the most scalable and replicable technologies** for decarbonising low- and medium-temperature process heat across the industrial sector.

11. HVAC equipment demand map

11.1 NEW BUILD

	New build Residential	New build Non-residential / Industrial
Demand drivers	• New housing development in specific areas • CTE requirements for health, indoor environmental quality and energy performance, together with electrification	• Energy-intensive industries (food processing, pharma, logistics) • Data centres requiring continuous 24/7 operation • Critical facilities (healthcare, labs, high-occupancy buildings)

Growth product categories	• Air-to-air and air-to-water heat pumps
	• Residential ventilation:
	  • Single-flow ventilation, driven by compliance requirements and lower CAPEX
	  • Double-flow ventilation with heat recovery (MVHR) where projects target higher energy efficiency, comfort and stable IAQ
	• Filtration, particularly where outdoor pollution, noise or health requirements are relevant
	• Components associated with higher installation activity: ductwork, air terminals, air inlets, acoustic attenuators, plenums
	• Basic controls, with a growing role for control functionality in smart-ready equipment
		• Advanced industrial ventilation, including plug fans, fan arrays and EC fans
		• AHUs, DOAS and energy recovery systems, depending on the application
		• Filtration and air treatment where required by process or environmental conditions
		• Regulation and control systems / BMS–BACS for monitoring, traceability and optimisation
		• Heat recovery from industrial processes for other thermal uses or district heating, where appropriate
		• High-efficiency heating and cooling plant, including efficient electrification

Risks	• Lower volumes than in previous market cycles • Sensitivity to financing costs and CAPEX pressure	• New housing development in specific areas • CTE requirements for health and hygiene and energy performance, together with electrification
Delivery gaps	• Double-flow ventilation will not scale without adequate space for ductwork, acoustic control, achievable airtightness, system balancing, maintenance access, commissioning and proper handover.	• Projects focus on installed capacity and equipment specification, while operation, testing, SLAs, measurement and fine-tuning (balancing, controls, sequences) are insufficiently planned.

11.2 RENOVATION

	Renovation Residential	Renovation Non-residential / Industrial
Demand drivers	• Boiler replacement and, to a lesser extent, cooling upgrades • Grants and Energy Savings Certificates (CAEs), where applicable • Sensitivity to OPEX	• AHU retrofits and ventilation upgrades • Replacement of heating & cooling equipment (OPEX/regulatory) • Asset repositioning (energy upgrades to enhance building value)
Growth product categories	• Heat pumps (a2w, hybrid systems in transitional applications) • Basic controls (thermostats and simple zoning • Residential ventilation, particularly components and single-flow solutions: air inlets, air terminals, partial ductwork upgrades and replacements driven by noise or equipment failure. Components growing faster than complete systems reflect renovation activity	• Modular AHU retrofits, including EC fans, fan arrays, variable-speed drives and controls • Advanced controls, sensors and BMS integration • Heat recovery where there is a clear business case and adequate space and system integration • High-efficiency heating and cooling plant
Risks	• Partial renovations that improve envelope but compromise IAQ • Electrification without adequate grid infrastructure or system integration, resulting in lower performance than expected • Excessive reliance on short-term support schemes (volatile demand) • Decisions by homeowners' associations driven by the lowest upfront CAPEX, such as individual boilers, potentially locking in fossil-fuel heating and constraining future decarbonisation • Skills shortages and uneven installation quality in smaller multi-dwelling buildings	• Projects focused on upfront CAPEX without optimising total cost of ownership (TCO) • 'Cosmetic' retrofits that replace equipment without addressing overall system design • Contractual fragmentation between h&c, ventilation and controls • Delays caused by poor coordination in occupied buildings • Loss of asset value where real-world performance cannot be demonstrated (f.i. through SRI, EED reporting)
Delivery gaps	• Inadequate ventilation infrastructure: insufficient provision for ductwork, technical space and other requirements • Barriers to double-flow ventilation with heat recovery: acoustic concerns, no commissioning, prioritisation of h&c over ventilation/IAQ	• Underinvestment in advanced, realistic ventilation solutions where projects focus primarily on heating and cooling plant • Insufficient commissioning and minimum-compliance approach • Lack of performance verification, including IAQ, airflow rates, pressures and in-use energy consumption

12. Financing and business models

The heating and cooling transition depends not only on technology and regulation, but also on **how economic and financial incentives are structured**. In 2025, three instruments stand out as particularly significant:

- The progressive roll-out of the Energy Savings Certificate (CAE) scheme.
- The selective consolidation of ESCO models based on measured performance.
- The structural influence of OPEX signals — particularly the electricity-to-gas price ratio and energy taxation — relative **to one-off CAPEX support**.

Financial design has a direct bearing on the pace at which the existing stock of heating, cooling and HVAC installations is modernised.

12.1 CAEs: THE NEW GOLD STANDARD IN ENERGY EFFICIENCY

Energy Savings Certificates (CAEs) are a key instrument for driving energy efficiency, providing a mechanism to quantify, certify and monetise energy savings delivered through HVAC measures.

These financial incentives offer a more agile route than traditional grant schemes, supporting faster deployment of solutions that contribute to a more sustainable and energy-efficient system.

Working closely with MITECO, AFEC actively contributes to the development and updating of standardised CAE measures, as well as to the calculation methodologies for bespoke measures involving heat pumps, technology hybridisation, ventilation, heat recovery, regulation and control across residential, non-residential and industrial applications.

Through the coordinated work of experts within AFEC's working groups, our involvement helps ensure that CAEs accurately reflect the sector's energy-saving potential and contribute effectively to meeting decarbonisation targets.

What AFEC does

- Provide public authorities with a **transparent, robust methodology that remains consistent over time and is applicable across the Spanish market**, including cooling applications.

- Cover **all existing technologies and applications**, including hybrid systems — whether configured in parallel or as alternative systems — within a unified framework.

- Bring together expertise from **AFEC's other working groups and cross-sector working groups**.

- Draw on the **knowledge and experience of HVAC equipment manufacturers**, including their expertise in meeting regulatory requirements for technical documentation and mandatory registration on European databases such as EPREL.

- Incorporate **all existing technologies within a unified framework covering the full range of applications** — homes, hospitals, care homes and others — including operating hours and usage profiles.

Evolution 2025

The Energy Savings Certificate (CAE) scheme, established under Royal Decree 36/2023[41], allows verified energy savings to be monetised and transferred to obligated parties, introducing a market-based mechanism built around certified savings.

2025 development (order of magnitude)

- Cumulative certified energy savings: ≈ **2 TWh** *(>1.5 TWh in 2024)*
- Estimated value traded: **€120–180 million**
- Average CAE market price: **€115–140/MWh**
- Economic value: **€120–180 million cumulative** *(depending on price)*

Structural signals:

- Growth in 2025 is concentrated particularly in **industry and the non-residential sector**, where the savings potential per project is higher.
- The CAE scheme shifts the emphasis from grant funding to **verified outcomes**, introducing greater technical discipline and traceability of energy savings.

Risks and lessons learned in Spain

The CAE scheme has a robust structure but requires a high level of technical and documentary rigour.

In practice, **administrative bottlenecks** have been identified[42]:

- Duplicate verification by Autonomous Communities.
- Redundant documentary requirements and inconsistent terminology across different stages of the process.
- No independent mediation mechanism for disputes between delegated parties and verifiers.
- Technical limitations in the document submission platform, including caps on the number and size (MB) of files, format incompatibilities and related constraints.

Lessons learned include:

- Coordinated action by central government and regional authorities.
- Avoiding overlaps between grant schemes and certificates.
- Transparency and trust between market participants.
- Legal certainty and streamlined procedures.

- Progressive improvement in the **kWh/year-based approach** and in data quality, compared with other methodologies such as France's *kWh cumac*.
- Scope for **public CAE auctions** to help ensure market liquidity[43].

Pueden verse más en las FAQ (preguntas frecuentes) del MITERD.

Some considerations for further improving the CAE scheme, alongside the ongoing refinement and expansion of the catalogue, include:

- Standardising the verification process.
- Establishing technical and advisory one-stop shops.
- Reviewing the regulatory framework while maintaining continuous communication with all market participants.
- Strengthening market surveillance and the enforcement regime to prevent malpractice[44].
- Seguir trabajando en la divulgación y difusión del mecanismo.

The HVAC sector within the CAE scheme

The most common HVAC-related measures include:

- Replacing fossil-fuel boilers with heat pumps
- Replacing chillers with high-efficiency units
- Heat recovery in industrial processes
- Ventilation with heat recovery and improved control
- Optimisation of control systems and variable-speed drives

In industrial and non-residential applications, process heat pumps and energy recovery can deliver high levels of energy savings per project, making them particularly attractive under the CAE incentive framework.

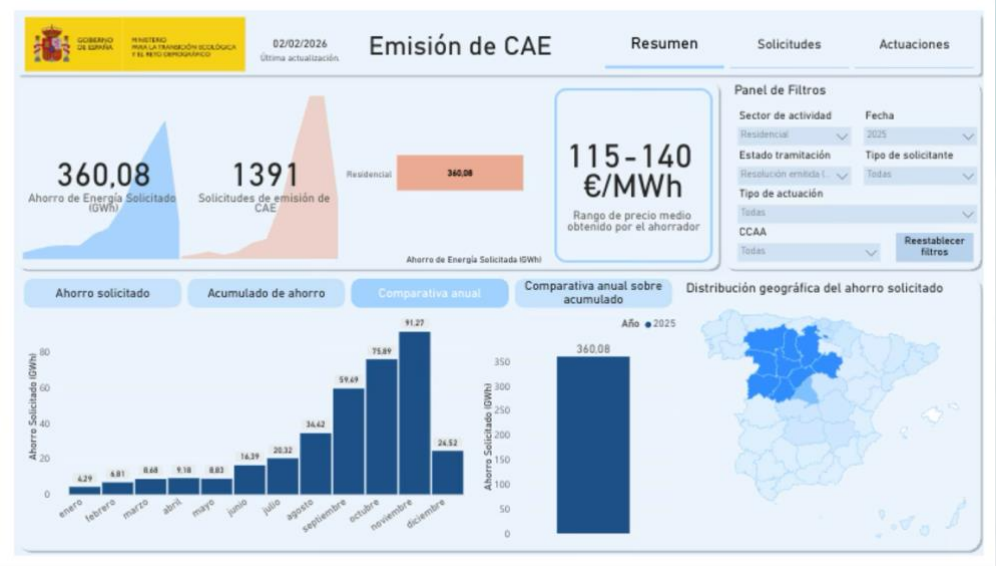
Market signal:
The CAE scheme can accelerate industrial projects that previously failed to meet investment return thresholds.

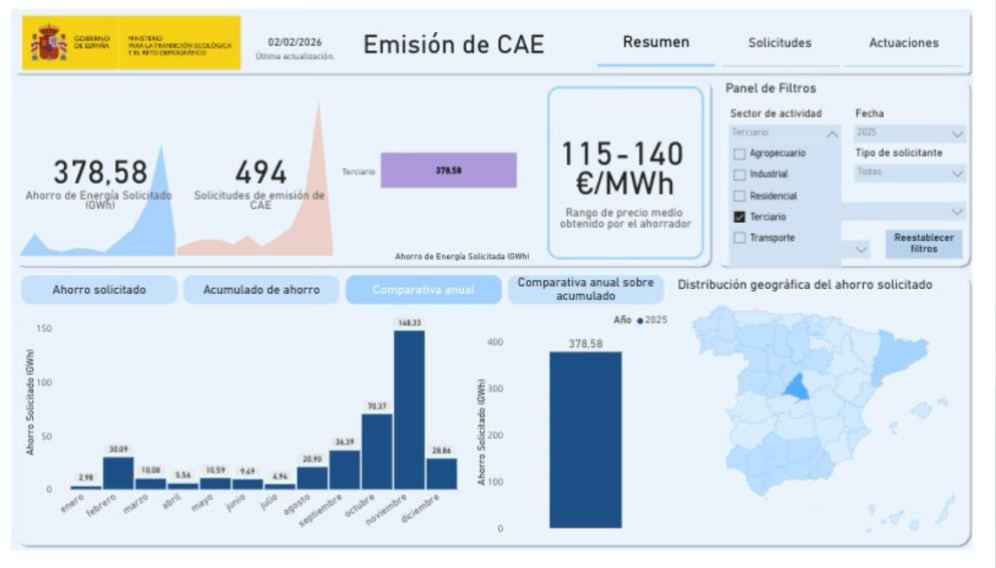
Conditions for scalability:

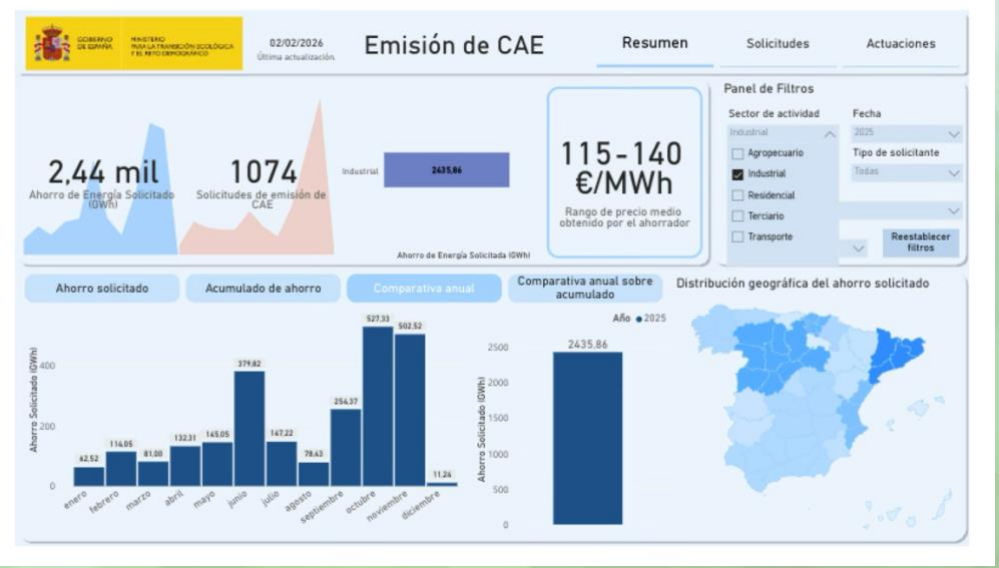
- Administrative simplification
- Faster validation
- Regulatory stability

UPDATE · AUGUST 2026
Royal Decree-law 7/2026 has introduced a multiplier for certified energy savings when a heat pump replaces fossil-fuel equipment. See "CAE · Stronger support for thermal electrification", p. 6.

CAE Market in 2025







CAEs resueltos positivamente en 2025 en residencial, terciario e industrial. Acumulado. Fuente MITECO

12.2 ESCO AND ENERGY PERFORMANCE CONTRACTS

The **ESCO** (Energy Service Company) model enables energy efficiency measures to be financed against guaranteed savings.

In 2025, the model continues to gain traction, partly supported by the CAE scheme, although **transactional barriers** still constrain the management and commercial viability of smaller projects. In such cases, the **aggregation of savings and individual measures** is essential if the residential sector is to benefit more fully from CAEs.

Trends

- Greater uptake in energy-intensive industry and large non-residential buildings.
- Increasing emphasis on M&V (measurement and verification).
- Digitalisation is facilitating contracts linked to actual in-use performance.

Barriers

- High transaction costs for smaller projects.
- Contractual complexity.
- Regulatory uncertainty where multiple support schemes overlap.
- Difficulties for SMEs in accessing structured finance.

Market signal

The model works effectively for projects above a certain scale; wider deployment will require greater standardisation and lower contractual friction.

12.3 STABILITY OF SUPPORT SCHEMES VS OPEX SIGNALS

The 2025 market confirms that:

- **One-off CAPEX support schemes** can trigger **short-term** peaks in demand.
- **Structural OPEX signals** — particularly the electricity-to-gas price ratio and energy taxation — determine the **long-term** sustainability of the market**.**

The CAE scheme introduces a more structural market mechanism, but still operates alongside intermittent grant programmes.

Public policy design recommendations

- Prioritise stable instruments, including CAEs and coherent energy taxation.
- Avoid retroactive changes and stop-start support schemes.
- Align public support with efficient electrification and verified emissions reductions.
- Simplify access for SMEs and light renovation projects.

12.4 COMPARATIVE SIGNALS ACROSS EUROPE

Evidence from selected European markets confirms that **financing accelerates the transition when it is stable, verifiable and straightforward to access and implement**. Where support mechanisms create uncertainty or friction, the market responds with caution, delays or minimum-compliance solutions. Germany, Italy, France, Poland and the United Kingdom have all experienced periods of acceleration and slowdown that have materially influenced market development.

Germany – From the 'Heating Law' to a modernisation framework

Germany has announced plans to replace the 'Heating Law' with a Building Modernisation Act, while retaining the objective of decarbonising heat but placing it within a broader political framework, with adjustments to timelines and greater technological flexibility. Sector debate reflects tensions between competing priorities — notably heat pumps versus planned district heating networks — with calls to avoid overlapping subsidies in areas where connection to district heating is already planned.

Market signal → Transition under political debate

What this means for the market

The effectiveness of the financial signal depends on social acceptance, coordination with heat planning and consistency across the policy framework.

What can be learned

GERMANY

The energy transition is shaped by narrative, taxation and social acceptance as much as by technology. Without public acceptance, market momentum can turn into political resistance.

1. Financing scales more effectively when policy design avoids uncertainty and conflict between support instruments.
2. Policy coherence matters as much as the incentive itself. Germany has shown that a technically robust framework can lose momentum if public communication creates resistance or uncertainty.
3. Targeting support by income and vulnerability is essential. The German redesign strengthened support for households with lower investment capacity, helping to reduce social resistance.
4. The regulatory signal must be clear, but it also needs to be socially manageable. Technical obligations introduced without sufficient explanation can create implementation gaps.
5. Electrification must be supported by adequate grid capacity and a credible cost framework. Unless taxation and OPEX are addressed in parallel, the transition risks losing economic legitimacy.

Italy – Conto Termico 3.0 (señal de “incentivo directo y operativo”)

taly has renewed momentum behind small-scale heat decarbonisation through **Conto Termico 3.0**, administered by the GSE (Gestore dei Servizi Energetici) and introduced through a ministerial decree in August 2025. The scheme provides an **annual budget of €900 million** and **capital support** covering up to **65% of eligible costs**, with implementing rules published in December 2025.

Market signal → Direct, readily deployable incentive

What this means for the market

The appeal lies not only in the level of support, but also in its **design**: direct financial assistance combined with clear implementation rules tends to reduce friction for both end users and the professional value chain.

What can be learned

ITALY

Avoiding the ambiguity surrounding “technology neutrality” is essential to prevent less efficient, less decarbonising or less mature solutions from diluting the impact of programmes designed to accelerate decarbonisation.

- A stable, technology-focused programme with established rules can provide greater market confidence and accelerate market development more effectively than a one-off injection of funding, without creating distortions provided that the framework remains clear and consistent.
- Linking incentives to specific technology categories reduces ambiguity.
- *Conto Termico* prioritises solutions that make a clear and measurable contribution to decarbonisation, including heat pumps and solar thermal. **Avoiding ambiguity around “technology neutrality” is essential to prevent less efficient, less decarbonising or less mature solutions from diluting the impact of the scheme.**
- Administrative simplicity is critical in the residential sector.
- Digital, streamlined access through a clearly defined single point of contact can improve delivery rates.
- The main risk lies in dependence on annual budget allocations. Changes in the political framework could reduce predictability.

Poland – Clean Air

Poland provides an example of a high-volume policy focused on residential renovation, with the **Clean Air** programme serving as the main national instrument for replacing polluting heating sources and improving building energy performance.

In 2024–2025, quality requirements and controls on eligible equipment were strengthened, with explicit reference to the ZUM list of eligible 'green' devices and materials and to tighter eligibility criteria. These changes were introduced to address earlier problems and market friction, including attempts by vested interests to restrict access to the list for some of the most efficient and decarbonising technologies, such as heat pumps. Further implementation adjustments were required to resolve operational difficulties.

Market signal → Large-scale deployment with tighter quality criteria and implementation fine-tuning

What this means for the market

The Clean Air programme demonstrates that financing can scale effectively when support is targeted by income and access barriers are reduced. However, without robust quality controls covering equipment, installation and verification, the scheme risks losing credibility.

What can be learned

POLAND

Close coordination with industry is essential to **avoid technical exclusions and competitive distortions**..

- In large-scale programmes, striking the right balance between accessibility and technical requirements is critical.
- Verification and quality assurance should be treated as safeguards for the scheme's credibility, rather than as barriers to deployment.
- Early corrective action helps prevent lasting reputational damage to the scheme.

United Kingdom – Boiler Upgrade Scheme

The United Kingdom continues to provide a very straightforward residential market signal through the **Boiler Upgrade Scheme (BUS)**, which offers a **fixed grant of £7,500** for air-source and ground-source heat pumps, and £5,000 for biomass boilers.

The scheme publishes detailed eligibility criteria and has received additional budgetary support for 2025–26, reinforcing expectations of policy continuity.

Market signal → Standard grant with a clear message

What this means for the market

The BUS is less sophisticated than a CAE scheme, but it **reduces friction** by providing a known grant amount and clear eligibility rules, making the offer easier to communicate to consumers and the professional channel. A key point for credibility is that eligibility must be communicated accurately: the UK Advertising Standards Authority has intervened in cases involving misleading claims about access to the grant.

What can be learned

UNITED KINGDOM

Financing and rigorous communication are part of the same approach to scaling. A simple incentive is necessary, but not sufficient; it needs to be supported by appropriate financing, a coherent tax framework and skills development.

- Simple incentives, but limited market scale.
- The UK scheme shows that clear direct grants can work effectively, but where overall funding is limited, the macro-level impact remains moderate.
- Medium-term policy stability provides a stronger investment signal.
- Even where deployment is not yet at scale, programme continuity creates market confidence and allows manufacturers and the wider supply chain to plan capacity.
- Upfront CAPEX remains a barrier.
- Without reform of electricity taxation or improved access to finance, the pace of equipment replacement is likely to remain gradual.
- Coordination with installers is critical.
- A shortage of qualified professionals constrains the impact of any incentive.

Cross-country comparison

Country	Predominant approach	Main risk	Key lesson
Spain	Mixed signals: one-off support schemes, CAEs and a strained electricity taxation framework	Stop-start support and poorly aligned OPEX signals	Regulatory stability and fiscal coherence are critical to consolidating electrification
Poland	Large-scale residential deployment	Quality assurance and control	Scale with robust verification
Italy	Policy stability and clear technology focus	Dependence on annual budget allocations	Continuity matters more than short-term peaks
Germany	Strong regulation combined with subsidies	Social and political friction	Technical design and public narrative must be aligned
United Kingdom	Simple, targeted incentive	Limited impact due to constrained scale	Simplicity must be backed by accessible financing

The five cases show a consistent pattern: financing accelerates market development when it combines scale, stability and technical quality.

The balance between scale, stability, technical quality and economic signals will determine the sustainability of the HVAC market in 2026.

- Support at scale loses credibility without robust quality assurance and verification.
- Regulation loses momentum without social acceptance.
- Incentives lose confidence and structural impact without stability and predictability.
- Electrification loses its economic rationale without coherent taxation and aligned OPEX signals.
- Technology underperforms without a sufficiently skilled workforce.

13. 2026 Trends and AFEC Agenda

2026 points towards **structural consolidation** in a demanding environment shaped by competing forces, rather than a change in the market cycle. The market continues to expand in response to underlying technical and economic needs.

Efficient electrification, climate pressure, operational digitalisation and industrial demand remain key drivers. At the same time, geopolitical volatility, fiscal pressure and implementation bottlenecks across the value chain — including skills, verification and quality — call for a measured outlook.

AFEC does not publish quantitative forecasts, but a number of external indicators point to the direction of travel:

- The IEA confirms that growth in electricity demand through 2030 will be driven predominantly by the electrification of buildings and industry (*IEA – Electricity 2026*).
- Ember reports that wind and solar generation have now surpassed fossil fuels in the EU electricity mix (*European Electricity Review 2026*).
- EHPA continues to point to structural medium-term growth in heat pump deployment, despite short-term market adjustments.
- Eurovent points to growth across ventilation markets.

13.1 WHAT WE SAID LAST YEAR

The European Parliament elections: will they lead to another change in the regulatory landscape?

So far, the overall direction of EU policy has remained unchanged, although some countervailing developments are emerging. Decarbonisation, digitalisation and energy efficiency remain central priorities, alongside a growing focus on industrial competitiveness and regulatory simplification.

Businesses need regulatory certainty to invest. Will they get it?

The European framework is more coherent than it was two years ago, but differences in national transposition continue to create operational uncertainty.

Competition is becoming increasingly global. Will it strengthen or constrain the EU?

Competitive pressure is intensifying, particularly from Asia. The EU's response increasingly relies on regulation, traceability and quality as sources of competitive advantage.

The EU border: a competitive advantage or a disadvantage?

With CBAM and stringent environmental standards, the EU's external border can provide a competitive advantage, provided that these measures are accompanied by policies supporting industrial competitiveness and access to skills.

13.2 STRUCTURAL TRENDS FOR 2026

Structural electrification under OPEX pressure

Market signals

- Electrification of buildings and industry is the main driver of electricity demand growth through to 2030, ahead of the impact of data centres (IEA, *Electricity 2026*).
- In the EU, wind and solar now generate more electricity than fossil fuels (Ember, *European Electricity Review 2026*).
- Electrification is becoming firmly established as an energy security strategy as well as a decarbonisation pathway.
- Electrification is structural and increasingly embedded across buildings and industry, while hybrid solutions continue to play a role for economic, regulatory and grid-related reasons. The pace of deployment will depend on the alignment of economic signals, taxation, grid capacity and technical efficiency.
- The progressive internalisation of carbon costs through CBAM and ETS2 further strengthens the long-term economic signal against fossil-fuel solutions and supports efficient electrification where the fiscal framework is aligned.

What this means for the market

- Electrification is structural and irreversible, but deployment is not a given.
- Where operating costs are not competitive, replacement rates will slow.
- Investment decisions are increasingly driven by actual operating costs and the consistency of the fiscal framework.

What AFEC and the industry can do

- Advocate for alignment between energy taxation and electrification objectives.
- Provide robust evidence on the real-world efficiency of heat pumps.
- Support stable economic signals that reduce investment uncertainty.

From HVAC systems to the energy ecosystem

Market signals

- Demand is shifting towards integrated solutions combining heating and cooling plant, refrigeration, ventilation for improved IAQ, DHW and controls within the building's energy management framework.
- Real-world performance is increasingly replacing nominal capacity as a key measure of value.
- The Digital Product Passport under the ESPR, the SRI and the EED are strengthening requirements for traceability and regulatory integration.
- Interoperability is becoming a baseline requirement.

What this means for the market

- Competitive advantage increasingly depends not only on the product itself, but on the ability to integrate systems, optimise operation and demonstrate real-world performance.

- The market is beginning to differentiate based on verified performance rather than installed capacity alone.
- HVAC systems are increasingly integrated into building energy management and the energy grid.
- Measured performance is becoming a source of competitive advantage.

What AFEC and the industry can do

- Strengthen the role of controls as the infrastructure underpinning system performance.
- Promote a stronger culture of commissioning and performance verification.
- Support technical standards for interoperability.

Service, software and measured performance

Market signals

- Service is becoming increasingly important — including commissioning, data-driven maintenance and in-use optimisation — while purchasing decisions are increasingly based on verifiable reductions in operating costs and real-world performance.
- Selective consolidation around control and analytics platforms.

What this means for the market

- A shift from a CAPEX-led approach towards total cost of ownership (TCO).
- Greater requirements for measurement and traceability.
- Differentiation based on operational quality, rather than price alone.

What AFEC and the industry can do

- Raise the profile of the value delivered by qualified technical services.
- Promote clear metrics for real-world performance.
- Advocate for performance verification to be incorporated into public support schemes.

Industrialisation and supply chain

Market signals

- Increasing adoption of modular, prefabricated and standardised solutions.
- Reduced variability in on-site installation.
- Digital traceability is supporting more structured supply chains.

What this means for the market

- Greater productivity and scalability in renovation projects.
- Less reliance on on-site improvisation.
- Shorter project lead times and improved quality.

What AFEC and the industry can do

- Promote technical standardisation.
- Promote good practice in the coordination of renovation projects.
- Integrate training in industrialised construction and installation processes.

Data centres and energy-intensive industry

Market signals

- Sustained growth in data centre development across Europe.
- Increasing requirements for energy-efficient ventilation and heat recovery.
- The EED introduces monitoring and reporting requirements for large data centres.

What this means for the market

- Thermal management is increasingly assessed in terms of 24/7 operational resilience.
- Controls and traceability are becoming strategically more important.
- The value of system integration and heat recovery is increasing.

What AFEC and the industry can do

- Position HVAC as critical infrastructure for continuous operation.
- Promote a systems-based approach to thermal design.
- Promote heat recovery as a means of improving energy efficiency and decarbonisation.

Refrigerants and the operational transition

Market signals

- Regulation (EU) 2024/573 (F-gas) is accelerating transition towards refrigerants with lower GWP.
- Equipment redesign and more stringent safety requirements.
- Growing demand for specialist training.

What this means for the market

- The challenge is operational rather than technological.
- Without a skilled workforce, the quality of implementation will suffer.
- Technical responsibility in installation and maintenance is increasing.

What AFEC and the industry can do

- Strengthen specialist technical training.
- Provide practical guidance to support the transition.
- Ensure that the transition is implemented to high technical standards.

Skills and delivery: a structural constraint

Market signals

- The bottleneck lies not in technology, but in installation and commissioning capacity.
- International organizations highlight the need to strengthen skills and qualifications.
- Electrification and digitalisation require increasingly advanced technical skills.

What this means for the market

- Growth may be constrained by insufficient delivery capacity.
- Accelerated deployment without adequate training risks compromising installation quality.
- Europe’s competitiveness depends on its skilled workforce.

What AFEC and the industry can do

- Promote continuing professional development and certification.
- Work with education and training providers and public authorities.
- Strengthen a culture of high-quality installation, commissioning and verification.
- EHPA Annual Report 2025
- ASHRAE Trend Report 2026

New market players and shifting dynamics

Market signals

- Growing involvement of utilities, energy service integrators and digital platforms.
- Increasing participation of investment funds in energy infrastructure.
- Persistent geopolitical pressures, including LNG, CBAM and competition from Asia.

What this means for the market

- The boundaries between HVAC, energy and digital technologies are becoming increasingly blurred.
- Energy is becoming firmly established as a strategic consideration.
- Greater competition, alongside increasing vertical integration.

What AFEC and the industry can do

- Reinforce the technical role of HVAC within the wider energy ecosystem.
- Help ensure that European regulation translates into competitive advantage.
- Maintain AFEC's market intelligence function as an independent industry reference.

13.3 QUALITATIVE SCENARIOS FOR 2026

Base case

Moderate growth supported by electrification, data centres and industry. Non-residential construction remains stable. OPEX and taxation remain key determinants.

Upside scenario

An improved electricity-to-gas price ratio, greater fiscal clarity and faster deployment of financing programmes.

Stress scenario

Geopolitical volatility, upward pressure on gas prices, regulatory fragmentation or delays in grid development.

Critical variables:

- Electricity-to-gas price ratio
- Cost of capital
- Grid capacity
- Technical skills availability
- Regulatory and policy stability

13.4 AFEC AGENDA 2026

AFEC will focus its industry activities on a range of priorities, including:

- Promoting heat pumps as the cornerstone of heat decarbonisation.
- Strengthening science- and data-based market communication to counter technological, technical and environmental misinformation.
- Advocating for alignment between taxation and efficient electrification.
- Reinforcing the role of controls as the invisible infrastructure underpinning real-world performance.
- Advancing training in refrigerants and commissioning.
- Promoting technical quality in public support schemes.
- Maintaining AFEC's market intelligence function as an independent source of industry data and context.
- Supporting the development of the sector through initiatives including:
    - Activities within UNE
    - Preparations for C&R 2027

13.5 NEW QUESTIONS

During 2026…

- Will Europe finally align electricity taxation with its climate objectives?
- Will grid capacity be sufficient to absorb large-scale industrial electrification?
- Will measured and verified performance become firmly established as the market standard?
- Will the sector be able to close the skills gap?
- Can European regulation become a source of global competitive advantage?

13.6 CLOSING MESSAGE

In 2026, the transition is no longer being shaped by heating and cooling plant alone. **Indoor air quality (IAQ), properly designed ventilation, energy recovery, and the controls that translate installed capacity into real-world performance** are becoming equally important. Electrification continues to advance, but its full value depends on integration with ventilation, filtration, DHW and building energy management.

The structural forces — **decarbonisation, energy security, digitalisation, climate adaptation and energy-intensive industry** — remain firmly in place. Thermal management in critical infrastructure such as data centres and hospitals, as well as in industrial processes, requires continuous operational stability. Adaptation to extreme heat is making thermal resilience and IAQ operational requirements. Heat recovery is becoming an integral part of system design rather than a peripheral consideration.

MOMENTUM is being driven by these structural forces. It is strongest where operational continuity, consistent economic signals and measurable regulatory requirements converge: energy-intensive industry, data centres, efficient electrification and deep retrofit. Where electrification, climate adaptation, industry and digitalisation align, the market has a solid basis for growth.

But **momentum alone is not enough**.

> It depends on alignment between economic signals, the fiscal framework and technical efficiency; on effective implementation of regulation — EPBD, F-gas, SRI, EED and ESPR — and on having the skilled workforce required to install, commission and verify systems.
>
> Without effective controls, rigorous delivery and data-driven maintenance, theoretical efficiency does not translate into actual energy savings.

RESILIENCE will be demonstrated through **effective system integration and economic coherence**, closing the gaps where the transition depends on execution quality — residential renovation, undersized ventilation, inadequate provision for future installation, minimum-compliance decisions and insufficient commissioning.

The technology is mature and commercially available; market momentum depends on alignment between design, economic signals and delivery. Misalignment — through inconsistent taxation, skills shortages or poor on-site coordination — weakens that momentum and limits the real-world performance of the transition.

The market increasingly **values measured, real-world performance as a decision criterion, with greater weight than nominal capacity**, and rewards

- → Integration across heating, cooling, ventilation, filtration, regulation and control.
- → Solutions capable of reducing peak demand, interacting with the grid and supporting operational continuity in hospitals, industrial facilities and high-occupancy buildings.

2026 is shaping up as a year of consolidation for an increasingly technically demanding market, focused on real-world performance and operating within a challenging environment. The pace of development will depend on OPEX and taxation, regulatory implementation, grid capacity, geopolitical and cost pressures and, above all, the availability of skilled professionals and the quality of delivery.

In this context, AFEC provides comparable and traceable data, interprets market conditions through a technical and economic lens, and strengthens a culture of quality in regulation, ventilation and operation.

Real-world efficiency, IAQ and intelligent energy management are becoming core elements of competitiveness, reinforcing the role of the HVAC sector as essential infrastructure supporting economic activity and critical services.

The heating, cooling and HVAC sector is playing an increasingly important role in Spain's socio-economic landscape.

HVAC, BACS and IAQ solutions are increasingly recognised as **strategic energy infrastructure**, supporting economic activity and essential services in an increasingly demanding geopolitical, social, climate and economic environment.

Annex A – Sectors and equipment by statistical study category

Air conditioning, heat pumps and DHW

Residential/domestic	Commercial	Non-residential/industrial
• Portable and window units • Wall-mounted, floor-standing, ceiling-mounted single-split and multi-split units < 6 kW • Ducted units < 12 kW • Air-to-water chillers < 17.5 kW • Fan coil units (20%) • Multi-purpose heat pumps < 17.5 kW • Dedicated DHW heat pumps, compact < 150 litres • Dedicated DHW heat pumps, compact > 150 litres (80%) • Dedicated split DHW heat pumps (80%)	• Portable and window units • Wall-, floor- and ceiling-mounted units, single-split and multi-split systems ≥ 6 kW • Ducted units < 12 kW • Water chillers < 17.5 kW • Fan coil units (20%) • Multi-purpose heat pumps < 17.5 kW • Compact DHW-only heat pumps < 150 l • Compact DHW-only heat pumps > 150 l (80%) • Split DHW-only heat pumps (80%)	• Water chillers > 50 kW • Multi-purpose heat pumps > 17.5 kW • Variable refrigerant flow (VRF) systems > 32 kW • Split DHW-only heat pumps (5%) • Data centre cooling units (close-control units)

Air handling units (AHU)

By air-flow rate	By configuration*	By controls*	By type*
• Up to 5,000 m³/h • 5,001–15,000 m³/h • 15,001–30,000 m³/h • 30,001–50,000 m³/h • Over 50,000 m³/h	• With plate heat exchangers • With rotary heat exchangers • With run-around coil heat recovery • With free cooling • With adiabatic coolers • With compressor	• With plate heat exchangers • With rotary heat exchangers • With run-around coil heat recovery • With free cooling • With adiabatic coolers • With compressor	• Hygienic units

** Percentage of units by configuration, controls and type*

Ventilation units with heat recovery

Without direct expansion (DX) coil	With direct expansion (DX) coil
• 350–500 m³/h • 501–1,000 m³/h • 1,001–2,000 m³/h • 2,001–3,000 m³/h • 3,001–5,000 m³/h • Over 5,000 m³/h	• 350–500 m³/h • 501–1,000 m³/h • 1,001–2,000 m³/h • 2,001–3,000 m³/h • 3,001–5,000 m³/h • Over 5,000 m³/h

Residential ventilation	Industrial / non-residential fans	Air distribution and diffusion
• Single-flow ventilation • Double-flow ventilation • Air terminals • Air inlets • Plastic ductwork	• Axial fans • Centrifugal fans • Tubular axial fans • Roof-mounted axial & centrifugal fans • Centrifugal fans for industrial processes	• Airflow control boxes • Fire dampers • Air diffusion • Sound attenuators

Annex B – Glossary

AC – Alternating current
AEMET – Spanish State Meteorological Agency (Agencia Estatal de Meteorología)
AFEC – Spanish Association of HVAC Equipment Manufacturers (Asociación de Fabricantes de Equipos de Climatización)
AHU – Air handling unit
ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers
BACS – Building Automation and Control Systems
BBVA – Banco Bilbao Vizcaya Argentaria
BESA – Well-being, Energy Efficiency and Environmental Health (Bienestar, Eficiencia Energética y Salud Ambiental)
BMS – Building Management System
BOE – Official State Gazette (Boletín Oficial del Estado)
BUS – Boiler Upgrade Scheme (United Kingdom)
CAE / CAEs – Energy Savings Certificate(s) (Certificado(s) de Ahorro Energético)
CAPEX – Capital expenditure
CBAM – Carbon Border Adjustment Mechanism
CDD – Cooling Degree Days
COP – Coefficient of Performance
CPI – Consumer Price Index
CTE – Spanish Technical Building Code (Código Técnico de la Edificación)
DB-HE – CTE Basic Document on Energy Saving (Documento Básico de Ahorro de Energía)
DB-HS 3 – CTE Basic Document on Health, Section HS 3, Indoor Air Quality
DHW – Domestic hot water
DOAS – Dedicated Outdoor Air System
DPC – Data processing centre; data centre is used in running text
DPP – Digital Product Passport
DX – Direct expansion
EC – Electronically commutated
ECB – European Central Bank
EED – Energy Efficiency Directive
EEA – European Environment Agency
EHPA – European Heat Pump Association
EIB – European Investment Bank
EPC – Energy Performance Certificate / energy performance certification, according to context
EPBD – Energy Performance of Buildings Directive
EPREL – European Product Registry for Energy Labelling
EPP – European People's Party
ErP – Energy-related Products
ERICC – Spanish Climate Change Risk and Impact Assessment (Evaluación de Riesgos e Impactos derivados del Cambio Climático)
ESCO – Energy Service Company
ESPR – Ecodesign for Sustainable Products Regulation
ETS / ETS1 / ETS2 – Emissions Trading System
EU – European Union
EU ETS – European Union Emissions Trading System
Eurostat – Statistical Office of the European Union
FAQ – Frequently Asked Questions

F-gas – Fluorinated greenhouse gases; F-gas Regulation when referring to Regulation (EU) 2024/573
GDP – Gross Domestic Product
GSE – Gestore dei Servizi Energetici (Italy)
GWP – Global Warming Potential
HDD – Heating Degree Days
HP – Heat Pump
HVAC – Heating, Ventilation and Air Conditioning
HVACR – Heating, Ventilation, Air Conditioning and Refrigeration
IAQ – Indoor Air Quality
IDAE – Institute for Energy Diversification and Saving (Instituto para la Diversificación y Ahorro de la Energía)
IEA – International Energy Agency
IEQ – Indoor Environmental Quality
IT – Information Technology
LNG – Liquefied natural gas
LPG – Liquefied petroleum gas
M&V – Measurement and Verification
MB – Megabyte
MITECO / MITERD – Spanish Ministry for the Ecological Transition and the Demographic Challenge
MIVAU – Spanish Ministry of Housing and Urban Agenda
MVHR – Mechanical ventilation with heat recovery
NOx – Nitrogen oxides
OECD – Organisation for Economic Co-operation and Development
OECC – Spanish Office for Climate Change
OPEX – Operating expenditure
OVM – Market Surveillance Observatory (Observatorio de Vigilancia de Mercado)
PEF – Primary Energy Factor
PFAS – Per- and polyfluoroalkyl substances
PV – Photovoltaic
RD – Royal Decree (Real Decreto)
REPowerEU – EU plan to reduce dependence on Russian fossil fuels and accelerate the energy transition
RITE – Spanish Regulation on Thermal Installations in Buildings (Reglamento de Instalaciones Térmicas en los Edificios)
RoHS – Restriction of Hazardous Substances
RSIF – Spanish Safety Regulation for Refrigeration Installations (Reglamento de Seguridad para Instalaciones Frigoríficas)
SCF – Social Climate Fund
SCOP – Seasonal Coefficient of Performance
SLA – Service Level Agreement
SME – Small and medium-sized enterprise
SRI – Smart Readiness Indicator
TCO – Total Cost of Ownership
UNE – Spanish Association for Standardisation (Asociación Española de Normalización)
VAV – Variable Air Volume
VRF – Variable Refrigerant Flow
ZUM – Polish Green Equipment and Materials List (Zielonych Urządzeń i Materiałów)

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