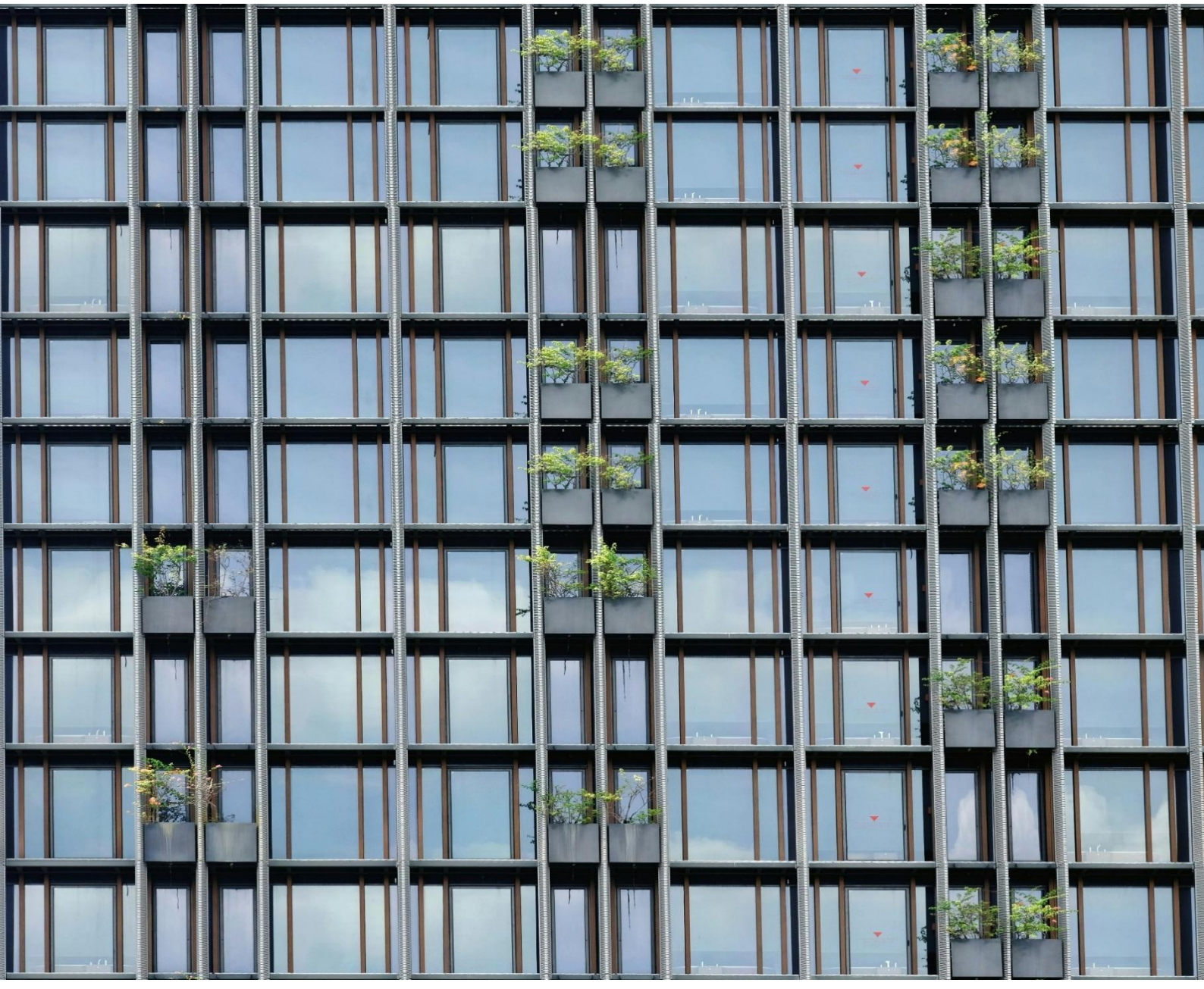
E4S White Paper

Heat pumps and the energy transition in Switzerland: key perspectives from Vaud & Geneva



Heat pumps and the energy transition in Switzerland: key perspectives from Vaud & Geneva

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Enrico Gandino, Alisa Gessler, Julia Bory, Jean-Pierre Danthine

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Lead author: Enrico Gandino

Editing and supervision: Alisa Gessler, Julia Bory

Strategic oversight: Prof. Jean-Pierre Danthine

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Executive Summary

This paper examines Switzerland's energy transition, with a focus on the cantons of **Vaud** and **Geneva**, where different approaches to decarbonising heating are being explored.

Heating is at the core of the net zero challenge: **around 70% of building energy use goes to space heating and hot water, making buildings responsible for about 22% of the country's CO_2 emissions**.[1] Reaching net zero by 2050 will therefore depend on replacing oil and gas boilers with cleaner solutions.

Heat pumps are a practical alternative: powered by electricity, they capture heat from natural sources and deliver warmth far more efficiently than a traditional boiler.

Adoption has grown rapidly. Heat pumps are now the leading option for **new homes: three-quarters of Swiss buildings built in the last ten years already have a heat pump.**[2] But the picture is different for existing houses, especially in cities like **Lausanne** and **Geneva**, where retrofits are harder to carry out because of higher costs, technical constraints and complex legal framework.

Cantons are taking action. **Vaud** has introduced subsidies, streamlined permits and passed a law to phase out fossil heating by **2040**.[3] **Geneva** has gone further, setting a **2030** deadline.[4] Both municipalities in Vaud and Geneva are pushing collective solutions such as district heating. Still, key challenges remain: high upfront costs, differing rules across cantons and technical requirements in old buildings. In addition, the shortage of skilled professionals and the difficulty of coordinating decisions among multiple owners, tenants and municipalities often delay retrofits. Addressing these barriers requires a balanced mix of measures, including simplified permitting, predictable financial support, long-term planning and pilot projects that demonstrate viable trade-offs between cost, comfort and efficiency.

The rewards are significant. For **households**, heat pumps mean potential lower and certainly more predictable bills (if gas and fossil fuels are progressively phased out), greater comfort and higher property values in the long term. For **investors**, heat pumps open a stable, long-term market aligned with climate goals. For **society**, heat pumps deliver lower emissions, new jobs and more energy security.

Heat pumps are no longer experimental. With clear policies, affordable finance and better coordination across cantons and utilities, they can move from today's niche to the backbone of Switzerland's residential heating by 2050.

[1] Federal Office for the Environment, 2025.
[2] SwissInfo, 2024.
[3] État de Vaud, 2025.
[4] République et Canton de Genève, 2020.

1. Introduction

Heating is one of the main drivers of Switzerland's energy consumption and greenhouse gas emissions.

Buildings account for roughly 40% of the country's final energy use and around 70% of this demand is for space heating and hot water. According to the Federal Office for the Environment, the building sector is responsible for about one fifth of Switzerland's total CO_2 emissions, mainly due to the continued use of oil and gas boilers.[5] This reliance on fossil heating contrasts sharply with Switzerland's electricity mix, which is already dominated by hydropower and other low-carbon sources.

Because heating systems typically last 20 to 30 years, replacing them too slowly locks in emissions for decades. The federal government's **Energy Strategy 2050** and long-term climate plan both recognise that decarbonising the building stock is essential to meet net-zero targets by mid-century.

Heat pumps have emerged as one of the most promising alternatives. They use **electricity to capture heat from the air, ground or water and deliver it indoors**. Modern units are **three to five times more efficient than a traditional boiler system**[6] and, when powered by Switzerland's renewable grid, produce almost no emissions at the point of use.

Beyond climate benefits, heat pumps reduce reliance on imported fuels, provide autonomy and thus more stable energy costs for households and improve air quality in densely populated areas.

2. Current status and transition targets

Switzerland has already made clear progress with heat pumps, but much faster growth is needed to reach long-term climate goals.

By the mid-2020s, around **350,000-400,000 units were in operation**, mostly in single-family houses. Heat pumps are now the leading option for **new homes**, with about **three-quarters** of them equipped with such systems. In 2023, sales passed 43,000 units, a record year,[7] and a sign of how technology and public awareness advanced, accelerated by high gas prices in the context of the Russian war in Ukraine.

Despite this, most existing buildings still rely on fossil fuel heating and the installation rate remains too low to phase them out quickly. To achieve net zero by 2050,

[5] Federal Office for the Environment, 2025.
[6] International Energy Agency, 2022.
[7] GSP, 2024, Rapport annuel 2023.

Switzerland will need around **1.5 million** heat pumps (see Figure 1 and 2).[8] This implies installing tens of thousands of units every year for the next decades.

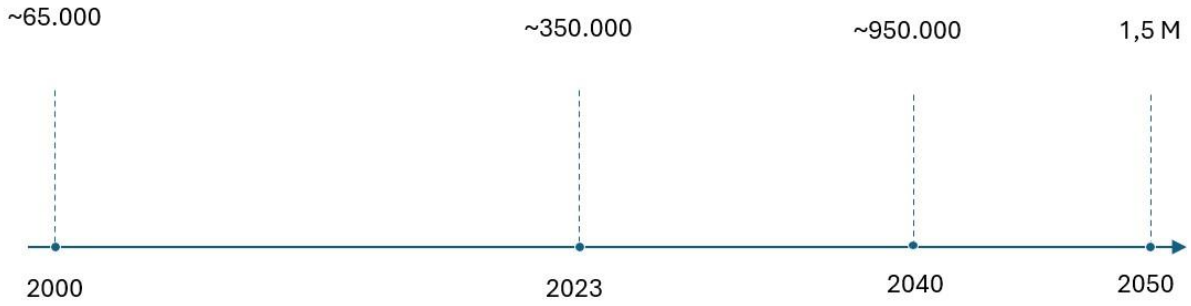

Figure 1: Timeline of heat pumps adoption in Switzerland

National and cantonal energy strategies identify heat pumps as a cornerstone technology for achieving a climate-neutral building sector, with interim measures designed to accelerate their large-scale deployment (see Figure 2). In June 2023, Swiss voters approved the **Climate and Innovation Act**,[9] unlocking significant federal funding for renewable heating.

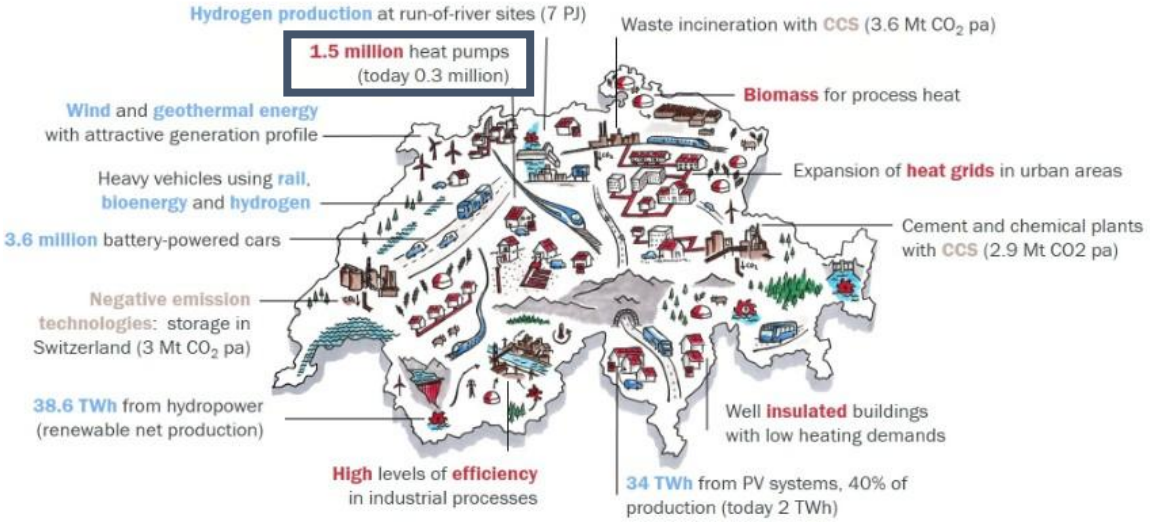

Figure 2: Objectives for a climate-neutral Switzerland by 2050 (*Energy perspectives 2050+, 2023*)

Many cantons have also introduced their own incentives. Yet in 2024, installations dipped while fossil system sales briefly rose, mainly due to high interest rates, elevated electricity prices and lower oil and gas prices.[10] This illustrates how adoption depends not only on technology and policy but also on short-term economic conditions.

[8] Swiss Federal Office of Energy, 2023.
[9] The Federal Council, 2023.
[10] Swissinfo, 2024.

3. Types of heat pumps

All heat pumps operate on the same principle as a **refrigerator in reverse**: through a refrigerant cycle, they transfer heat from **external sources (air, ground, or water)** into the building (see Figure 3). The process relies on a working fluid with a low boiling point that evaporates and condenses to transport heat efficiently indoors. The efficiency of a heat pump is expressed by its **Coefficient of Performance (COP)**, which indicates how much useful heat is produced per unit of electricity consumed (see BOX 1).

BOX 1: Coefficient of Performance

A heat pump's efficiency is measured by its **COP**: the ratio of heat output to electricity input.

COP 1 = 1 kWh of heat from 1 kWh of electricity (like an old electric heater).

Most modern heat pumps achieve COPs of 3-5 under normal Swiss conditions, far outperforming gas boilers. Performance is higher when the heat source is warmer and when the building's heating system runs at lower temperatures (e.g. underfloor heating instead of hot radiators).

Recent generations of heat pumps, equipped with advanced compressor technologies and using refrigerants with a low **Global Warming Potential (GWP)**, have already achieved significantly higher seasonal coefficients of performance.

3.1 Air-water source

Air-water source systems draw heat from the outside air using a fan and transfer it into a home's water-based heating system. These are the most common type in Switzerland, typically **costing between CHF 25,000 and 40,000 for a single-family house**, including installation and ancillary works. They are well suited to retrofits and reach a seasonal **COP of around 3-3.5**. Outdoor units may generate some noise, although new designs have significantly reduced this issue.

3.2 Geothermal source

Ground-source heat pumps use underground boreholes or horizontal pipes filled with fluid to absorb the earth's constant temperature and transfer heat indoors. They are the most efficient type of heat pump, typically achieving a **COP of 4-5**, and operate reliably and quietly even during cold periods. However, installation is more expensive, mainly due to drilling requirements and permits, with total system costs for a single-family house typically ranging from **CHF 50,000 to 70,000**. For this reason, they are more common in new buildings or large developments than in simple retrofits.

3.3 Hybrid systems

Hybrid heat pumps combine a heat pump with another heating source, such as a boiler, switching between them when needed. They can be useful in challenging retrofits or where drilling is not possible, but they add both cost and complexity.

3.4 Heat pumps and district heating

Large-scale heat pump systems use low-temperature sources such as lake water, rivers or wastewater, distributing heat through district networks to serve multiple buildings. This centralised approach replaces numerous fossil boilers at once, improving efficiency and maximising local renewable use.

Decentralised models also exist, where a shared thermal source feeds buildings equipped with individual heat pumps. When reversible units are installed, these systems provide both heating and cooling. They are increasingly adopted in Swiss cities such as Geneva and Lausanne, combining efficiency, flexibility and sustainable use of local resources.

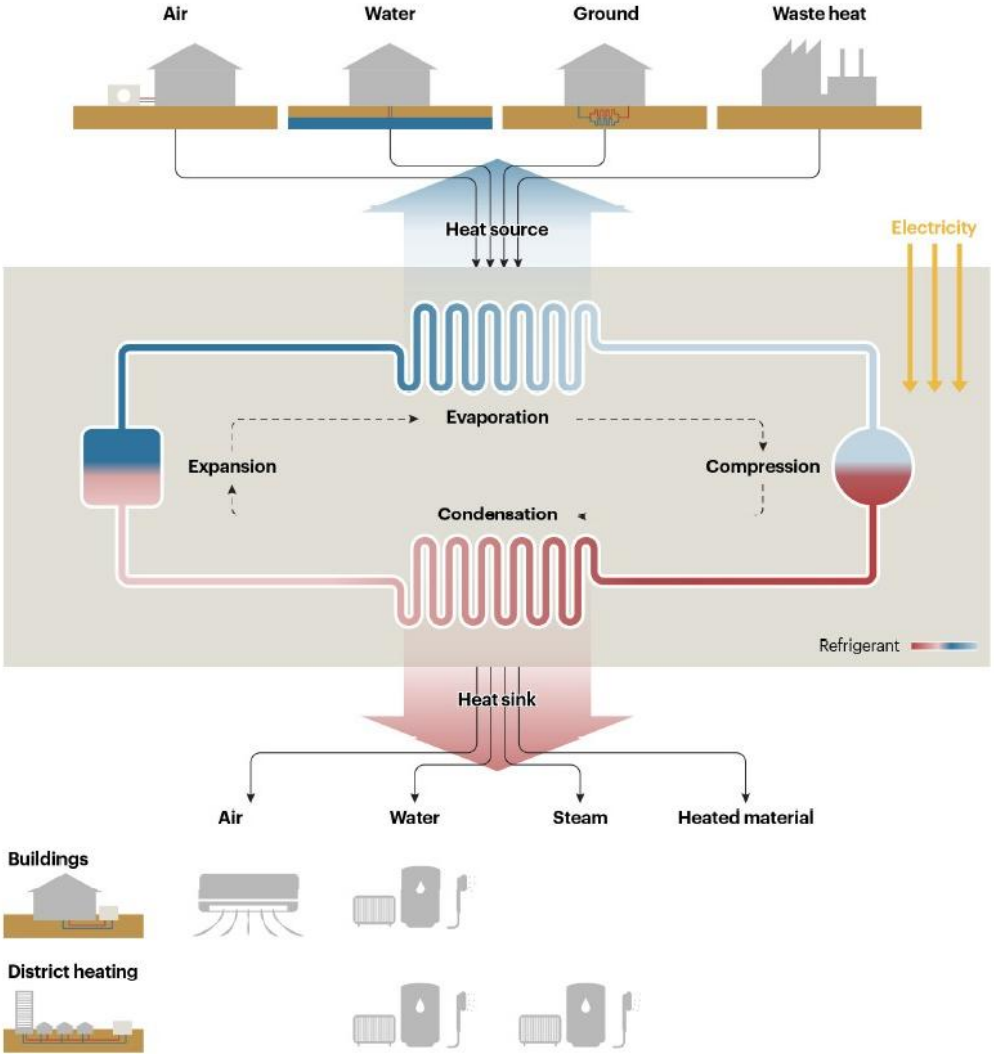

Figure 3: How heat pumps work (IEA, 2022)

4. Regional focus: Vaud & Geneva

Vaud and Geneva take different approaches to promoting heat pumps, reflecting their different political settings and local realities. **Geneva** is a compact, largely urban canton where the city and canton overlap, enabling centralised planning. **Vaud** is larger and more varied, with the city of Lausanne surrounded by many small towns and rural areas where urban energy solutions are harder to replicate. Their support schemes therefore differ in both focus and implementation.

BOX 2: Energy performance (CECB classes)

The **CECB (Certificat Énergétique Cantonal des Bâtiments)** is Switzerland's official energy certificate for buildings. It rates energy performance from **A (very efficient)** to **G (poor)** and provides recommendations for improvement.[11]

Around **half of Swiss buildings were constructed before energy-efficiency standards**.[12] As a result, many properties fall into the lower CECB categories.

Heat pumps perform most effectively in well-insulated buildings, where lower water temperatures are sufficient to provide heating efficiently. Poorly insulated buildings can still use heat pumps and significantly reduce emissions compared to other heating systems, but with reduced efficiency. Cantons such as Vaud and Geneva often link subsidies to insulation upgrades or minimum energy performance levels to ensure reliable and cost-effective operation.

4.1 Vaud

Canton Vaud has built a strong system of subsidies to make heat pumps attractive. Through the federal-cantonal ***Programme Bâtiments,***[13] combined with local top-ups from municipalities, households can receive generous support when replacing old oil, gas or electric resistance heating systems. In many cases, these grants cover a significant share of the investment, helping to lower the financial barrier to switching.

Beyond financial support, Vaud has also acted to reduce administrative hurdles. Until recently, anyone installing an air-to-water heat pump in an existing home faced lengthy delays and high fees due to the need for a full building permit. In 2024, the rules were amended (for single-family houses and small buildings): standard air-to-water and air-to-air heat pumps that comply with noise and size limits now require only a simple notification to the commune, rather than a full permit. The change allows homeowners to replace failed boilers within normal contractor lead times, rather than waiting months for authorisation. Ground-source systems remain subject to a permit process because of drilling and groundwater protection requirements. In

[11] CECB, 2024.
[12] Federal Statistical Office.
[13] Swiss Confederation, 2020.

areas above 1,000 metres, where climatic conditions are harsher, the simplified procedure applies only to buildings certified **Minergie** (Swiss standard for energy-efficient and low-emission buildings) or rated **CECB C** (see BOX 2) or better.[14]

Financial incentives are increased when insulation or other building-envelope upgrades are carried out together with the installation of a heat pump. Projects that significantly improve the CECB rating (for example moving from class E or F to D or better) can access combined grants under the *Programme Bâtiments*.

A major policy development is the **Cantonal Energy Law (LVLEne)**, adopted by the *Conseil d'État* in 2024 and scheduled to enter into force progressively from 2026.[15] The law establishes a binding framework for the energy transition in buildings, setting interim goals such as a **60% reduction in emissions by 2030** and **carbon neutrality by 2050**. The law is already under revision, with proposals aiming to further strengthen targets and accelerate the gradual phase-out of fossil-fuel heating systems.

4.2 Geneva

Geneva has adopted a clear, regulation-led approach to decarbonising building heat. Its **Plan Directeur de l'Énergie (PDE) 2020-2030** sets the goal of ending fossil-fuel heating by 2030,[16] prohibiting new oil and gas boilers and requiring outdated systems to be replaced by renewable heat solutions. Building owners must also improve insulation, with fines for non-compliance. Exemptions apply only when renovation costs are deemed economically disproportionate or there's a technological unfeasibility, ensuring fairness while maintaining ambition.

In parallel, the canton continues to offer subsidies for renewable heating, particularly in multi-residential buildings. Increasingly, however, Geneva is focusing on collective energy systems serving entire neighbourhoods. Following a 2023 public vote, the canton established a **public monopoly on district heating** in dense urban areas to ensure strategic coordination and alignment with its climate and energy objectives. Large heat pumps and thermal networks are expanding, using geothermal, surface-water and other renewable sources to provide efficient, low-carbon heat where shared systems offer greater practicality and cost-effectiveness.

Financial innovation is another defining element of Geneva's energy strategy. New public-private partnership models are emerging, with investment and operation shared between local actors and cantonal authorities, reducing risks and supporting wider adoption. A challenge consists in ensuring that areas beyond the city centre (outside the main district heating network) can access renewable heating through targeted support and suitable technologies. Together, these measures demonstrate

[14] État de Vaud, 2024.
[15] État de Vaud, 2025.
[16] République et Canton de Genève, 2020.

Geneva's commitment to combining regulation, incentives and collaboration to achieve a low-carbon and socially just built environment.

5. Systemic barriers & possible solutions

Switzerland's move from fossil-fuel boilers to heat pumps is slowed by a mix of **obstacles: technical limits, social perceptions, financing gaps and uneven regulations.**

BOX 3: Building types

Single-family homes

Usually straightforward to equip, since one owner makes the decision and there is often space for an outdoor unit or borehole. Heating demand is modest, so standard 5-20 kW systems are affordable and widely available. Many villas in Switzerland already use heat pumps. Older houses with poor insulation may need upgrades first to avoid high electricity use in winter. A significant share of detached houses is owned by people aged over 60,[17] a demographic segment generally less inclined to invest in major energy renovations, partly due to shorter investment horizons and the administrative complexity of subsidy schemes. Encouraging this group to act is therefore key to accelerating the energy transition in the residential sector.

Multi-family houses

More complex to retrofit. Decisions must be shared among landlords, tenants, or multiple owners. Off-the-shelf solutions for large retrofits are still limited and often require custom engineering. Around one in seven Swiss dwellings is owned under the **Propriété Par Étages (PPE)** system, where each apartment owner must agree on shared renovations. This collective ownership model, while efficient for cost-sharing, often delays decisions on heating replacement and building upgrades. With proper coordination and planning, however, heat pumps can perform effectively in larger apartment blocks as well, especially when paired with shared systems or hybrid energy solutions.

The following sections outline the main barriers identified through discussions with key stakeholders, along with possible solutions presented in the BOXES below, some of which are already being implemented or explored.

[17] Swissinfo, 2024.

5.1 Technical barriers

A large share of Swiss buildings remains energy-inefficient (see BOX 2). Without adequate energy upgrades, retrofits risk lower efficiency and higher electricity use. Physical constraints are also frequent: ground-source systems need suitable geology and boreholes, which are not always feasible or permitted, while air-source units require outdoor space that is often scarce in dense urban areas.

Noise limits and heritage protections can further restrict installation options. Multi-family buildings (see BOX 3) bring additional challenges.

Standardised solutions for larger systems are not yet widespread, meaning projects often need tailor-made engineering. This raises both cost and time, while also stretching the limited pool of trained installers.

Electrical grid reinforcement may also be necessary when many buildings in the same area switch simultaneously.

BOX 4.1: Possible solutions

- **Incentives:** coordinate and strengthen subsidies for energy upgrades by mapping the building stock and prioritising interventions for the least efficient properties and those most suitable for retrofit.
- **Infrastructure:** support shared infrastructure (communal boreholes or neighbourhood networks) to reduce costs and space constraints.
- **Retrofits:** promote standardised retrofit packages for multi-family buildings, reducing the need for bespoke engineering.
- **Grid:** coordinate with grid operators to plan reinforcements in areas expecting high heat pump uptake or other electrical usages such as mobility.

5.2 Social and behavioural barriers

Awareness, habits and misperceptions strongly shape decisions. Many homeowners replace boilers only when they fail after long lifetimes, often (if they still can) with the same fossil system out of habit. Misconceptions persist: some (incorrectly) believe heat pumps do not work in Swiss winters, are per se noisy, or automatically require disruptive building changes.

Neighbourhood acceptance is also important. In dense areas, residents may object to outdoor units for aesthetic or noise reasons, even if standards are met. Such concerns, real or perceived, slow projects.

BOX 4.2: Possible solutions

- **Campaigns:** launch cantonal campaigns to dispel myths about winter performance and noise.
- **Pilots:** fund pilot retrofits in typical apartment blocks to prove heat pumps can work even in poorly insulated buildings.

- **Information:** provide clear comparisons of long-term costs and savings to reduce uncertainty and scepticism.
- **Engagement:** involve residents through neighbourhood meetings before collective projects to address concerns.
- **Planning:** encourage homeowners and property managers to plan heating replacements early, assessing energy needs and insulation to select efficient systems and manage costs effectively.

5.3 Financial and economic barriers

Financial barriers remain significant, as the upfront investment required for heat pump retrofits, particularly in multi-residential buildings, is often substantially higher than for conventional boiler replacements. Uncertainty about operating costs adds hesitation: electricity prices have risen in recent years, while fossil fuel prices have fluctuated, temporarily narrowing the economic gap. Typical payback periods can range from 10 to 15 years, which may appear long for some owners, especially retirees. Where interest rates are high, access to affordable finance becomes even more limited.[18]

In rental housing, the landlord-tenant split incentive remains a major obstacle: landlords bear the investment costs, while tenants benefit from lower bills over time. Without effective mechanisms to share benefits, many landlords postpone action.

At the system level, investment needs amount to several billion francs across the building stock, yet are dispersed among many small projects. Pooling them into aggregated portfolios could make them more attractive for institutional investors and green-finance funds.

BOX 4.3: Possible solutions

- **Subsidies:** maintain substantial subsidies (covering about 10–30% of investment costs), with cantons able to offer higher support for low-income households.
- **Loans:** facilitate access to low-interest or guaranteed green loans through cantonal or cooperative financing schemes to lower upfront barriers.
- **Service models:** promote “heat-as-a-service” or energy contracting schemes that allow households to pay a regular fee instead of an upfront investment.
- **Tariffs:** encourage preferential off-peak electricity tariffs to improve the cost competitiveness of heat pumps.

[18] Mitigating risks and breaking barriers. Frontiers in Sustainable Cities, 2024.

- **Co-financing:** support collective or cooperative financing structures, especially for rental or co-owned buildings, to share costs and reduce individual risk.

5.4 Political, regulatory and administrative barriers

Switzerland's decentralised governance creates complexity for the heat pump transition. Each canton follows its own rules for construction permits, drilling and noise regulations, resulting in significant procedural differences. These variations often lead to confusion among installers and homeowners, with authorisations sometimes taking several months.

Political factors add further uncertainty. Frequent adjustments to cantonal energy laws or sudden national measures can generate public resistance, especially when regulations are introduced faster than people can adapt. In some cases, tight replacement deadlines have even led to a rush to install fossil systems before new bans take effect.

Social equity is another key challenge. For low-income households, the upfront investment required for a heat pump may be out of reach, while in multi-family buildings, the costs of renovation can translate into higher rents. Without support mechanisms to address these disparities, the energy transition risks being perceived as unfair, undermining public acceptance and slowing collective progress.

BOX 4.4: Possible solutions

- **Rules:** simplify permitting by harmonising cantonal procedures and ensuring faster, more transparent approval processes. Allow standard heat pump installations to proceed via online notification rather than full authorisation and enable municipalities to coordinate projects locally.
- **Utilities:** encourage companies to participate in district-scale or shared systems where individual retrofits are impractical. Strengthen cooperation with municipalities and cooperatives to ensure fair regional access.
- **Equity:** provide targeted subsidies for low-income households and housing cooperatives to prevent rent increases and support social balance. Complement with affordable renovation schemes and relocation assistance if needed.

6. Benefits of scaling up

According to **Energy Perspectives 2050+**, which outlines the Swiss national strategy for the energy transition, **heat pumps could supply around 70% of residential heating by mid-century**. BOX 5 summarises the main benefits of their large-scale deployment across **economic**, **environmental** and **social** dimensions.

BOX 5: Benefits	
Stakeholder	**Key benefits**
Owners & tenants	**Lower bills and efficiency:** modern heat pumps achieve COPs typically between 3-5 in Swiss conditions. This high efficiency significantly reduces total energy demand and emissions, compared with oil or gas systems, even when electricity is only partly renewable.[19] **Predictable energy costs:** electricity prices in Switzerland have remained comparatively stable in recent years, while fossil fuel prices have shown greater volatility and are subject to rising carbon costs. As a result, electricity-based heating offers households more predictable long-term running costs. **Future-proof homes:** buildings with heat pumps already comply with cantonal policies phasing out fossil boilers avoiding costly retrofits later. **Asset value and comfort:** energy upgrades improve CECB ratings, enhance indoor comfort and can significantly increase the market value and attractiveness of buildings. Such improvements strengthen the overall quality and resilience of the housing stock, creating lasting benefits for both occupants and owners.[20] **Cost efficiency:** Combining high efficiency with low maintenance, heat pumps deliver substantial savings over their lifetime. With 15-20 years of reliable operation (and stable electricity prices), they offer inferior life-cycle costs compared to fossil-fuel systems.

[19] International Energy Agency, 2022.
[20] Jondeau, E., & Pauli, A. (2025).

Investors & Business	**Market growth:** achieving the federal target of 1.5 million heat pumps by 2050 requires tens of thousands of installations per year, a strong and predictable pipeline for manufacturers, installers and drillers. **Job creation:** large-scale deployment is expected to create thousands local jobs in installation, maintenance, and retrofitting. **Stable long-term returns:** *Heat-as-a-service* models and aggregated investment portfolios can offer stable, utility-like cash flows appealing to long-term investors, though market data are still emerging. **Compliance and ESG alignment:** upgraded real-estate portfolios remain attractive to investors seeking assets aligned with tightening emission standards and environmental performance targets.
Society & environment	**Emissions reduction:** heating in buildings accounts for about 22% of national CO_2 emissions. Replacing fossil systems with heat pumps could thus make a substantial contribution to Switzerland's climate goals.[21] **Energy security:** by replacing imported oil and gas with mainly domestic hydropower and renewable electricity, heat pumps strengthen energy independence. **Grid flexibility:** smart controls and demand-response programmes enable heat pumps to operate in off-peak hours and absorb surplus renewable energy, supporting grid stability.[22] **Local value creation:** investments remain within Swiss communities, benefiting local contractors and suppliers rather than financing imported fuels. **Resilience, comfort and health:** Heat pumps provide reliable warmth in winter and cooling in summer, improving comfort and air quality by avoiding particulate and nitrogen oxide emissions from combustion systems.

[21] Federal Office for the Environment, 2025.
[22] International Energy Agency, 2022.

7. Conclusion

Consultations with local experts and on-the-ground experience confirm that heat pumps now deliver reliable and efficient heating, even in the coldest Alpine winters. The challenge for Switzerland is **no longer technological**, but one of **scale, coordination** and **finance**.

Encouragingly, progress is visible. Modern systems are quieter, more efficient and adaptable to complex buildings such as multi-family dwellings. Financial instruments are diversifying, while cantonal laws are steadily phasing out fossil fuels. Public awareness is also growing, as heat pumps become a visible and normal part of urban and rural landscapes.

Moving forward, several priorities will determine how fast Switzerland can scale up deployment:

- **Stable policy:** clear timelines for phasing out fossil systems and transparent incentives will give households, owners, tenants and investors, confidence to plan ahead.
- **Scaling solutions:** successful pilots should be leveraged as standard practice nationwide, with lessons shared across cantons and municipalities.
- **Workforce and supply chains:** expanding trained installers and strengthening supply chains are essential to avoid bottlenecks.
- **Collaboration:** joint action between authorities, utilities, investors and citizens will ensure both fairness and efficiency.
- **Monitoring and flexibility:** track not only the number of installations but also energy performance, cost-effectiveness and social impact, adapting strategies as needed.

The next step is to maintain a steady rate of installations, strengthen the workforce and streamline procedures for permits and finance. Barriers to scale-up can be reduced by consolidating technical know-how and stakeholder experience from pilot projects, while aligning regulatory frameworks. The key challenge is to coordinate a nationwide acceleration of heat pump adoption (especially in multi-family retrofits) balancing rapid emission cuts with practical renovation constraints through a mix of geothermal, air-water and hybrid models suited to Switzerland's diverse building stock.

Glossary

CECB: Certificat Énergétique Cantonal des Bâtiments (Swiss cantonal building energy)

COP: Coefficient of Performance

GSP/FWS: Groupement professionnel suisse pour les pompes à chaleur/ Fachvereinigung Wärmepumpen Schweiz (Swiss Association for Heat Pumps)

GWP: Global Warming Potential

LVLEne: Loi vaudoise sur l'énergie (Energy Law of Canton Vaud)

PDE: Plan Directeur de l'Énergie (Energy Master Plan of Canton Geneva)

PPE: Propriété par Étages (Condominium ownership)

References

Certificat énergétique cantonal des bâtiments (CECB). (2024). *Certificat énergétique cantonal des bâtiments.*
https://www.cecb.ch

État de Vaud. (2024). *Simplification de la procédure d'installation de pompes à chaleur*.
https://www.vd.ch/actualites/communiques-de-presse-de-letat-de-vaud/detail/communique/simplification-de-la-procedure-dinstallation-de-pompes-a-chaleur-1708932153

État de Vaud. (2025). *Législation sur l'énergie.*
https://www.vd.ch/environnement/energie/legislation

État de Vaud. (2025). *Loi vaudoise sur l'énergie (LVLEne) – Revised Energy Law*.
https://www.vd.ch/djes/projet-de-loi-sur-lenergie

Federal Office for the Environment (FOEN). (2025). *Greenhouse gas emissions from buildings*.
https://www.bafu.admin.ch/bafu/en/home/topics/climate/state/data/greenhouse-gas-inventory/buildings.html

Federal Statistical Office (FSO). (2025, September 22). *In 2024, a fifth of households were equipped with a heat pump*.
https://www.bfs.admin.ch/bfs/en/home/news/whats-new.assetdetail.36141952.html

Federal Statistical Office (FSO). (n.d.). *Buildings by period of construction*.
https://www.bfs.admin.ch/bfs/en/home/statistics/construction-housing/buildings/period.html

Groupement professionnel suisse pour les pompes à chaleur (GSP). (2024). *Rapport annuel 2023*.
https://www.fws.ch/fr

International Energy Agency (IEA). (2022). *The future of heat pumps*.
https://www.iea.org/reports/the-future-of-heat-pumps

Jondeau, E., & Pauli, A. (2025). *Anticiper la décote énergétique : un modèle de valorisation pour les investisseurs immobiliers.*

République et Canton de Genève. (2020). *Plan directeur de l'énergie (PDE) 2020–2030*.
https://www.ge.ch/document/plan-directeur-energie-2020-2030

Swissinfo.ch. (2024, May 15). *Owning a home is becoming increasingly difficult in Switzerland*. https://www.swissinfo.ch/eng/workplace-switzerland/owning-a-home-becomes-increasingly-difficult-in-switzerland/77500922

Swissinfo.ch. (2024, July 18). *More heat pumps and less oil: How the Swiss heat their homes.* https://www.swissinfo.ch/eng/climate-solutions/more-heat-pumps-and-less-oil-how-the-swiss-heat-their-homes/88226331

Swissinfo.ch. (2024, December 4). *La Suisse, ce pays de pompes à chaleur qui reste féru de mazout*. https://www.swissinfo.ch/fre/solutions-climatiques/la-suisse-ce-pays-de-pompes-%C3%A0-chaleur-qui-reste-f%C3%A9ru-de-mazout/88387724

Swiss Confederation. (2020). *Programme Bâtiments – Programme fédéral-cantonal pour la promotion de l'efficacité énergétique et des énergies renouvelables dans le bâtiment*. https://www.bfe.admin.ch/bfe/fr/home/mesures-d-encouragement/efficacite-energetique/programme-batiments.html

Swiss Federal Office of Energy (SFOE). (2024). *Buildings*. https://www.bfe.admin.ch/bfe/en/home/efficiency/buildings.html

Swiss Federal Office of Energy (SFOE). (2023). *Energy Perspectives 2050+*. https://www.bfe.admin.ch/bfe/en/home/policy/energy-perspectives-2050-plus.html

The Federal Council. (2023). *Climate and Innovation Act: Federal Act on Climate Protection Targets, Innovation and Strengthening Energy Security*. https://www.admin.ch/gov/en/start/documentation/votes/20230618/climate-and-innovation-act.html

Zapata Riveros, J., Gallati, J., & Ulli-Beer, S. (2024). *Mitigating risks and breaking barriers: Energy supply contracting in multifamily houses – An ecosystem perspective. Frontiers in Sustainable Cities.* https://www.frontiersin.org/journals/sustainable-cities/articles/10.3389/frsc.2024.1460960/full