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DECARBONIZING THE DUTCH BUILDINGS SECTOR

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Over 90 per cent of residential and commercial buildings in the Netherlands currently use natural gas for heating and cooking. In order to meet its climate goals, which follow from the Paris Climate Agreement, it is necessary to phase out the use of natural gas and to implement new heating and cooking systems powered by renewable energy sources.

This article describes the Dutch policy for this heat transition and provides a framework for evaluating and developing a comprehensive policy package to support full decarbonization. This article is based on previous publications.¹

A focus on affordability and feasibility

Although the current energy provision for buildings is quite homogeneous, future alternatives for decarbonized heating are much more diverse. Depending on building and neighbourhood characteristics, electric heat pumps, district heating, or carbon-free gas may be the best fit. Cost and feasibility studies indicate that in most scenarios, a combination of systems will have the lowest overall costs. No one system is therefore expected to become dominant in the future. However, improved building insulation is needed in most buildings to reduce energy consumption. To meet the transition goal, major renovation of buildings, heating appliances, and energy infrastructure is therefore warranted.

In the Dutch Climate Agreement, the government committed to a 49 per cent reduction of greenhouse gases by 2030 and a 95 per cent reduction by 2050.² The 2030 goal was increased to 55 per cent in 2021. For the built environment, the Dutch Climate Agreement aims to phase out natural gas for heating and increase the energy performance of buildings and to move 1.5 million of the almost 8 million dwellings to heating without natural gas. This means transitioning 150,000 existing buildings per year from natural gas heating to alternative energy carriers and infrastructure—in other words, making them natural-gas-free (*aardgasvrij*).

The policies were developed around two core principles: affordability and feasibility.³ The condition of affordability has various consequences. Namely, the financial benefits of natural-gas-free heating for the homeowner are an important factor in policy choices such as the extent of subsidies. In addition, national and local governments attempt to steer choices for alternative heating towards the lowest-cost alternatives as much as possible.⁴

¹ CE Delft (2022), *The Natural Gas Phase-Out in the Netherlands*.

² Rijksoverheid (2019), *Klimaatakkoord*, Den Haag.

³ Minister van Binnenlandse Zaken en Koninkrijksrelaties (2021), Kamerbrief d.d. 6 juli 2021 m.b.t. over betaalbaarheid van de energietransitie in de gebouwde omgeving, Den Haag: Tweede Kamer der Staten Generaal.

⁴ Rijksoverheid (2019), *Klimaatakkoord: C Afspraken in sectoren, C1 Gebouwde omgeving*, Den Haag.



The feasibility aspect of the Dutch heat transition aims to ensure that the right conditions exist for all stakeholders to make the transition towards sustainable heating systems. A feasible transition requires national and local governments to align the interests of these stakeholders with decarbonization measures. This is exemplified by the use of voluntary and binding agreements with housing associations and heating appliance suppliers, which take into account the capacity and resources of these stakeholders and gain support for the policy objectives.

Policy instruments in the Dutch heat transition

Policy instruments in the transition towards sustainable heating include the following:

- **Regulation to enforce sustainable heating for new construction.** Since July 2018, all new construction has to be built without a gas connection. While electricity and gas grid operators were previously obliged to connect all consumers to the grid, in 2018 gas distribution system operators were prohibited from connecting new construction. [In 2020, 87 per cent of new homes were built without a gas connection.](#)
- **Regulation of energy performance of office buildings.** Voluntary and binding performance agreements with housing associations have led to an average energy performance label of B in this sector. Residential buildings currently have no energy performance requirements.
- **Gradual rebalancing of energy taxes on gas and electricity to decrease the tax rate on electricity and increase the rate on gas.** In this way, households and businesses are incentivized to move away from natural gas.
- **Subsidies and loans for insulation and sustainable heating such as heat pumps.** Recently, the loan conditions were expanded to make them available for low-income households.
- **District-oriented approach.** Municipalities were obliged to develop local heating plans where they give an indicative time path for realizing decarbonized heating, neighbourhood by neighbourhood. A national programme provided additional funding to municipalities for realizing gas-free heating in pilot areas. However, other than providing information and limited financial support to homeowners, municipalities lack the policy instruments to implement the local heating plans.

Up to 2021, policies were mainly focused on financial support (subsidies and loans), learning, and communication, but lacking in stronger measures. The current government has presented more binding instruments to bring the goals within reach. These include the following:

- As of 2030, minimum energy performance standards will be introduced for rental homes. Housing corporations and private landlords [will not be able to rent out property with a low energy label.](#)
- Energy performance standards for heating appliances, which will de facto [make hybrid heat pumps \(or better\) mandatory when a house's heating installation is replaced](#), will be introduced from 2026.
- A blending obligation for gas fuel will increase the amount of renewable biogas in the gas mix.

Due to the increase of energy prices in 2021 and 2022, the government introduced a mix of measures to support the affordability of energy. Focused measures include an allowance for households at risk of energy poverty and funds for municipalities to take energy efficiency measures in energy-poor households. General measures include a one-off increase of the fixed energy tax rebate and, starting in January 2023, a price cap on energy up to average usage.

Comprehensive policy package

A broad range of policy instruments are needed in order to reach the full emission reduction potential in the building sector. These policy instruments, when well designed, will strengthen each other over time:⁵

- Financial support such as subsidies create an economic incentive for decarbonization measures. This can be designed for first movers on one hand, or to support those with less economic means.
- Pricing (e.g. of CO₂) creates a level playing field for zero-carbon solutions and a market for innovation. Pricing measures have a wider scope than financial stimulus because they apply to the entire market. However, not all people respond to price signals (price inelasticity) or are able to respond, e.g. due to split incentives between tenant and landlord.

⁵ CE Delft and Climact (2020), *Zero Carbon Buildings 2050*, European Climate Foundation.

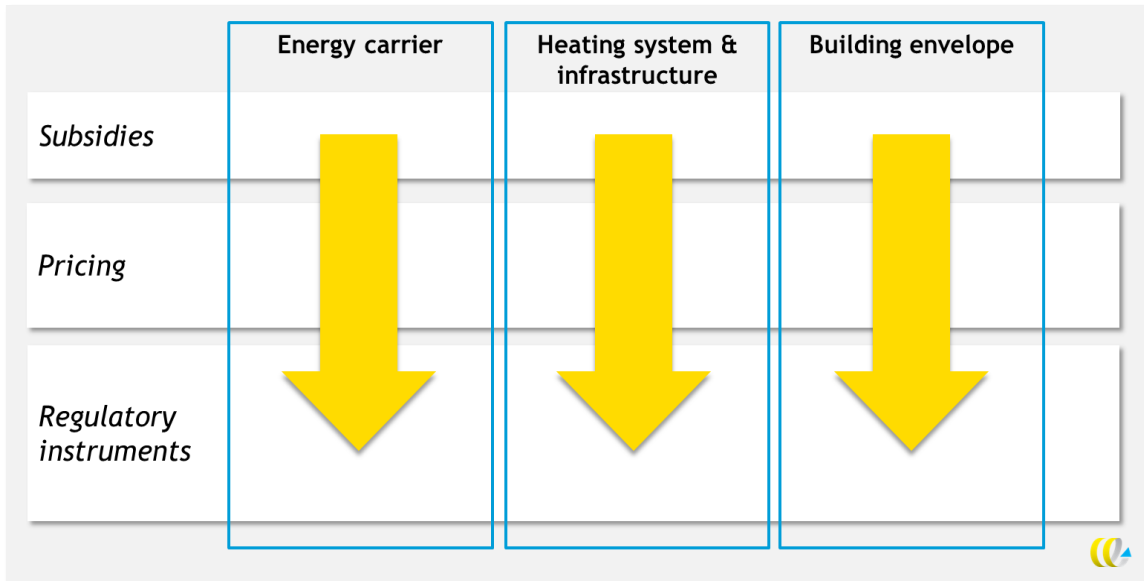


- Regulatory instruments ensure that decarbonization measures are taken, trigger points are utilized, and new customs and habits are formed. Regulatory instruments such as standards and minimum requirements serve as backstop policies to ensure that the full potential is met.

These core policy instruments should be supported by financing instruments providing the ability to invest, informative instruments to create awareness and enable informed decisions, and policies to stimulate innovation.

For the built environment, the heat transition requires investments in several main areas: improvement of the building envelope, a switch of heating systems and infrastructure, and decarbonization of the energy carriers. In each area, the conditions are right to move from voluntary measures towards stronger regulatory instruments.

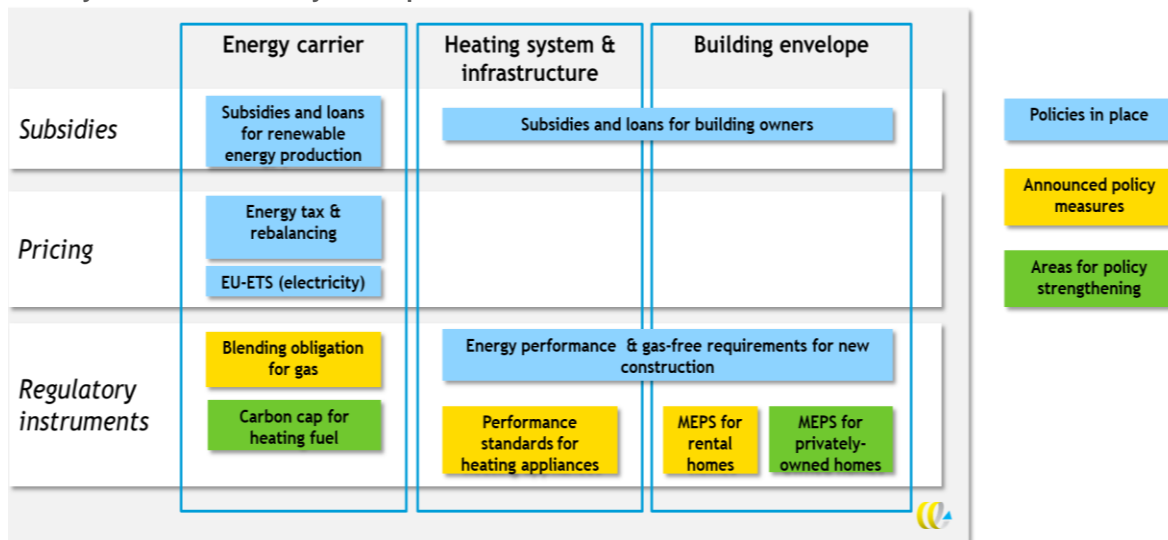
Figure 1: Policy framework for the heat transition in the built environment



Focus areas for policy strengthening

In order to fully achieve the Dutch heat transition, the potential in all three areas (energy carrier, heating system and infrastructure, and building envelope) must be fully utilized. We mapped the policies discussed above to the framework in the figure above. Two areas stand out in which there is obvious room for policy strengthening.

Figure 2: Policy framework with key Dutch policies



ETS = emissions trading scheme; MEPS = minimum energy performance standards.



The first area is performance standards for privately owned homes. Current subsidies for insulation, the current energy prices, and tax levels make single or double insulation measures attractive. However, at the current prognoses, deep renovation is still not financially favourable in many situations. Regulatory instruments can deliver more far-reaching results. Currently, only new construction and office buildings are subject to a minimum energy performance requirement. In May 2022, mandatory performance standards were introduced for rental homes from 2030. Such regulations could be further expanded in the future to include privately owned homes as well, in order to completely phase out low-energy-performing buildings.

The second policy option is a carbon cap for heating fuel. After energy efficiency measures are taken, the remaining energy demand must be decarbonized. In the current energy tax system, there is no incentive to increase the percentage of renewable energy in the electricity or gas mix. A CO₂ tax or a CO₂ budget system would put a price on CO₂, favouring renewable energy in the mix. A CO₂ budget system could include trading of CO₂ emission rights. The EU Green Deal package proposes to introduce a European emission trading system for buildings and road transport; such a system would provide a backstop to ensure full decarbonization of the gas mix.

Conclusion

Decarbonization of Dutch building stock has largely depended on 'soft' policy measures (subsidies and energy tax). Due to the current technical and financial feasibility of decarbonization measures, it is a crucial moment to move to a comprehensive package that ensures long-term measures.