

Title: A heat supply for dwellings without natural gas in the Netherlands.

Theo Fens
Robert Geurts
Richard van Gemert

Abstract

The 2015 Paris agreement is the basis for the Dutch energy policy, in which roadmaps are currently being defined to arrive at a CO₂ emission reduction of around 95% by 2050 relative to 1990. This paradigm shift is known as the energy transition. A major challenge is the low temperature heat supply to the existing urban environment and the industry. To date the heat supply in these dwellings is to a great extent relying on natural gas, which has to be abandoned for various reasons. In the energy transition this heat supply needs to be shifted towards renewable sources. This workshop addresses the heat transition from a technical, institutional and governance perspective.

Which options for low temperature heating in an urban environment can be selected to replace natural gas by renewable sources in the Netherlands? And which issues will need to be addressed for a successful transition towards renewable heating? A change in heat supply of that magnitude requires a steering policy on all governance levels: central government, provincial and municipal. The final implementation of this heat transition will essentially be local and requires a heat roadmap at the municipality level, in which the policy is translated into feasible actions. The aspects of such a heat roadmap will be presented and discussed.

Which policy choices can be made on a provincial level to phase out natural gas? This requires a heat vision with local heat road maps in which, next to the urban environment, also the heat requirements of the industry and the rural environment are provided from renewable sources. To this end the municipal heat road maps are integrated with road maps for the industry and the rural environment. The heat roundabout of the province Zuid-Holland will be discussed and explained.

The final objective is that heat requirements of end users are fulfilled by replacing natural gas by renewable sources. In urban environments this will for a substantial part be achieved with heat networks to which end users will be connected. These heat networks will be supplied by waste heat, geothermal and heat/cold storage. Such large scale renewable projects are characterised as complex socio-technical systems with a myriad of inherent risks. Recent research showed that these risks may be mitigated ex ante by a proper and bespoke governance structures. These insights will be discussed in the context of a heat project at a regional level.