

Health and the energy transition in the built environment

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Executive summary

Health Council of the Netherlands



In the Climate Agreement of 28 June 2019, the Dutch government set out the measures needed to transition fully from fossil fuels to renewable energy sources by 2050. This is known as the energy transition and will deliver huge gains in terms of people's health and wellbeing. For instance, replacing combustion engines with electric motors will deliver cleaner air and quieter road traffic. The energy transition also has implications for the built environment. One of the measures involves modifying homes (of which there are currently about seven million) and one million other buildings to use renewable heat and renewably generated electricity. These modifications to the built environment could influence environmental factors such as noise, ventilation, and temperature, as well as the indoor environment. This, in turn, could have an impact on people's health and wellbeing. For instance, there are indications that heat pumps and mechanical

ventilation systems, for example, may cause noise nuisance. Such unintended adverse health effects could undermine support for the energy transition. In this advisory report, the Health Council of the Netherlands' Health and Environment Surveillance Committee outlines the options for enhancing the positive health effects of the energy transition in the built environment and for limiting any unintended adverse health effects.

Health effects of developments in the built environment

The changes that the energy transition entails for the built environment could have a beneficial effect on the health and wellbeing of visitors and local residents alike. For instance, fitting insulation and installing ventilation systems can make homes more comfortable and healthier. Replacing instantaneous water heaters and central heating boilers with individual or

collective gas-free alternatives, such as solar panels, heat pumps, or district heating grids, can reduce the risk of carbon monoxide poisoning. However, these measures can also have unintended adverse effects. For instance, ventilation systems that are poorly designed, installed and maintained, or used incorrectly, can cause nuisance that results in stress. Furthermore, the resultant poor air quality can trigger respiratory tract and lung disorders, or aggravate existing conditions. In addition, collective energy systems could cause stress to local residents, due to the nuisance caused by construction or maintenance activities.

No estimates are available concerning the burden of disease in the Dutch population currently caused by spending extended periods indoors. Furthermore, no such data is available for the projected burden of disease in 2030 or 2050 if current policy remains unchanged or if



the Climate Agreement is implemented.

Nevertheless, it is possible to take measures that will enhance beneficial effects on health and wellbeing, while limiting adverse effects.

Give due consideration to health and wellbeing in plans, implementation, and regulations

The Netherlands' thirty energy regions have set out a regional energy strategy (RES) for making the requisite modifications to the built environment. This specifies the most effective method for generating renewable energy in their region. It also lists the heat sources that neighbourhoods and individual buildings could adopt as an alternative to natural gas. Within their own areas, municipalities will translate this to the neighbourhood level. The Committee recommends that health and wellbeing should feature in the decision-making process from the very beginning. This would mean extending the RES to include the impact of various options on health and wellbeing. Furthermore, all other initiatives relating to the energy transition in the

built environment should give due consideration to health and wellbeing right from the start. The Committee advises the government to support the regions in this endeavour by means of the National RES programme, and to support municipalities in accordance with the guideline developed in the context of the Climate Agreement. It is especially important to make good use of the limited knowledge that is available, and to consult municipal health services and other bodies possessing health-related expertise. There is no time to lose, as the regions need to draw up an RES as soon as possible. This is because, with the passage of time, it becomes much more difficult to give health a meaningful place in the decision-making process.

The Committee also recommends that efforts be made to achieve an integrated approach. This is to ensure that health and wellbeing are not limited to the RES, but that they are included in all plans that jointly relate to the living environment.

The government could support efforts to make existing housing stock healthier and more comfortable, by introducing or tightening regulations (standards) relating to physical environmental factors that are known to cause health impairment, such as heat and the noise produced by installed equipment.

Provide better access to available knowledge during implementation

It is important that the parties charged with implementing the energy transition measures have an adequate understanding of the range of options for creating healthy homes. For example, contractors and installers must have sufficient expertise to draw up an effective schedule of requirements. They must also involve residents in the process of drafting this document, right from the start. Such expertise can be gained from educational programmes and protocols. It is also important for the existing expertise and good practices of the parties involved to be constantly updated and disseminated.



It is advisable to provide as much support as possible for the regions, the decentralised authorities and other implementing parties.

In line with this, relevant knowledge concerning the options for healthy measures in the built environment should be made centrally available. The government could encourage the centres of expertise that were established under the Climate Agreement to pool their knowledge wherever possible. In addition, this pooled knowledge should be incorporated into the aforementioned guideline.

Encourage residents to keep their homes healthy

The correct use of domestic equipment can deliver substantial gains in terms of health and wellbeing. According to the Committee, what is needed – in addition to improved access to knowledge – is an incentive to act on that knowledge. This is now more important than ever because, due to the corona crisis, people are spending more time at home, and in the

future they may continue to work from home more often than before.

The Committee recommends that efforts be made to raise awareness, by providing information about how people themselves can make their homes ‘healthy’ and keep them that way, for example by making a readily understood checklist available. If voluntary incentives prove to be insufficiently effective, consideration could be given to more binding measures, such as periodic inspections of homes’ health and sustainability.

Retaining sufficient flexibility to process new insights

There are conflicting demands between the need to understand how further health gains can be achieved and the pace at which the energy transition is being implemented. Further research is needed to fill the gaps in this knowledge. Given the time taken for scientific research to bear fruit, it is recommended that studies of this kind be launched as soon as

possible. The results could then be used to enhance projects (in whole or in part) that are currently in progress. In the meantime, it would also make sense to periodically check for new developments in terms of the knowledge acquired in everyday practice. It is important to ensure that elements of the energy transition do not become so firmly entrenched that it is difficult to implement new insights concerning opportunities to achieve health gains. It will not be possible to process that knowledge if we lack the flexibility to pursue less well-trodden paths.



The Health Council of the Netherlands, established in 1902, is an independent scientific advisory body. Its remit is “to advise the government and Parliament on the current level of knowledge with respect to public health issues and health (services) research...” (Section 22, Health Act).

The Health Council receives most requests for advice from the Ministers of Health, Welfare and Sport, Infrastructure and Water Management, Social Affairs and Employment, and Agriculture, Nature and Food Quality. The Council can publish advisory reports on its own initiative. It usually does this in order to ask attention for developments or trends that are thought to be relevant to government policy.

Most Health Council reports are prepared by multidisciplinary committees of Dutch or, so-metimes, foreign experts, appointed in a personal capacity. The reports are available to the public.

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