

<b>Title of the measure:</b>	NLD10 - Energy efficient retrofitting program (Renovatieprogramma bestaande woningen)
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### General description

The energy agency SenterNovem is targeting the rented housing sector (social and commercial) to increase the application of energy saving measures. It is estimated that 70,000 houses are renovated each year. On the basis of the number of savings packages developed by SenterNovem within the framework of the Energy Efficient Retrofitting Programme, more than 1,000 m<sup>3</sup> of primary energy can be saved on space heating and air conditioning.

SenterNovem wishes to stimulate energy conscious renovations by knowledge transfer to tenants, lessors, building contractors, architects and installers. This is supported by demonstration projects.

The target was to save 1,000 m<sup>3</sup> of gas through 30% of the major changes during renovations between 1994 and 2000 and that a total saving of 9 PJ in the year 2000 should be reached. Additionally through stabilisation of energy consumption used in domestic hot water, a saving of 10 PJ could be achieved.

Four activities were being carried out to save energy on domestic hot water.

They were:

- product innovation
- labelling of appliances and taps making water saving devices recognisable
- stimulating the sale of water saving products
- drawing up design tools for installers

<b>Measure Impact Level</b>		
<input checked="" type="checkbox"/> <b>low</b>	<input type="checkbox"/> <b>medium</b>	<input type="checkbox"/> <b>high</b>

### Impact evaluation (methods and results)

#### Methods

In Jeeninga (2002) results have been given for existing dwellings:

- insulation (16 PJ and 0.9 Mton CO<sub>2</sub>)
- penetration of High Efficient boilers (9.9 PJ and 0.55 Mton CO<sub>2</sub>)
- penetration of efficient lighting (1.1 PJ and 0.2 Mton CO<sub>2</sub>)
- energy labels and tax on electricity use (3.5 PJ and 0.6 Mton CO<sub>2</sub>)

These results are due to a combination of policy measures. The MAP (NLD5) is the most important measure for these results, with Energy Premiums (NLD13) as second. Probably the retrofit program has contributed to the results; however, no separate effects can be specified.

#### Results in combination with NLD5 and NLD13

<b>Ex-post evaluation</b>	1995	2000		
CO <sub>2</sub> (kt)		2300		
Energy (TJ)		30500		
<b>Ex-ante evaluation</b>	1995	2000	2010	2020
CO <sub>2</sub> (kt)				
Energy (TJ)		19000		

Notes:

- 1) You might modify the years specified in this table, if the evaluation of your measure contains other years.

- 2) CO<sub>2</sub> and energy savings should be specified with respect to the reference scenario. If they are specified with respect to a fixed base year, e.g. 1990, and you cannot adapt to the requirements, please make a note in the measure description.

### ***Interaction of measures***

Mitigating interactions with:

- NLD4 (Long Term Agreement with housing corporations).

Reinforcing interactions:

- NLD16 (Compass)

### ***Historical data***

### ***References***

- Jeeninga H. (ECN), Honig E.(RIVM), Dril A.W.N. van (ECN), Harmsen R.(ECN):  
*Effect van energie- en milieubeleid op broeikasgasemissies in de periode 1990-2000*,  
Petten (Netherlands), ECN-C--02-004 (<http://www.ecn.nl/library/reports/2002e/c02004.html>)