

## CASE STUDIES ON ENERGY CONSERVATION AND EMPLOYMENT IN THE NETHERLANDS

Subsidy on Condensing Boilers, Subsidy on Energy Management Systems and Introduction of an Energy Performance Standard (EPN)

### *Abstract*

For the Netherlands three quite recent policy schemes for energy conservation have been studied to assess the quality and the size of their employment impacts. The first case is the subsidy for HR-boilers, granted from 1991 to 1996 in the context of the Environmental Action Plan (MAP). The second case is on Energy Management Systems in the industrial sector, for which subsidy has been granted between 1991 and 1994 as part of the subsidy program TIEB, Tenders Industrial Energy Conservation. The third case is the Energy Performance Standard EPN, a regulation introduced towards the end of 1995, that sets demands on the energy performance of new dwellings. As generating employment was not the aim of these energy conservation measures, no figures on the employment impacts were readily available. All case studies therefore have involved interviews to estimate these impacts. Many assumptions had to be made for a quantitative assessment of the employment impacts of the energy conservation measures. No solid figure results on the exact number of jobs created because of these energy conservation programmes. However, the studies do give an indication of the quantity of work involved and do provide insight in the nature of the employment generated and the skills required for the work that results from these energy conservation policies. On the subsidy for HR-boilers it can be concluded that a total number of 350 temporary jobs is created for the period of the subsidy, if one assumes a direct relation between the subsidy and the number of subsidised HR-boilers sold. The government grants sum up to 10.2 million ECU. The employment concerns mainly installation of boilers and work involved with the production and sales of the boilers by the manufacturers and for a very small part the implementation of the subsidy. However, for the 15 years period that the HR-boilers are in operation, annual maintenance is needed and this generates a number of 180 full time jobs for a long period. In this case the energy saved over the lifetime of the subsidised boilers amounts to 42.9 PJ. Even under rather optimistic assumptions, the TIEB programme focusing on energy management systems generates a very limited number of direct jobs, with a total employment of 25.5 person-years. Based on the interviews, between 1990 and 1994 the number of temporary jobs in the field of computer sciences is regarded to be most extensive. Maintenance and operation activities have a large part in the generated direct employment with 12.5 person-years. The government expenditures sum up to 1.3 million ECU on grants and administration costs. From an energy point of view, energy management systems are interesting. It concerns profitable investments that can serve other objectives in the company too. The energy saved per company varies between 1% and 20% of the initial energy demand. The energy saved over the lifetime of the eleven systems installed sums up to 9.6 PJ. Because definite data on the effects of the Energy Performance Standard EPN are not yet available, the impacts must be regarded as indicative for the effect of this energy conservation scheme. Given the assumptions on the amount of work resulting from the EPN and the share of this work that is done by existing staff, the amount of new jobs created because of EPN are in the order of 100. Most of these are in the installation and maintenance of HR-boilers by skilled and semi-skilled blue-collar workers. The number of jobs in the design of houses with a sufficient energy performance is likely to increase in the future. The same holds for jobs doing calculations required for this purpose. Sharpening of the EPN will lead to more complex solutions and the new employees that can handle these matters are likely to be recently graduated professional managers (academic or higher vocational training). The government expenditures (rent subsidy and administration costs) are estimated to be 3.7 million ECU. In terms of energy saving the impacts of the introduction of the EPN, setting the EPC to 1.4, are limited to 4.0 PJ in the first year, 1997. However, the measure is promising with respect to future results, as can be concluded from the technological innovation towards more efficient installations that has been initiated by the prospect of sharper EPC values in the near future.

### *Acknowledgement*

Three recent policy schemes for energy conservation in the Netherlands have been studied to assess the quality and the size of their employment impacts. These are the subsidy for HR-boilers in the context of the Environmental Action Plan (MAP), Energy Management Systems in the industrial sector as part of the subsidy program TIEB, and the Energy Performance Standard EPN, a regulation that sets demands on the energy performance of new dwellings. Because no figures on the employment impacts were readily available all case studies have involved interviews to estimate these impacts and many assumptions had to be made for a quantitative assessment. Although no solid figure results on the exact number of jobs created, the studies do give an indication of the quantity of work involved and do provide insight in the nature of the employment generated and the skills required for the work that results from these energy conservation policies. The ECN project number is 7.7130.

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