

Chapter 5

Greener Data Centres in the Netherlands

Theo Thiadens

Fontys University of Applied Sciences, The Netherlands

Marko Dorenbos

Fontys University of Applied Sciences, The Netherlands

Andries Kasper

Fontys University of Applied Sciences, The Netherlands

Anda Counoutte-Potman

Open University, The Netherlands

ABSTRACT

In this chapter, the current situation regarding green data centres in the Netherlands is mapped. The chapter successively goes through the entire chain of processes that are needed for arriving at greener data centres. The chapter starts with the legislators. It continues with the procurement of IT. It discusses the design of facilities required for a data centre and the ICT provisions as used by this data centre. It looks at the analysis of the degree of sustainability in data centres and the measures that need to be taken as a result of this. And it concludes by describing how ICT equipment could be recycled.

The conclusion of this chapter is that in the year 2009, the norms in this field are not yet fully present; that by making use of these norms in procurement, buyers will be able to arrive at more sustainable ICT; that from the current situation, consolidation alone could without any problem, enable achievement of the long-term agreement between the Dutch ICT trade organization and the Dutch government, an agreement in which over a period of 25 years starting in 2005, 2% less energy should be used every year; that every data centre needs to map its energy consumption and sustainability systematically, and that in 2009, over 50% over the annually installed ICT equipment in the Netherlands is recycled.

DOI: 10.4018/978-1-60960-531-5.ch005

INTRODUCTION

Tebodin (2007) teaches that, in spite of fact that there was only a minimal increase in floor surface in data centres in the Netherlands over the period 2002-2006, the consumption of electricity by these centres increased by 74%. In 2008, this consumption of electricity was for a country like the Netherlands 628 GWhour/year. Seventy five percent of this electricity is consumed by the 70 largest data centres in this country. Furthermore, Tebodin (2007) states that in many organizations, between 50% and 70% of the organization's entire consumption of electricity is used on ICT and its necessary facilities.

Sustainability of ICT does not just concern the consumption of energy. It also regards the sustainability of the used equipment and facilities as used in data centres.

Both the sustainable use of energy as well as working with sustainable materials in data centres are subjects in this chapter. In essence, this chapter consists of three parts. These parts discuss the following subjects:

- sustainable procurement in a data centre in conformity with legislation and norms
- sustainability of the facilities for a data centre and of the ICT provisions in a data centre; and finally
- steering towards a sustainable data centre by means of information and analysis.

The chapter starts with a brief introduction about the used concepts and ends with a step-by-step plan for arriving at a more sustainable data centre. The chapter is based on a study carried out amongst those involved in the sustainability of data centres in the Netherlands. Within the framework of this study, in depth interviews took place with legislators, people involved in granting subsidies, buyers, suppliers of facilities, data centre operators and sustainability analysts working for consultancy companies and people

of recycling companies. The study took a year. In this year, six months were spent on literature research. Afterwards, 18 in-depth interviews took place and the results of these were processed.

DEFINITIONS

Concepts: The Data Centre

A data centre consists of rooms for performing various tasks. This means that a data centre may include rooms for (see figure 1 (Thiadens (2008), ADC (2006)):

- setting up storage and processing units
- operating the ICT facilities
- producing output on paper
- carrying out production planning
- performance of the tactical service processes and front office processes

The rooms of the data centres contain ICT hardware, cooling equipment and electrical facilities such as a UPS (Uninterruptible Power Supply). The server rooms are usually cooled and kept at a predetermined level of atmospheric humidity. Furthermore, the use of a UPS ensures that electric power is permanently available. The rooms where the hardware is located and the consoles are set up are often fitted with a raised floor and a lowered ceiling. Under the floor, there is space for cables and sensors for detecting fire and water. Fire detectors are also found in the space above the ceiling. The data centre is exclusively accessible to authorised persons. To this purpose, each room is provided with a system for access control and registration.

Sustainability in Data Centres

Since the Brundtland report (1987), sustainability is defined as managing the earth and its natural resources in such a way that it meets the needs

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