CYSENI 2009, May 28-29, Kaunas, Lithuania
ISSN 1822-7554, www.cyseni.com

ELECTRICITY GENERATION IN HOUSEHOLDS

I. Laube
Riga Technical University
P.O.Box 526, LV-1010 Riga – Latvia
Phone: +37167041699, +37126319844
Email: inara.laube@lg.lv

ABSTRACT

From the year 2005 to 2030, global consumption of energy is expected to increase by 55%. A very big share world's energy is consumed by heating, air conditioning and refrigeration. Such fossil fuel as natural gas is becoming a shortfall – nevertheless, CO2 emissions are planed be by 70%. Similar developments could look to alternative energy sources such as wind or biomass to supply the non-solar fraction, and these would be truly zero carbon communities. How much solar or wind power is available at any given moment is completely unpredictable. Storing surplus electrical energy from wind turbines or solar photovoltaics (PVs) is more problematic than storing heat.

There are various potential routes to zero carbon housing, but one of the most practical is communal microgeneration. Microgeneration produces heat and even electricity form domestic households. Domestic microgeneration gives the same comfort as a gas boiler, but with lower energy payment and smaller CO2 emission.

The gas microgeneration is being produced in the Netherlands. Technical parameters: electrical power – 1 kW, heating power 16 – 35 kW, efficiency 106 %.

It has been calculated that 13, 5 millj. households in European Union are suitable for this microgeneration installation.

The best microgeneration option for a project may be a combination of two or more separate yet compatible technologies.