

## 4. SUSTAINABLE ENERGY IN SUSTAINABLE AGRICULTURE

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### 4.1. Introduction

Sustainable energy means energy generation without detrimental impact to the environment and sustainable agriculture means pro-environmentally oriented farming and agriculture-based industry. Both activities, energy generation and agricultural production, tend to be mutually interrelated when associated with biomass production, biomass based products, and rural areas. Both activities generate relatively small part of gross value added of the national economies, i.e. for the EU-28: 3.1% and 1.7% by energy and agriculture sectors, respectively (European Union, 2013). At the same time, the energy and agriculture sectors are indispensable and crucial for the quality of mankind's life on the Earth.

In the last decades, the ongoing process of increased energy use is the hallmark of modern agricultural production, although the process is accompanied by a steady pace for increasing energy efficiency and reduction on energy intensity (Gołaszewski et al., 2013). The considerations on sustainability of energy use and agriculture presented in this paper involve two interrelated initial terms *more with less* and *ephemerization*. The first term is associated with the efficiency of natural resources and energy use. It was coined by Paul Hawken: "the future belongs to those who understand that doing more with less is compassionate, prosperous and enduring, and thus more intelligent, even competitive." (Hawken et al., 2008). The author of the second term is Richard Buckminster Fuller who claimed that the continuous progress in technological advancements enables to do „more and more with less and less until eventually you can do everything with nothing". According to this author, it is the reason that despite of growing human population and finite resources the standard of living will be increasing. At the first glance, "do something with nothing" is intriguing. However, there are some examples, which support this kind of process. Let us take into account the development of the information transfer system: historically, it was the messenger who delivered a message, then the post office system has been developed, and in the last decades thanks to technological advancements, information is transferred by invisible medium as invisible data. The same way of thinking may be adapted in the case of energy generation, especially in rural areas. For example, when a farm