Tibor László Csegődi, Tibor Farkas

Szent István University, Gödöllő, Hungary

NEW DIRECTIONS IN ADAPTATION TO CHANGING SITUATION IN RURAL AREAS – COMPLIANCE WITH THE NEW REQUIREMENTS

NOWE KIERUNKI DOSTOSOWAŃ DO ZMIAN NA OBSZARACH WIEJSKICH – ZGODNOŚĆ Z NOWYMI WYMAGANIAMI

Key words: triple crisis, energy intensity, energy consumption of public buildings, ISO 50001 energy management system, energetic professionals working in local governments

Słowa kluczowe: potrójny kryzys, intensywność energii, zużycie energii w budynkach użyteczności publicznej, ISO 50001 system zarządzania energią, profesjonalne prace energetyczne w administracji lokalnej

Abstract. The economic situation fundamentally changed in 2008 because of the triple crisis, the well-known financial crisis, and the environmental/climate and the energetic crisis. The dependence on fossil fuels in European countries is still too high. The European Commission's objective is the European Union should reduce its oil and gas import by 60 billion euros till 2020. In Hungary 40% of the total energy is consumed in buildings. 33% of our energy consumption is directly linked to public institutions. The resident's climate awareness can be (better) strengthened by municipal public institutions because these institutions are close to them. Local governments need such professional's job, who assess tasks – necessary to energy efficiency and climate protection – arising from European Union and national legal provisions. Those enterprises which operation are necessary to maintain the viability of an area could fulfill such requirements like energy efficiency and sustainability if they use the self-regulation method (like ISO standards). Two ISO standards are connected to environmental protection, one of them ľ the ISO 50001 ľ is rather and energy-management system. It makes possible the development of efficient energy consumption policy, furthermore getting and using exact and recent data to better understand the energy consumption, better measurement of the results, and finally the continuous improvement of energy management. That is why such a standard can be economical to SMEs as well. Viable SMEs in rural areas is one of the primary interests not only the countryside but the whole society.

Introduction

The European Union has been suffering from the economic crisis for almost five years, sadly it seems the negative processes could be only reined, but not stopped. In Hungary this is particularly true because the adverse effects of the crisis prevail here much more seriously than in abroad. For example according to conservative estimates almost a hundred Hungarian local governments were close to bankruptcy in 2011. The financial situation of local governments could be improved by taking account energy efficiency aspects. The aim of this essay is to show that energy efficiency is a very important factor at both national, local and company level as in EU policies too. This is particularly true for such companies which have important role in maintaining certain rural areas viability. Let us to take an example. A municipality would be able to save a considerable part of the energy (used by for example the municipality buildings) if appropriate energy efficiency measures were taken. [Fehérváry 2010, The Climate Paradox 2007] To achieve the above mentioned goal the municipal and regional authorities should assign professionals (with special competences) to the key areas. These local government professionals should have not only environmental, but also – a certain level – legal, economic, energetical and architectural knowledge due to the complexity of the issues they address. Although the results in this area are not available in a short term and they may not be so spectacular, but they are permanent and they serve the real future development.

Energy efficiency, creating a complex image about the problems – materials and methods

In order to create complex image (Fig. 1) about the theme firstly I review the major EU legal documents containing the requirements mentioned, then I try to present the outlines of the Hungarian energy management opportunities. The data are mostly from EUROSTAT and Hungarian Central Statistical Office databases. Then two new solutions are presented, one of them (which is urged by famous scientists)

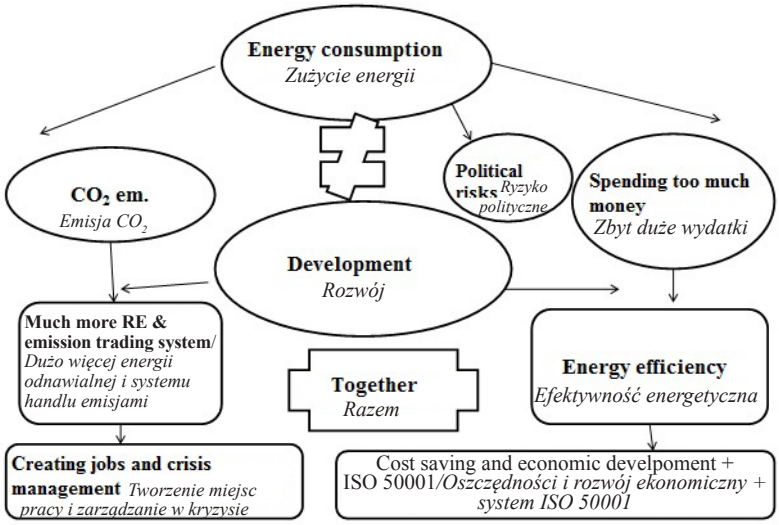

Figure 1. The real connection between energy consumption and development
Rysunek 1. Rzeczywiste powiązania pomiędzy zużyciem energii a rozwojem
Source: own study
Źródło: opracowanie własne

is usable by local governments and public institutions, and another really new one developed by International Standardization Organization. The economic situation fundamentally changed in 2008. The Green New Deal Group, an environmental expert group from London published a very interesting report in 2008; its title was The Green New Deal [The Green… 2008]. This report was the first one (worldwide) which described the triple crisis, the well-known financial crisis, and the environmental/climate and the energetic crisis. The latter two started 30-40 years ago. The ecological economics created the myth of the paperless office approach [York 2008]. This means that the more IT equipment we use in an office the more paper we shall also apply. To achieve economic growth most of the developed countries need more, but at least the same amount of energy. Despite the energy consumption structure changed significantly in some states because of the crisis, the dependence on fossil fuels in European countries is still too high. According to data published by EUROSTAT in 2011[1] out of 16 western (developed) countries in four (in Greece, France, Austria, and Portugal) – between 1995 and 2008 – the percentage of electricity produced from renewable sources in gross electricity consumption reduced. According to the same EUROSTAT data – in the same period of time – out of 12 Central and Eastern European countries and Turkey the value of the same indicator decreased in five countries, but this value did not reach the level seen in western countries in all of these countries. On the other hand the energy intensity rate decreased by 10% or less in four out of 16 developed countries. The energy intensity rate decreased significantly – by 20-30% – in the emerging European economies (apart from Croatia and Turkey) because of the degradation of the large-scale socialist industry and agriculture system. Energy dependence of Hungary is still significant in addition our natural gas, nuclear fuel demand can be bought mostly from Russia, or Russian interest Middle East or from politically unstable countries. According to the Central Statistical Offices country report, in 2009 the energy dependence of Hungary reached 70% [EUROSTAT 2010]. Researchers said – in a business as usual case – Hungary's energy dependence can reach 85% till 2020. The European Commission's objective is the European Union should reduce its oil and gas import (primarily from Russia) by 60 billion euros till 2020. In addition steps should be done in the field of energy efficiency, and saving money by saving energy, because the increasing rate of using renewables alone will not solve our problems. The base of the substantive political priorities defined by Multiannual Financial Framework 2014-2020 are the priorities from the EUROPE 2020 document [EUROPE 2020… 2010] which will have an important role in this decade. By the implementation of the multiannual financial framework significant reduction could be achieved in expenditures over the years. According to the outline plans of the framework 37% of the available financial resources will be spent to sustainable development and natural resources in the next years, and after 2014 the environmental and climate

[1] [www.appsso.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do] , accessed 02.11.2011.

policy priorities will prevail in all major EU funding instruments. It is necessary to increase the proportion of expenditures on climate policy by minimum 20% together with contribution from other policy areas. The Commission's announcement – the so called EUROPE 2020 report which finalized by 2010 – suggested that the European Union should set realistic targets in the fields of energy, education, R&D, furthermore fight against poverty, and climate change. The national goals could be deduced from these targets. There are some – mutually reinforcing – priorities in the EUROPE 2020 document so the knowledge and innovation-based growth, the sustainability from environmental and energetical point of view, increasing the level of employment, and finally evolving social and territorial cohesion. These goals seem far away today than ever before. We could find causes of the energy consumption rate reduction in poverty rather than in serious changes of consumer's behavior. Consumers and enterprises are exposed to harmful and costly price changes; this threats the economic security and contributes to the climate change. Increasing the R&D resources would be really necessary especially in areas such as energy security, land management, resource efficiency, etc. In all sectors new technologies should be used to help stimulating economic growth, but at the same time help reducing the emission of harmful substances. According to the European Commission's investigations [Action Plan… 2006] the energy consumption of public buildings can be reduced by 30%. In Hungary 40% of the total energy is consumed in buildings [Novikova, Ürge-Vorsatz 2008]. 33% of our energy consumption is directly linked to public institutions. The leaderships of the towns should commit to a new, efficient and environmentally friendly way of using energy and these criteria have to be consistently applied in municipality's everyday decisions too. These measures should be planned and implemented by municipalities with wide public support. The energy efficiency of an area/settlement should be totally mapped to complete the strategic planning process and to assess the energy saving capabilities (and how this can be largely exploited)[2]. A medium-term climate and energy efficiency strategy of a region should be made by taking into account the existing urban climate strategies. The other basic documents and management plans of the settlement/region should be based on the same fund/basis in the future. Researchers[3]1 believe that a considerable part of the fight against climate change should be left to local governments/communities. But we cannot be successful without winning the local communities, transforming the local consumption habits and building energy decentralization. The green economic development builds on energy saving and on a growing share of renewable energies, so it emits fewer greenhouse gases while the GPI-index[4] increases. Jobs, cleaner and more livable environment can be created by environmentally responsible investments; furthermore we will be able to reduce our energy consumption. On this basis greater part of the proceeds remain in the regions. The Committee of the Regions during the opinion process of the Green Paper about Energy Efficiency asked the European Commission to take into account the energy efficiency criteria in all EU policy areas [Official Opinion 2006]. We have to prepare to the outcomes of the climate change but primarily – if it is possible – we should avoid most of them. According to Antal Z. László (*Hungarian Academy of Sciences Institute of Sociology see below*) the resident's climate awareness can be (better) strengthened by municipal public institutions because these institutions are close to them. In addition the Hungarian electricity generating facilities are overwhelmed; maintaining many old, outdated electricity production capacities would not help to solve this problem. Heat, moisture and energy stress situations may happen because of climate change. To avoid the energy stress situations decentralized, cogeneration power plants should be built. The new generation, small power plants are decentralized because each settlement should have one or more small power plants which make electricity and heat from renewable sources. The intelligent electricity grid would get the generated electricity surplus and submit to areas where lack of energy occurs [Hajnal 2010].

Advises to local governments and enterprises – our results

In enforcement of some aspects as energy efficiency and climate protection – based on the above mentioned facts – local governments (which are close to individual citizens), and enterprises active in rural areas especially SMEs have a major role. To fulfill the above mentioned European Union demands significant financial investments are required in state and in municipal level too. Unfortunately – at the moment – these investments return on a relatively long period of time. If measures were not taken a significant part of the desired reduction in expenditures would not be achieved however most of the

[2] To complete the strategic plan it is required to determine the preferences of the inhabitants and economic participants, as well as complete population projections too.

[3] The best known representative of the above mentioned researchers is Antal Z. László, the head of the Hungarian Academy of Sciences Institute of Sociology, Head of Climate Change Research Group, and the President of the Association of Climate Friendly Settlements.

[4] Genuine Progress Indicator.

European states have an urgent need to take these measures. Taking the above mentioned actions will affect the everyday operation of the regional and local governments seriously, but in fact the problem is even more complex. In Hungary the necessary professional staff is not fully available neither to the full implementation of the National Climate Change Strategy 2008-2025 [National Climate… 2008] nor the European Union targets. The demand for the missing part of the professional staff depends on several factors like the financial status of the local government, the development of national, regional and local climate protection and energy efficiency policies and the growth of climate awareness of the Hungarian population. Local governments need such professional's job, who assess tasks - necessary to energy efficiency and climate protection – arising from European Union and national legal provisions. These professionals should make recommendations to policy-makers in order to minimize negative impacts on climate change; furthermore they should write other documents to help the decision-making process. They should also contact with authorities, and non-governmental organizations, residents, coordinate the work on climate change, monitor climate protection tender opportunities, prepare tender documents, and finally participate in the implementation of the projects. A special course – as post-secondary trainings – should start to train such professionals. This training should be based on the existence of a related degree. The target groups of the training are employees of local governments, and some employees of local government-owned or controlled corporations, institutions (such as caretakers, mid-level managers, councilors, etc.), marketing professionals, economists, public procurement advisors, etc. It would be important that local governments recognize their need to energetic professionals who are able to solve energy efficiency issues. It is possible that the above mentioned expectations come true only as a result of a government obligation. Despite the fact that the training of specialists planned a few years ago, the competent ministry did not create the ministerial decree and in it the essential requirements of this training. The situation is complicated because this training has included in the National Register of Post-Secondary Trainings since 2009[5]. According to the new Hungarian Higher Education Act – it was adopted in last year – the higher vocational trainings were transferred to the competence of universities. Those enterprises – which operation are necessary to maintain the viability of an area – could fulfill such requirements like energy efficiency and sustainability if they use the self-regulation method (like ISO standards). In connection with the self-regulation method the framework is provided by the legislation, furthermore the standardization is came from rules other than law, like International Standardization Organization systems. Two ISO standards are connected to environmental protection, ISO 14001 is an environmental management system, but the ISO 50001 is rather and energy-management system, which is one of the newest ISO systems. Self-regulatory decisions – for example change the management - are the next step in the method; the system operates continuously according to the decision of the environment user, rather than as a result of law or other legal-like rules. The environment user is able to decide about the admissibility of the self-regulatory decisions according to the environment, society and the market's responses. The continuous correction of inadequate environmental decisions is an integral part of the self-regulatory process, however there is a need to the public administration's check and the feedback as well. On 12th April 1991 the Business Council for Sustainable Development [WBCSD 2011] had the first meeting in The Hague. Only after a year the WBCSD released a publication, Changing Course: A Global Business Perspective on Development and the Environment, which was the first in the world examining the role of the business in environmentally responsible development. A new preconception started to spread at that time in the business world - the products and services need to produce such a way what use fewer resources, and produce less pollution and waste. In 1991 the International Chamber of Commerce released the Business Charter for Sustainable Development [adopted by the World Economic Conference in Paris; ICC 1991]. Two important principles can be highlighted in connection with the subject of this article. One of them is about efficient use of energy and materials, sustainable use of renewable energy and minimizing the adverse environmental effects during the development, the planning and operation of facilities and in the field of conducting activities. According to the other principle it is necessary to take steps towards developing and marketing such products and services which do not have adverse environmental effects, the proper use is safe, the use of energy and natural resources is effective, these products are recyclable and secure disposable. The environmental management requirement means that environment (natural, working, and installation) could not be endangered or affected by neither the activity itself, nor the released product or service. For a long time it was completely unthinkable that the fundamental relationship between profitability and reducing environmental pollution could be fully accepted. Nowadays there is a completely new, unexpected variable in the fundamental (and constantly questioned) relationship between dollars and environmental degradation [Melnyk et al. 2003]. In 1996 the ISO adopted a new international standard, ISO-EMS 14001, primarily

[5] 133/2010. (IV. 22.) decree of the government about the National Register of Post-Secondary Trainings.

to give an appropriate response to expectations (rising worldwide) against environmental practices of corporates. This standard was created in order to unify various criteria systems in different countries – often conflicting with each other – in the area of environmental protection and quality assurance. In addition this standard does not focus on results, rather focus on processes in the area of production, in the management, elimination of pollution. The International Organization for Standardization developed the ISO 50001:2011 standard in 2011 [ISO 50001 2011]. When a company uses this or similar standard system the aim will be the lower energy consumption and savings simultaneously, increasing the competitiveness and communicating environmental awareness to consumers. The companies – regardless of their activity – most important costs are certainly energy-related ones. Therefore it is essential to take into account aspects of energy use in the operation of the supply chain from raw materials to the finished products. A company or an organization can get quick and sure profit if their energy supply improved so that way they are able to maximize the use of energy sources and related equipment and in the same time reduce the energy consumed and the costs as well. This standard will help to companies in order to improve their energy consumption, create transparency (in this field), improve communication in connection with the management of energy resources, advertise and enhance the good energy management practices. This ISO standard deals with energy purchase in a separate section where the most important decision-making criteria should be the environmental impacts of production, and the fact whether renewable energy is involved or not. It is very important to use ISO 50001 or similar system in companies and organizations because it makes possible the development of efficient energy consumption policy, furthermore getting and using exact and recent data to better understand the energy consumption, better measurement of the results, and finally the continuous improvement of energy management. The aim of energy baseline [Bárczi 2011] - which is introduced by the ISO 50001 standard – is providing measurable reference base to evaluate energy performance in additional periods. The energy baseline has to be defined before the introduction of the standard for an entire production period (12 months, minimum) and it should be modified if a change occurs in the production process. Certificates given by fully independent auditors are not basic requirements in connection with this standard.

Conclusion

Till now introducing or using the ISO systems for a number of Hungarian small and medium-sized enterprises was almost impossible because the financial capabilities of SMEs are not good enough. We cannot say that the introduction and use of energy efficiency standard are cheap measures, but it is an undeniable advantage that a company would be able to reach significant savings if it introduced this standard. That is why such a standard can be economical to SMEs as well. Viable SMEs in rural areas is one of the primary interests not only the countryside but the whole Hungarian society. Secondly energy saving and environmental awareness should be brought closer to the individual citizen. In other words it would be beneficial if the local authorities, employers, companies (vast majority of enterprises) were able to work in an energy efficient and environmentally friendly way. This would provide a great help to re-socialize the citizens according to "think green act green" so this point of view will be able to spread widely. Overall by choosing advanced, energy-saving technologies we will be able to reduce energy intensity and achieve savings to spend them on developments. According to the above mentioned way the companies also should contribute to the convergence of rural society, even if unintentionally.

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Streszczenie

Ogólna sytuacja ekonomiczna na świecie uległa znaczącym zmianom w 2008 r. pod wpływem tzw. potrójnego kryzysu, na który złożyły się kryzys finansowy, kryzys środowiskowo-klimatyczny oraz kryzys energetyczny. W tym kontekście należy stwierdzić, że uzależnienie Europy od paliw kopalnych jest wciąż bardzo duże. Unia Europejska postawiła sobie za cel redukcję wydatków na ropę naftową i gaz o 60 mln euro do 2020 r. Na Węgrzech 40% zużycia energii elektrycznej pochodzi z budynków prywatnych, 33% zaś konsumowane jest w budynkach użyteczności publicznej. Znaczenie kwestii efektywności energetycznej dostrzegają także przedsiębiorcy implementując m.in. standardy jakości opracowane dla tego obszaru. W pracy przedstawiono diagnozę kryzysu energetycznego oraz wskazano na możliwe kierunki dostosowań w zakresie efektywności energetycznej na obszarach wiejskich, przyjmując trzy perspektywy: krajową, regionalną i biznesową

Correspondence address:
dr Tibor László Csegődi, PhD-student, dr Tibor Farkas, Associate Professor
Szent István University
Faculty of Economic and Social Sciences
Regional and Rural Development Institute
2100 Gödöllő, Hungary
Páter Károly Str. 1
phone: +36 30 981 64 24; e-mail: csegodi.tibor.laszlo@gtk.szie.hu
phone: +36 28 522 000/2371, e-mail: farkas.tibor@gtk.szie.hu