

ENERGY MANAGEMENT – PUBLIC POLICIES AND IMPLEMENTATION. THE ROLE OF INSTITUTIONS, FROM OVERLAP TO SYNERGY

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Rezumat

Managementul energiei se referă la toate activitățile desfășurate în vederea creșterii eficienței producerii, transportului, distribuției și utilizării energiei. Pe parte de furnizare, numărul actorilor este relativ redus și presiunea concurențială sau reglementarea monopolurilor naturale determină practic creșterea eficienței. Pe parte de cerere, numărul actorilor este enorm (toți consumatorii de energie, de la cei industriali la cei din sectorul rezidențial). De aceea, este nevoie de politici speciale care să conducă la creșterea eficienței energetice pe parte de utilizatori. Ori, astfel de politici interferă în mod normal cu politicile de mediu sau cu cele sociale.

În aceste condiții, instituțiile specializate, îndeosebi cele din cadrul administrației publice trebuie să aiba un rol exemplar. Totodată, datorită posibilei duplicări a activităților, este important ca instituțiile publice implicate să își definească funcțiile cât mai bine și să urmărească realizarea de sinergii. Ministere, agenții, autorități locale, ONG-uri nu își îndeplinesc câteodată suficient rolul, în schimb încearcă să facă ceea ce alți actori publici ar trebui să facă. Chiar și în țări cu peste douăzeci de ani de experiență în acest domeniu este nevoie de o îmbunătățire a performanței administrației publice, de o reformă privind atribuțiile și modul de funcționare al instituțiilor. Lucrarea de față va prezenta abordarea autorităților publice în diferite țări ale UE în domeniul eficienței energetice, precum și factori de succes pentru dezvoltarea și implementarea politicilor în acest domeniu.

Cuvinte Cheie: managementul energiei, eficiența energetică, administrație publică, reforma instituțională

Abstract

Energy management refers to all activities aimed to improve the effectiveness of the production, transport, distribution and use of energy. On the supply side of the chain, the number of actors is relatively limited, and either the competitive pressure or the regulation of natural monopolies leads to increased efficiency. On the demand side the number of actors is enormous (all consumers, from large industries to households). Therefore, specific policies for improving energy efficiency have to be put in place. And those policies strongly interfere with environmental and social policies.

The role of institutions and particularly of the public administration is very important and should lead by example. At the same time, given the potential overlaps, it is important to ensure that the public institutions involved have well defined functions and liaise with each other in a way to exploit synergies. Various ministries, agencies, local authorities, NGOs are involved and sometimes do what other public actors should do, and not enough of what they really should do. Even in countries with over twenty years of experience in this field, there is a need to improve the performance of public administration, to reform the functions and ways of operation of the various institutions. The current paper will present approaches of public authorities to energy efficiency in various EU countries and identify key success factors for securing effective policy development and implementation.

Keywords: energy management, energy efficiency, public administration, institutional reform

JEL Classification: L32, M10, Q42, Q48.

1. INTRODUCTION

Barriers to improved energy efficiency are mainly financial, institutional and attitudinal. The technologies exist for improving insulation, heating controls, lighting, and so on. This is not to say that technological advances are not important, on the contrary their role is determinant. But to be put into practice there is a need of such people to be aware and able to afford investing in those technologies, while improving their behaviour as well. Therefore, appears the importance of energy efficiency institutions who can work to overcome market barriers, to change attitudes and behaviour, in order to increase the uptake of both existing and new technologies for energy savings.

The current paper will look into the role of the institutions involved in policy design and implementation of energy efficiency. It is important to ensure that the public institutions involved have well defined functions and liaise with each other in a way to exploit synergies. Various ministries, agencies, local authorities, NGOs are concerned and sometimes do what others should do, and not enough of what they should do. Even in countries with over twenty years of experience in this field there is a need to improve the performance of public administration and to reform the functions and ways of operation of the various institutions.

2. EUROPEAN CHALLENGES AND PRIORITIES

Energy management refers to all activities aimed to improve the effectiveness of the production, transport, distribution and use of energy. On the supply side of the chain the number of actors is relatively limited, and either the competitive pressure or the regulation of natural monopolies leads to increased efficiency. On the demand side the number of actors is enormous - all consumers, from large industries to households. Therefore, specific policies for improving energy efficiency have to be put in place.

2.1 *Climate change*

The discussions and negotiations on addressing climate change dominate since almost 20 years the energy and environmental policies. The 1997 Kyoto Protocol will come now soon to an end and in Copenhagen this year at a December U.N. meeting should result at least the basic elements of a future agreement. The EU has already agreed on a target of reducing by 20% the greenhouse gas (GHG)

emissions by 2020, even in the absence of an international agreement. If such an agreement will come into force the target may be raised to 30%.

To achieve the emission targets, the European Union agreed to increase the share of renewable energy to 20% of the total final energy consumption and to improve energy efficiency by 20% as well. Special Directives for Renewable Energy (2009/28/EC), for Energy Efficiency and Energy Services (2006/32/EC), for Cogeneration (2004/8/EC) and for Buildings (2002/91/EC) are considered as a very important legislative component of energy efficiency activities of the EU. They have been developed in order to meet the Kyoto commitment and to respond to issues raised in various debates on energy efficiency and security. It is widely accepted that using energy efficiently (increase energy efficiency by 30%) will have a major contribution to reducing carbon dioxide (CO₂) emissions and therefore help achieving the GHG target (about 15%).

2.2. Energy security of supply

The issue of security of supply was at the origin of most of the national energy efficiency programmes after the oil crisis. In the 90'ties it was less prioritised as oil prices went as low as 12\$/barrel (British Petroleum, 2007). The situation has changed since then, and after reaching 150\$/barrel the oil prices are now at about 70\$/barrel, but with a tendency to grow up. The boost of energy prices, together with the recent transit interruptions of gas through Ukraine, brought back on the EU agenda the issue of security of supply, showing how price volatility can affect policy orientations. In this context, energy efficiency institutions are expected to provide policy makers with analysis and proposals for measures to amplify the efficient management of energy, to lower demand and thereby contributing to diminish the risks of vulnerability to a possible energy crisis.

2.3 Market liberalisation

The liberalisation of the energy markets is a process which started in Western Europe but is followed closely by countries with economies in transition. The Third Energy Liberalisation Package was adopted by the EU Council in late 2008. There is a real challenge to require and stimulate interventions of the energy efficiency companies in order to increase efficiency and manage the demand on the customer side. Special provisions in the Energy Efficiency (EE) and Renewable Energy Sources (RES) Directives make this cohabitation possible. Labelling and standards may have better chances to be used as effective instruments, especially when it is considered that a process of globalisation accompanies the liberalisation process.

It should also be mentioned that in the context of energy markets liberalisation, the energy efficiency institutions have to establish special relationships with the new independent regulatory bodies.

2.4 Increased role of civil society

Awareness and building understanding started to show benefits. Nowadays, the consumer associations and the environmental NGOs have a strong word to say in influencing Governmental policy development in most of the countries.

Energy efficiency institutions have to increase their contacts and communication with organisations representing the civil society. Being often at an operational level, the communication may be easier than between NGOs and policy makers. Energy efficiency institutions could pass sometimes easier the messages to the political decision makers through their implication in the design of policies and measures to be taken. At the same time, energy efficiency institutions have to work more and more with local authorities, which are closer to the beneficiaries of the various programmes. The development of energy efficiency institutions at regional and local level is helping to manage energy proficiently.

2.5 International co-operation

Global challenges and regional trends make possible in an easier way to disseminate and apply solutions from one country to another taking into account local circumstances. Increased contacts among national and regional energy efficiency institutions from different countries, among national and local policy makers and administrators, facilitate not only a better understanding and adaptation of certain solutions, but may also generate new bilateral or multilateral initiatives and programmes. The new information technology can offer numerous benefits in this process.

3. THE ROLE OF ENERGY EFFICIENCY INSTITUTIONS

Special institutions responsible for energy efficiency at the national administration level are established in most EU countries.

There are several questions which are pertinent in any debate regarding the role of energy efficiency institutions, which need to be explored and discussed:

- What is/should be the relationship between both national and regional energy efficiency institutions and government through different responsible ministries?

- What is the role of energy efficiency institutions in terms of policy making concerning programme development, and programme implementation?

3.1 Classification

A study was undertaken in 2008 by the European Energy Network (EnR, 2008), grouping 22 national energy agencies. To find out what is the role of these institutions in implementing the Energy Services Directive, first a closer look is taken at distinguishing different classes of agencies. Classification of the energy efficiency agencies provides the possibility to compare the different categories. In this study, was used the typology classification developed by Heather Greer (Greer and Bazilian, 2005):

- **Promoter:** The agencies have the responsibility for promotion, information dissemination and education/training;
- **Influencer:** Next to promotion, the agency is also involved in inducement, such as networking, preparing standard agreements, increasing policy input;
- **Controller:** Next to promotion and inducement, the agencies who are controllers have a say in policy plans and can make choices in policy measures taken.

In Figure 1, it can be observed that the percentage of the energy efficiency agencies is quite equally over the classification types.

In Figure 2, the classification of the energy efficiency agencies is made for the various sectors of interest. The classification *Influencer* was assigned the most in all sectors. Usually, an agency sticks to its classification in all sectors, but some are in one or two sectors either *Promoter* or *Controller*. Two of the agencies can be classified from Promoter to Controller, depending on the sector. It can be seen that Residential, Industry and Small Renewables are clearly the sectors where the agencies have the largest role to play.

The following section will show some examples of how energy efficiency institutions have been established and how they are now adapting their activities to the national and global circumstances mentioned above.

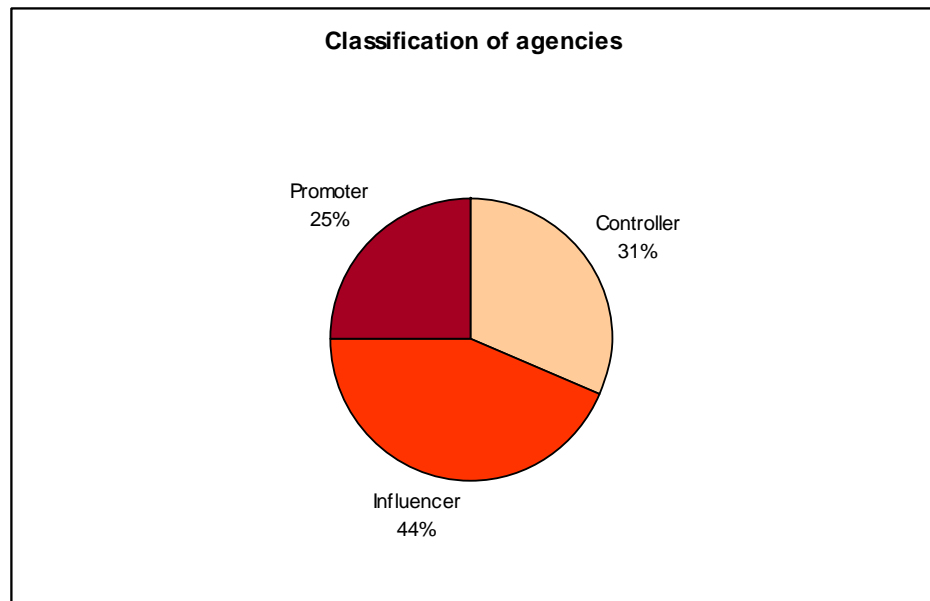


FIGURE 1. CLASSIFICATION OF AGENCIES
 Source: EnR Report on the implementation of the Energy Services Directive, 2008

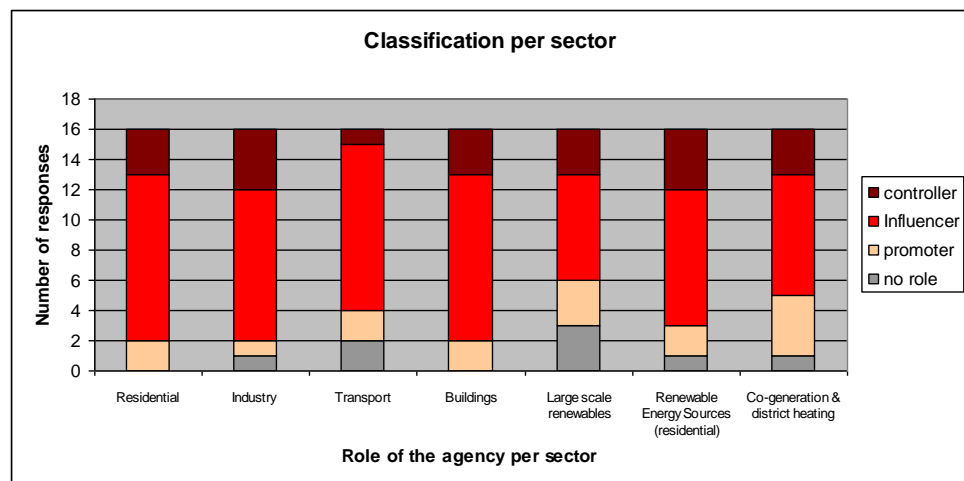


FIGURE 2. CLASSIFICATION PER SECTOR
 Source: EnR Report on the implementation of the Energy Services Directive, 2008

3.2 Position

Traditionally, in Western Europe energy efficiency institutions tried to combine a regulatory with an incentive approach, with a trend to emphasise the latter one. At the same time, social benefits and comfort gains arising from implementing energy efficiency measures in the residential sector became

drivers of energy efficiency programmes. For cars and equipments, efficiency helped not only to reduce the energy demand but also to produce vehicles and appliances for which the demand was increasing.

Therefore, energy efficiency institutions started to play an active role in promoting professional and competitive technologies. Also, such institutions commence to analyse the elements of the demand, notably through energy audits. In the same time, they are performing behaviour analyses and defining specific indicators for different categories of consumers.

In formerly central planned economies, energy efficiency institutions started to be developed mainly in countries dependent on energy imports. Their role was in particular to enforce regulatory measures aimed at reducing demand and saving energy. Such institutions have been perceived in some cases as command and control bodies, having as main instruments inspections and penalties.

Nevertheless, some more positive procedures such as training of energy managers for industrial companies, audits and dissemination of information on good practices have been undertaken, but not on a large scale. It is interesting to note that in our days, when the energy efficiency legislation is developed in many areas, such as energy services and buildings, the inspection and control function needs to be strengthened again. It is a particular challenge to ensure that this will not create corruption and abuses of the type that sometimes were registered in the past.

Energy efficiency agencies are often established as independent bodies under the authority of one or more ministries or directly in the structure of a ministry. In the same country we have distinguished sometimes an alternation of situation. Position depends on the mandate and functions. In France, Agence Française pour la Maîtrise de l'Énergie (AFME) was established in the early 1980s as an agency, with its own budget, responsibility for selecting staff, under the supervision of the Ministry of Industry. Later on, it merged with the environment part and became Agence de l'Environnement et de la Maîtrise de l'Énergie (ADEME), one of the largest institutions of this type in Europe. It deals with information campaigns, research, environmental permits, financing and even structural funds through its regional offices.

At the same time, in the UK, the energy efficiency institution was established as a department of the relevant Ministry (at that time the Department of Energy). Later on, the UK government, together with the energy supply industry, established the Energy Saving Trust, as independent body for the promotion of energy efficiency in housing and in the small enterprises.

In countries like Austria or Finland, the national energy efficiency agencies are non-profit associations with members who are the key stakeholders in the sector. They work on a commercial basis. In Norway,

the agency ENOVA is a public enterprise owned by the Royal Norwegian Ministry of Petroleum and Energy. It works based on contractual relations with the Government who is funding some of the largest energy efficiency programmes in Europe.

In Romania, the Agency for Energy Conservation was established in 1991, on the structure of the former Energy Inspectorate. The agency had to evolve during the years in terms of mentality and functions. At a certain moment, the Agency lost its independence, and was transformed into a department of the Ministry of Industry. After 2000, it was re-established with a high degree of autonomy and legal status, and since then its role and diversity of areas of activity have increased. A strong impetus was given by the transposition in 2008 of the EU Energy End-use Efficiency and Energy Services (ESD) Directive into our national legislation.

Agencies moving in and out the structure of the government (or a ministry) is not very unusual. A similar situation has been observed in the Netherlands, where the National Agency for Energy and the Environment (NOVEM), was at a certain moment acting almost as a private company, and later on was merged with another governmental agency under the umbrella of the Ministry of Economic Affairs.

More important than the actual position, remains the functions and the mode of operation. It should be understood that any part of the public administration should have a code of conduct, especially when delivering activities that can be considered of a public service obligation nature.

3.3 Functions and operation

A ministry should be primarily in charge of policy making, and not of implementing an energy efficiency programme – whether this is a grant for more efficient boilers, or lights, or an awareness campaign for saving energy. Otherwise, it may be a misuse of scarce manpower resources. Ministries are not the best programme implementers, and it distracts them from their proper role of policy making. It also makes sense to separate those who finance the programme and those who implement it and select the projects to be financed.

Ministries, if for good reason not in charge of implementation, should clearly monitor and check that programmes are implemented in an efficient, transparent and non-discriminatory manner. A real institutional reform is the development in the EU Member States towards a contractual relationship where specific outputs and objectives are required, and the implementing energy efficiency agency is responsible for meeting those goals. This type of contractual relationship implies effective monitoring and evaluation of programmes (did it actually work, and what were the real results?) and an open dialogue concerning programme failures (if it didn't work, why not? too low or delayed incentive? why no

commitment?). These factors are likely to lead to improved programme implementation. Further, a contractual (or even competitive) programme implementation gives the implementing agency a much stronger motivation to succeed.

4. KEY ISSUES OF A PUBLIC ADMINISTRATION REFORM

There are a number of key issues to be considered when speaking about an institutional reform of the public administration in charge with energy management and efficiency on the demand side. Certain aspects of the 1997 debate are still valid today, on others, experience brought in different possible approaches, and others have to be addressed in the light of recent developments at EU level (Energy-Climate Change Package, Energy Services Directive).

4.1 *Legitimacy and authority to act*

The energy efficiency institution must have sufficient legitimacy and authority to mobilise public and private sector energy users, which requires a clear mandate and government support at the highest level within the framework of a clearly defined policy.

4.2 *Broad management authority*

The energy efficiency institution must have broad management authority and the ability to act rapidly. The focus should be promotion and persuasion, rather than command and control, which is a very different objective than that of traditional government structures. Still, should have the power and the duty to ensure that projects financed from public sources are transparently selected and monitored in the various stages of implementation.

4.3 *Sufficient and continuous funding*

The energy efficiency institution should have sufficient financial resources to meet the running costs (staff, equipment, communication and information, training). At the same time, it should have secured (by a certain ministry of Economy or Environment in general) the necessary programme funding to carry out its activities within the framework of the relevant government policy. If the resources are scarce, especially in periods of economic crisis, the targets should not be overambitious. On the other hand, energy efficiency activities can bring valuable economic and even labour benefits in periods of economic downturn, so that their activity should be continued and made eventually more effective, but not stopped. Discontinuity of funding affects not only the performance in the year concerned, but also the longer term institutional capacity of operation. For example, in early 2000, ADEME in France did not

have any more the capability of undertaking energy audits, due to the fact that the activity was discontinued for more than 10 years.

4.4 Human resources management

Both the quality and the quantity of the human resources are important. Is necessary staff capable of undertaking the wide ranging tasks implied by an energy efficiency promotion institution – requiring skills in such areas as communication, motivation, technological competence, and economic competence. This necessitates staff with different qualifications and motivations than those of a classical state administration, or of the old energy inspectorates based exclusively on engineers.

4.5 Role of government and energy efficiency institution well defined

The major issue in this respect is who has responsibility for policy making – the government (through a ministry), or the energy efficiency institution? The answer to this question in almost all cases is that on one hand, governments make policy, decide priorities, and allocate funding, and on the other hand, energy efficiency institutions implement the programmes and undertake the monitoring and evaluation.

However, energy efficiency institutions also consent analysis of the market, monitor and evaluate their programmes, and develop opinions on the effectiveness of the policies which they have been given to implement. These opinions are in most of the cases fed back to policy makers. It is important that the agencies contribute to the drafting of the energy efficiency policies, as they have not only theoretical knowledge but also the experience with handling barriers and opportunities in the market. Both sides should understand each other's responsibilities in relation to policy making and policy implementation.

4.6 Division of responsibilities between similar organisations

In many countries there is no single institution which has a clear mandate to promote energy efficiency. One may lead a programme for improving efficiency in buildings, another on industry, and another on transport. Coordination and clear definition of roles is essential if wasteful overlap, or worse, inter-organisational conflict, is to be avoided. If an institution has overall responsibility for a national Energy Efficiency Action Plan (as required by the ESD Directive 2006/32), it should have at least access to information about the results of the programmes managed by the other organisations.

It is also important to have a cooperative relationship between national and local agencies. Too often this relationship is seen as one of competition and interference, and not of collaboration. National and local agencies should develop collaborative working programmes and prove the value added they can offer.

4.7 Energy efficiency policies reflected in other sectoral policies

Decisions on housing policy, planning policies, transport planning, agriculture are all decisions which fundamentally affect energy use. To be effective, energy efficiency institutions cannot activate 'in an isolated box'. They must work to have energy efficiency considerations taken into account in all these other areas, and by all the other actors involved. When housing is consolidated or modernised, or when district heating pipes are being replaced, it is important that energy efficiency is a part of the decision process.

Energy efficiency institutions should collaborate with other institutions, industries, etc. There are good examples in the UK, where energy suppliers and Energy Saving Trust (EST) collaborate, or in France and Spain as well.

4.8 Energy efficiency institutions and their involvement in the market

Energy efficiency institutions are involved in many segments of the market. They can liaise between the governmental sources of financing and the end-users. They may also secure information and access to programmes run by International Financing Institutions, such as European Investment Bank (EIB), European Bank for Reconstruction and Development (EBRD, 2008). But, it is very important how they act. The command, control or even worst, discriminatory approaches should be avoided.

Examples in Sweden, in the UK or Spain reveal how energy efficiency institutions are becoming increasingly involved in the market. This process is possible through the use of market based mechanisms such as technology procurement, energy efficiency branding, voluntary agreements, or even direct investment in projects or in companies set up to develop projects. Local agencies, through their position closer to energy consumers have developed commercial activities with a view to secure funding for the activities of the agency, and for promoting energy efficiency.

It is important that agencies collaborate with the energy consumers, in this way improving their information and their performance as part of the public administration. But the relation should be based on trust and transparent operation, with only the necessary level of control and certainly without a command approach. The reforms should secure that all the institutions function effectively and unbiased in relation to the market actors, being final energy consumers, energy utilities or energy services companies. To put in place such a system, the context created at EU level by the ESD Directive is very important. This Directive defines obligations and possible opportunities for many market actors. In this respect, national energy agencies should act in a way to secure their credibility and effectiveness.

It is particularly important that energy efficiency institutions do not distort the market. There are agencies which receive subsidies for salaries and running costs, and then offer services such as energy audits or third party financing. They must ensure that are indeed developing the market, and when the market is sufficiently mature that they stop this practices in order to make possible that normal commercial companies can operate on a competitive basis. This is as true for national agencies as for the local ones. Accusations of unfair competition from public agencies have been made by private energy efficiency companies in some countries, and this led sometimes to the change of their status and getting back in the structure of a ministry.

4.9 Monitoring and evaluation

Evaluation is necessary both in the design phase of policies or programmes and at periodic intervals of implementation. While the „ex-ante” evaluations are giving just an indication of the expected results, “ex-post” evaluations are almost always undertaken in OECD countries (OECD, 2004). The European Commission’s Logical-Framework (1) provides a stratified approach, beginning by identifying the overall objectives of a policy or investment followed by specific or immediate objectives and then defining inputs (resources) and outputs (results). The Logical-Framework approach also considers (Energy Charter, 2006):

- *efficiency* - whether the policy is a good use of resources (eg, whether consumers would have made the investments without a grant), efficiency is often measured through cost-benefit analysis techniques;
- *effectiveness* - whether the policy achieves its immediate goals - such as a certain number of households insulating their roofs;
- *impact* - whether the policy achieves its specific objective - such as reducing energy consumption in participating households by 20%;
- *sustainability* - whether the benefits of the policy will be sustained when the subsidies or grants end or tax policies revert to normal.

Making evaluation compulsory is a clear condition of reforming public institutions delivering programmes in the area of energy efficiency. At the same time, is important to secure monitoring, in order to provide the necessary feed-back in due time and to improve programme delivery. While monitoring is

undertaken by the energy efficiency agency itself, evaluation should be undertaken by an independent organisation.

4.10 International cooperation

International cooperation between energy efficiency institutions has important effects through the transfer of experience (positive and negative) and know-how. It is useful to have such cooperation both between national and local organisations. In Europe, the European Energy Network (EnR) groups the national agencies, while the local ones are represented by European Federation of Regional Energy and Environment Agencies (FEDARENE). Co-operation, at least at the EU level, is assured also by many EU initiatives, being projects or concerted actions, which secure an European dimension of various initiatives.

According to the 2009 International Energy Outlook released by the U.S. Energy Information Administration (EIA) on May 2009, worldwide energy use will explode over the next 20 years and if the nations don't strengthen their policies to cut greenhouse gases, CO₂ emissions will rise by nearly 40 percent to 40,4 billion metric tons a year by 2030. Concerning the European Union, the special Directives referring to the energy efficiency, adopted after lively discussion at all levels, have the overwhelming support from Member States and the European Parliament.

That's why, it will be necessary an unprecedented level of global co-operation to achieve those specific objectives where an important role has the energy efficiency in order to avert a climate crisis. The governments' overriding aim at the UN meeting in Copenhagen this year should be limiting the global average rise in temperature to maximum of 2 degrees Celsius, and determining the companies to lead the way to a greener economy.

5. CONCLUSIONS

Improving energy efficiency is recognised as the key solution in addressing energy security, climate change and economic competitiveness. It is now, in times of economic and financial turmoil that this becomes even more a priority.

One of the most significant challenges for the future energy system is to guarantee the security of supply that is threatened by the depletion of local resources. As consumption is growing, the dependence on energy imports from geopolitically unstable regions increased.

In order to cope with these challenges, European Union have already adopted energy policies that are focused on energy security, efficiency and increased share of renewables.

The national energy efficiency agencies have to use their knowledge, know-how and experience to its full potential because they bridge the gap between EU and national legislation and procedures.

Among the activities where these institutions are directly involved can be mentioned:

- the promotion tools for energy end-use efficiency monitoring,
- energy audits self completion, qualification and advising public sector,
- promoting energy end-use efficiency.

Therefore, the energy agencies have a key role to play in implementing, auditing and monitoring the Energy Directives to ensure the reachment of their goals and objectives: sustainability, security of supply and competitiveness of European economy.

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