

# Energy management as an Entrepreneur Management Objective

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## *Abstract:*

The increasingly limited energy resources demand managers of organisational systems to perform alternative measures in managing organisational systems. Energy management is becoming an important goal of entrepreneurial activity. A holistic approach to energy management is becoming an important tool in improving energy efficiency, reducing emissions and increasing competitive power on the global economy market. Enterprises are therefore an integral part of the complex social, economic, environmental and other dynamic systems, which demand a varied perspective and inter-discipline debate. It is about from more points of view and interprofessional treating of administration mastery that results from co dependence of different systems of administration and therefore the entire hold of management. Energy management as a entrepreneur objective of environment management will be the key component of competitive ability. Excessive consumption of energy resources is consequently the result of non-systematic, non-entirely, non-interdisciplined, non-qualitative way of administration. Therefore the economic effects of energy management are also the consequence of cognition about the meaning of co dependence and created collaboration to achieve the save, energy friendly operation. The energy management is so the consequence of innovation administration, that considers a dialectic system of viewpoints.

*Key words:* energy management, entrepreneur, environment management, dialectic system

## **1 The chosen problem and viewpoint of treating**

The role and significance of power supply is becoming ever more important in the competitive market. The task held by management is orientated towards changing the organisational structure, culture, processes and products in an attempt to manage power supply in an integral manner and by minimising costs. It is about a new approach in managing the organisation and energy resource planning in society. The activities are not orientated only to technical-technological problems or just to participants as creators of treating with environment, but to the whole proceeding. In a world where markets, products, technologies, competitors, regulations and even societies change rapidly, continuous innovation and have become important sources of sustainable competitive advantage. Because of co

dependence is the management quality and treating with the environment directed to the quality of administration and leading, because the quality is the essence of organisational culture of creating collaboration. It is about more points of view and inter structural treating of mastery of administration, that results from co dependence of different systems of quality (not only technological treating) and that's why the whole measurement of management. The successful development and implementation of integral energy planning in an organizational system can produce a significant saving in the amount of energy consumed and therefore a smaller environmental impact. It is not just about energy resource consumption, production units and transfer of energy, but also about the improvement of economical efficiency and thereby the

increased competitive capacity of organizational systems. At the same time, the aim is to reduce harmful substances into the environment, the enhancement of relations between organizational systems and social responsibility and thereby the associated standing in the wider social environment.

A number of conducted studies show the potential energy savings that could be made and point to the fact that energy management on behalf of the consumer will become an important factor in the strategy of individual enterprises. Therefore, a holistic approach is necessary. Due to the interdependence of the issue, the management and holistic planning of power supply is intrinsically linked to the quality of management and leadership.

The permanently change of demands to changing the enterprise's practice, that is a consequence of the market competition, it dictates to the management the stimulation of the internal enterprise and the whole solving of problems. It is possible to conserve the preserve advantage especially with the entirety between the planning, administration, supervision and comprehension of content of entrepreneur's activity. The totality of treating of the quality mastery is so a challenge to the entrepreneur's management and the possibility for the reputation strengthening of management. The domain of the energy management is a very sensitive domain of the whole treating. The environment protection is consequently the result of non-systematic, non-entirely and non-interdisciplinaire, non-qualitative measurement to the planning and defining, that means in the content of administration. For this reason the care for environment, the change of relation to the environment also the consequence of knowledge about the meaning of co dependence and creative collaboration to achieve the safe, energy friendly operation. The responsible holder of dialectic, between different points of view, entire measurement are the administration workers of business systems that is management. The experience of past was too much orientated only to the intensity of qualitative, specialized production, without consideration of influences on the environment and this does not enable the conditions for the ecological innovation. Only the whole, interstructural and different point of view operation of organisational system enables the treating of ecology and permanent development as an important component of all essential viewpoints in the administration. The energy management is so the consequence of innovation's administration in sense of consideration of dialectic system of viewpoint.

## 2 Approach to energy management

In efforts for the improvement of position on the purchaser's market the companies must also consider accordance of operation with valid environment protected prescriptions in field of energy consumer. The inclusion of enterprises in the international market, the care for reputation, that the enterprise profit with the environment protection and permanent development, places the politics of environment protection to the base of the professional politics. The environment protection and permanent development is so a basic component of the basic politics and it is confirmed by the highest administration agency. It is about the important decisions about the basic goals of operating and development. It is about the acceptance of basic principles values and rules. More than constraint of the state, the system is important, that is founded on the volunteer offer and creative cooperation. In the contemporary circumstances the creating of teams is getting most important for the creative cooperation, because they search the opportunities, solve the problems and in the end they take decisions.

The planning of energy objective begins with market research, it continues with the preparational functions (development) and so on to packaging, delivery, use and after cessation of life period of the product it comprehends the elimination on the environment friendly way[9]. The innovative operation is operation that, according to the production and all other its components is found on innovations. That's why the following characteristics indicate it:

- Each cost is basically unnecessary. It gets really unnecessary when we know and want to work in more intelligent way.
- Each product or procedure falls sooner or later out of use. So we must incessantly doubt about all given habits, although we count them (still) for perfect and correct. Otherwise we cannot achieve the contemporary quality of life.
- Everyone is concerned about the quality of life and for this reason (as possible as perfect!) Everyone is also concerned for quality of the whole operation and its all components. That's why we have to develop our brains and activate the creativeness of everyone.
- We should search constantly and everywhere the possible novelties! Only rare of them will become innovations, but without intended search, there will be even less of them, probably not enough.

- For this reason we should work as clever people and not as crazy people [2].

Just the energy management become our every day's care and more and more numerous people care for the environment we live in.

Numerous case studies regarding the drafting and implementation of efficient energy use measures point to the fact that enterprises and institutions approach them partially, attached from other potential measures, without a complex analysis of the entire issue of energy consumption and supply. Such a partial approach can lead to technically and economically inappropriate solutions. The foundation of an energy efficiency program for an enterprise or an institution must therefore be an energy audit, whereby the main component is represented by a proposal of an action plan with specified priorities, which provides guidelines for the following issues in entrepreneurial or institutional organization:

- organizational changes
- or quality investment decisions.

The basic aim of the energy audit is to increase the process efficiency or rather lower the loss of energy. This is why we determine where in the system the energy was used efficiently and where energy losses were made on the basis of mass and energy balances.

Possible measures, which the energy audit can encompass, include the fields of organizational measures, reconstruction of existing installations and buildings, the use of modern equipment and techniques as well as the introduction of new technologies. In data acquisition, the quality of the cooperation between the conductor of the energy audit and the expert team working for the entity requesting the audit is of vital importance. The authenticity of data is a key to the successful execution of an energy audit. The presentation of an energy audit is an event, whereby we are educating the customer, investor, business financier, the user and in fact all participants in the decision-making process with regard to efficient energy use and investments. A presentation of an energy audit is the first step to the implementation of organizational measures and establishment of favorable conditions for the implementation of investment proposals of the energy audit. Figure 1 presents an approach to an energy audit.

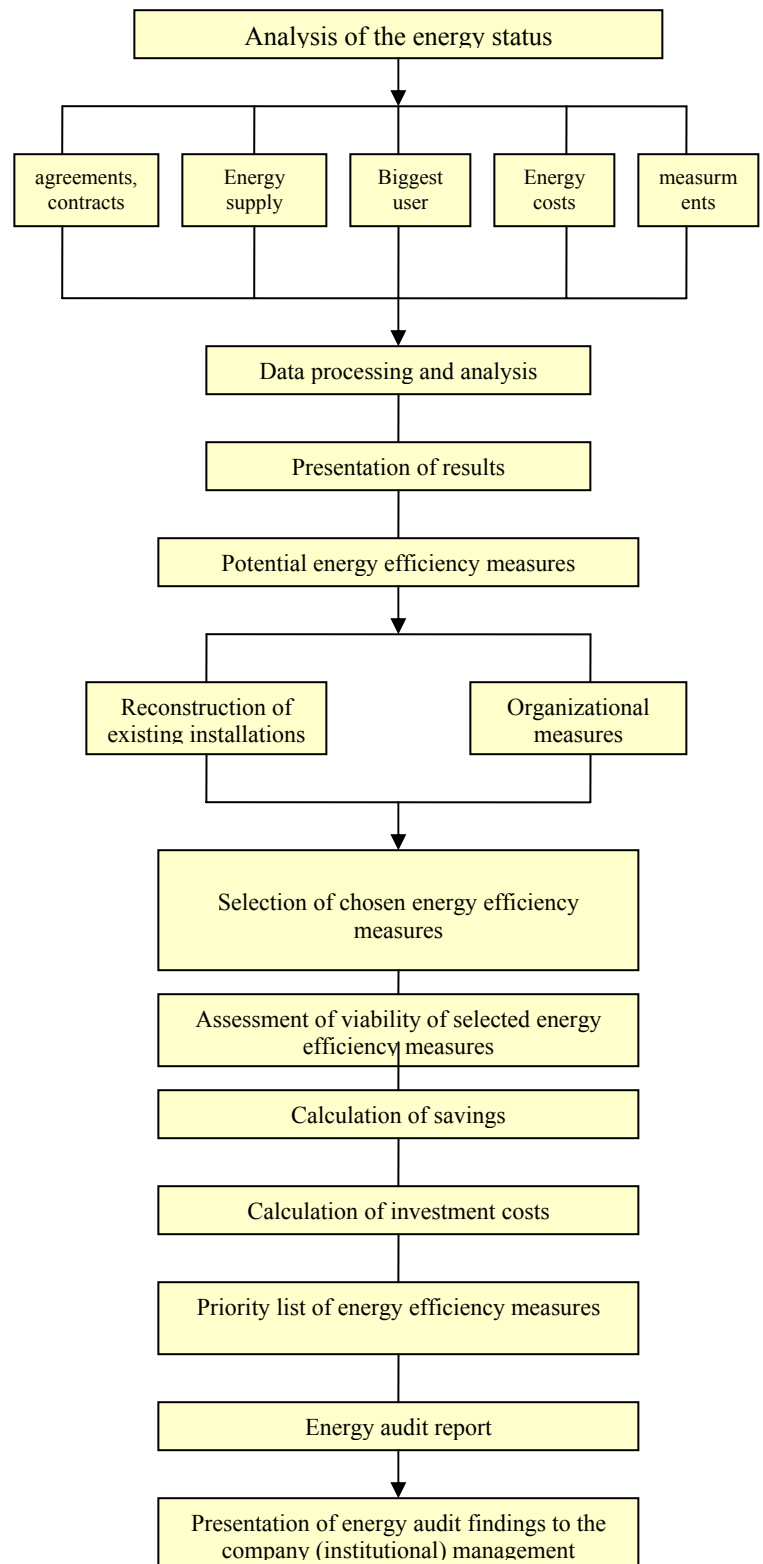


Figure 1: Energy monitoring (dr.J.Krope, dr.D.Goričanec)

### 3 Energy management is a result of guided process

The pressures of high technical market economy direct the business systems to the continual change and adaptation of quality level of operation to the level of consumer's profit. New energy issues dictate the redefining of economic interests in the wake of the recognition, that the natural environment is a limited production factor and not, as had previously been considered, only the supplier of raw materials. These have previously been free goods without an assigned market value, while the environment has been an agent for the neutralisation of wastes and emissions of production and consumption. The integral-orientated mentality represents a deviation from the previously established linear way of thought and activity, which is no longer sufficient in the light of the contemporary complexity of events. However, these one-dimensional elements are soon faced with insurmountable obstacles. This is why the integration of energy goals into the system of entrepreneurial policy is so vital. In theory, we can distinguish the ones, which pertain to the inflow (rational use of raw materials, materials, energy), and those, that relate to the outflow (absolute limitation of waste and emissions), with the simultaneous maximisation of waste re-use [10].

The continual adaptation for enforcement of competitive ability of professional system dictates the stimulation of creativeness, intensity and novelty. That's why the state measures and people's habits enable in the innovative society, that it exists and has the supremacy:

- Contemporary e.g. creative democratization in the whole society, all associations and mutual relations,
- Contemporary, e.g. to the tenderness very demanding market and so the authority of innovative instead of skilled workers,
- Contemporary comprehension of ownership, which sense is not the interest for incomes as in the Middle Ages (not " the right to the use and misuse" as in Roman law), but the interest for the competitiveness, inclusively with social profit, on the basis of innovation creativeness,
- Contemporary comprehension of innovations,
- Contemporary e.g. innovative operation,
- Contemporary e.g. innovative enterprise, that is not defined as ownership (of smaller) companies, but as innovative administration of innovation and innovations,

- Innovative society tries today to achieve purposely also with measurements for "the society of perfect quality" [1].

Today many enterprises still compete with the environment unkind products and technological instruments. The ability of competition with the world competitiveness also means the ability of competitiveness in energy objectives. We need " the common viewpoint. The care for the environment and the permanent development depends first on administrative workers and their collaborators on all hierarchic levels. "That's why with system and systematic research and innovation of relationship between the people in the enterprise, who has for consequence also the product or service, it appears with them equivalently the system and systematically innovation of starting point for the individual (professional) deciding, that has for the consequence the knowledge examination, communication and professional label or (entrepreneur's) culture. [3]

Table 1 and Figure 2 present a case-study of efficient technological and economical energy management, along with a methanol process.

Exchanger	Existing area (m <sup>2</sup> )	New area (m <sup>2</sup> )	Additional area (m <sup>2</sup> )	Depreciation (USD)
E2	410.0	639.9	229.9	110 010
PH2	340.2	397.8	57.6	34 870
C2N	0.0	92.4	92.4	67 110
A	0.0	36.7	36.7	39 470
N	0.0	57.6	57.6	50 360
Cost of moving C1,E3,C2				900
Cost of repiping				400
Σ				303 120
Additional annual depreciation cost:			74 200 USD per annum	
Cost of additional fuel:			- 69 330 USD per annum	
Cost of reduced 37 bar steam production:			- 154 300 USD per annum	
Cooling water saving:			23 760 USD per annum	
Additional methanol production:			4 989 250 USD per annum	
Additional 37 bar steam production:			389 590 USD per annum	
Additional 3.4 bar steam production:			68 330 USD per annum	
Total additional annual income:			5 247 600 USD per annum	
Additional profit:			5 173 400 USD per annum	

Table 1: Cost analysis of optimal retrofit obtained simultaneously by using NLP[6]

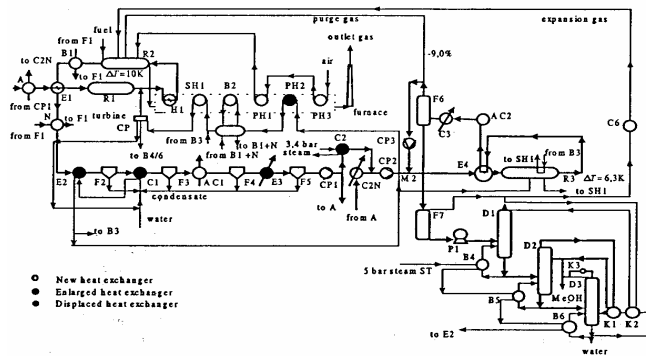


Figure 2: Methanol process flow diagram for optimal Retrofit [6]

The care for the enterprise and so the care for environment and permanent development claim (dialectic) system reflection:

- The creative collaboration enables the use of different viewpoints, so the totality of reality is better realized,
- The specialists are inevitable, but for themselves only partly useful, because they see and consider only that part of reality, that the chosen point of view enables them because of the specialisation
- Without collaboration they can not supplement to achieve the synergy, that they can not manage individually, but it is urgent,
- The environment protection is realized more successfully with the system of viewpoints, that many individually creatively enforce them.

#### 4 Innovation of administration - the stimulation of energy innovations

In the coming years the relationship to the energy management will be the key component of competitive ability. The role of leadership is so directed to the change of starting points of professional philosophy.

One point of view of administrative measurement is substituted with many points of view, inter structural creative collaboration. The environment protection and permanent development is a complex process, where the earlier events have more influence than the later one. From here it originates the sense of activity planning of these, who administrate, who define the aims, who organize and so on. The inadvertence of independence between the parts of totality, that's why also synergic characteristics of the totality, which parts do not have as an individual part, it leads to simplification, that has in case of environment protection the catastrophic experience. Experience

show that the environment protection and permanent development as a part of entrepreneur's philosophy is not carried into effect enough; this is so because of administrative workers, who were used to make decisions independently without collaboration of other experts. Without participation of everybody in the chain sequence and from here resulting co dependence it is not possible to expect the good results. The partial solution gives the partial results. The business system is not isolated from the environment, but it is co indedently interweaved with other business systems, that's why the environment protection and permanent development are also results of social environment. The systemic reflex ion with the administration is necessary [2]. System/whole way of reflex ion

- Co dependence, relationships, connection, openness, dialectic system of view points,
- Complication of kind complexity (and kind complication,
- Attractors (attracted, influential powers),
- Emergence, originating of new characteristics of totality, which parts alone do not have,
- Synergy, system, synthesis, new totality with new characteristics
- Totality, entireness, a big picture inclusively with details, characteristics of parts and connections and their consequences,
- Networks, mutual influences main subject of reflex ion.

No system/old way of reflexion:

- Independence, dependence, unconnection, closure, only one point of view,
- Simplicity or complication of complication alone,
- Isolation without attracted, influential powers,
- New characteristics, which would be consequences of relationships between parts in a totality, do not come into existence.
- Parts and partial characteristics as the only one, analyses without synthesis,
- Mutual influences outside attention of reflexion [2].

Innovation is necessary on all domains and everybody is included in innovation. The role of management is shown in creativeness for the support of collaborators' creativeness. The administrative innovation is so a segment in the innovative business system. From collection of the individual knowledge it comes to the system that is based on interstructural creativeness co dependent on collaboration of different branches. The administrative innovation is a result of team - projected work, supported with continual education of all collaborators in the company, from the basic to the highest hierarchic level and with continual

changes in the sense of improvements. The supported leading stimulates collaborators to the responsible behaviour and so it influences on the business system as well as on ecological system. In the example of environment protection it is necessary that we are as much collaborative, creative and target directed as possible. The aims follow the basic and operative:

- The permanent preservation of vitality of nature, biological variety and autochthonism of biotic sorts, their habitats and ecological balance,
- Preservation of variety and quality of natural goods, natural genetic fund and preservation of ground fertility,
- Preservation and renovation of variety of this culture and aesthetic value of region and natural valuable nesses,
- Decreasing of natural sources use, substances and energy,
- Gradual transition to the use of renovated natural sources,
- Prevention of danger and decreasing of charges on the environment,
- Abolition of environment harm and repeatedly
- Restoration of regenerated abilities.

To the purpose of environment preserving development, the aims of environment protection are also:

- Changes in production and samples of use, that contribute to the minimisation of natural sources use and creativeness of waste,
- Development and use of such technologies, that decrease and suppress environment charges,
- Use of harmless and decomposed chemicals and substances that have not been accumulated in alive organisms.

The dynamic creativeness of administration is important with the realization:

- Dynamic creativity management has its field of application as an approach for handling complex problems, i.e. as a supporting tool in the process of attain sustainability.
- The whole process of creative problem solving - logical-analytical procedures based on convergent thinking as well as creative intuitive procedures based on divergent thinking.
- The whole process of creative problem solving is a complex system in itself, dynamically changing over time, with permanently interacting system elements, it requires a systems thinking perspective in order to be understood and applied [2].

## 5 Conclusion

In the words of Elkington [4] “sustainability is the principle of ensuring that our actions today do not limit the rabge of economic, social, and environmental options open to future generations [4].

The content and methods of administration and leading have an essential meaning for dynamic adaptation of business systems in relation to marketing economy. From the cognition, that the innovation brings better exploitation of all potentials, also on the domain of environment protection, it results the measurement of responsible people with the administration of business systems. The whole treat of environment in the administration and leading of professional processes is inevitable condition for the preservation of natural balance in the environment. Punctual creativeness and direction are results of relationship managers have to the environment.

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