

THE NEED FOR MANAGERIAL ACCOUNTING ORGANIZATION IN THE ENERGY SECTOR IN ROMANIA

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Abstract:

The energy sector, an industry sub-branch, is the basic strategic infrastructure of national economy, on which the entire development of the country is based. At the same time, energy represents a public utility with a strong social impact. The particularities of the energy sector, such as: long implementation periods for various sectoral policies, reaching the aimed strategic objectives, large capital needed for the development of this system, the necessity of achieving production simultaneously with consumption, and others, require the existence of **medium and long term strategies**, as well as the **organization and implementation of management accounting** in order to ensure an operational information basis for increasing the efficiency of activities run by managers that operate in this system.

Key words: energy sector, sustainable development, energy consumption, management accounting, costs.

JED Classification: M40, M41.

Introduction

In the literature, the concept of managerial accounting has undergone a slow evolution. In recent decades, the use of **analytical accounting** term has had a limited duration. This has emphasized the approach of only one section of accounting, namely, the particularization of financial statement structures, such as assets, liabilities, equity, processed and analyzed in terms of managerial accounting. When we say "internal or analytical accounting, we do not understand, by reflex, a set of accounts which illustrate the processes generating economic changes, but all the calculations in order to obtain the information required by the business management, on all its levels and in all its depth, to achieve the basic and strategic objectives of the organization" (H. Cristea, 2003, p.15).

Gradually, the term analytical accounting was restored to date, being replaced by the **management accounting**. Initially called industrial accounting, during the industrial revolution, it served as part of the general accounting. In foreign literature, the development of the internal informational system determined the usage of the terms accounting and cost control. Thus, "in the Anglo-Saxon sense, it is mentioned of **management accounting** and in German, the term **kostenrechnung** is used, which means costing" (T. Aslău, 2001, p.97).

Materials and Methods

The research type used is, on one hand **quantitative research**, based on the principles of *positivism*, and of *neo-positivism* and, on the other hand, **fundamental research**, aimed at deepening the theory.

The challenge that was the basis of this scientific approach has been to emphasize the need for cost type information to assist the management process. If qualitative research plays an increasing role in research in management, their status is not yet clear (Giordano, 2003). There are many views expressed which are based on qualitative research, but which are in danger of confusion, without a comprehensive consultation of specialized literature.

Results and discussion

The concept and the purpose of managerial accounting

The information helps any decision maker to keep under permanent observation the deployment of business processes in every sphere of activity, and offers the possibility to act operatively on them. Management information is used by the leadership factors of economic entities as product of management accounting. Sometimes "*the information is reliable, but irrelevant. Sometimes, it is relevant without being plausible. In both cases, however, it is not useful*"(S. Briciu, I.E. Popa, I. Oprean, O. Bunget, C.Pereş, Ş. Pete, 2009, p.12).

Regarded as "*a specific way of processing accounting information*"(I.P. Pântea, G. Bodea, 2008, p.16), management accounting aims to know the costs of the different functions of the entity, to provide the assessment base for the goods of own production, to explain the obtained results, to establish the predictions. Achieving all these objectives requires the adoption of an appropriate method of calculation.

One of the compelling needs of the energy sector is managerial accounting organization and management by implementing modern methods of costing, able to facilitate the determination of performance.

Management accounting has long ceased to be a sequence of numbers, summed and recorded. Numerical side of it was gradually replaced with managerial side, now being an essential factor in making management decisions. The reason for this replacement is the major role held by the provision of information, necessary for planning and evaluating success, in the life of an entity. Management accounting "*quantifies and reports financial and non-financial information that helps managers in making decisions which will enable the goals of an organisation. Managers use the management accounting information to choose, communicate and implement strategies*"(C.T. Horngren, S.M. Datar, G. Foster, 2006, p.3).

Given the fierce competition and the increasing complexity of business relationships at domestic and international level, optimizing the activity of an entity is conditioned by assisting the decision-making process on various hierarchical levels of management process. Basically, slowly but surely, managerial accounting was established in the main source of information and assistance of decision-making.

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The term management accounting is not incorrect, but it does not place in the foreground the ultimate purpose of accounting information, namely serving the decision making process. The causes that led to the use of **managerial accounting** term were

simple, involving the essence of the management concept, designating a set of principles and methods of management, as well as the individuals involved in its practical application.

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The purpose of managerial accounting to provide relevant and reliable information for the decision making process is done as follows: it grows on many levels and collects information on the costs acquired from cost accounting, information on sales acquired from marketing, information on risk management acquired and processed with statistics and probability theory instruments, information on investments which will be processed through investment finance instruments, technical information will be interpreted by using specialized technical knowledge and the format of the data processed and all judgments resulting from them will be achieved by means of management.

Characterized as *"a flexible accounting, that is adaptable to all units, whatever the size, activity and structure"* (D. Matiş, A. Pop, 2007, p.40), management accounting covers financial accounting deficiencies in the internal management of the entity.

Starting from the premise that management accounting is also a management tool, new attributes have been conferred to it, such as managerial accounting.

Energy consumption in the context of sustainable development

The energy industry is a highly important economic sector for the economy and social life. The products of this industry are electric and thermal power.

In analyzing the environmental effects of the energy industry, energy consumption becomes important through specific consumption, which influences energy intensity. The factors influencing this consumption are the performances of technology, of the equipment which uses electricity, the characteristics of the construction expressed by the thermal coefficients. Their calculation depends on the characteristics of the building, destination etc.

The world's top 20 ranks in terms of global energy consumption are as follows:

Global statistics on electricity consumption

Table 1.

Rank	Country	(KWh)	Information date
1	United States of America	3.873.000.000.000	2008 estimates
2	China	3.438.000.000.000	2008 estimates
3	European Union	2.906.000.000.000	2007 estimates
4	Russia	1.023.000.000.000	2008 estimates
5	Japan	925.500.000.000	2008 estimates
6	India	568.000.000.000	2007 estimates
7	Germany	547.300.000.000	2007 estimates
8	Canada	536.100.000.000	2007 estimates
9	France	447.200.000.000	2007 estimates
10	Brazil	404.300.000.000	2007 estimates
11	South Korea	385.100.000.000	2008 estimates
12	Great Britain	345.800.000.000	2007 estimates
13	Italy	315.000.000.000	2007 estimates
14	Spain	276.100.000.000	2008 estimates
15	Taiwan	229.800.000.000	2008 estimates
16	Australia	222.100.000.000	2007 estimates
17	South Africa	215.100.000.000	2007 estimates
18	Turkey	198.100.000.000	2008 estimates
19	Mexico	181.500.000.000	2009 estimates
20	Saudi Arabia	165.100.000.000	2007 estimates

Source: Personal processing of the data accessed
http://travelers-way.com/Curiozitati/consum_eletricitate.html

Environmental effects of fossil fuels occur on different spatial scales. Thus, locally high concentrations are recorded near power plants and the neighboring ecosystems are affected. The distance at which ecological effects are felt depends on the particularities of pollutant dispersion, process influenced, in turn, by the emission particularities - chimney height, the amount of pollutant - and atmosphere particularities - wind speed and frequency, the presence of precipitation, physical barriers etc. At regional level, the cumulative effect of sulfur oxides and nitrogen is recorded, while, at global level, greenhouse gas accumulation effect occurs - carbon dioxide, nitrous oxide and methane.

Sustainable development is an economic growth strategy designed to reconcile the economic and social progress without jeopardizing the natural balance of the planet. The real challenge of the future is not the environmental performance, but avoiding its degradation by developing a sense of responsibility, both at grassroots level and at entity level in order to ensure rescuing sustainable development for everybody.

Environmental accounting expresses the emergence of a new ethic, responsible for the human concern on the planet becoming. Nowadays, starting from environmental damage, we arise the issues regarding the destructive activity of the entities and their awareness ahead future generations.

Environment protection is one of the current concerns of modern entities and their role in achieving it tends to be more pronounced. In order to develop such capabilities, it is necessary for the entity to develop a system of environmental management and, within it, accounting plays a key role. "Environmental accounting is a methodology for quantifying the costs and the effects of environmental conservation activities" (L.M. Rof, D.C. Dănuleşiu, 2010, pp.899-905). By introducing environmental accounting, the entities seek to improve the effectiveness of environment conservation efforts and implement sustainable development policies with long-term measurable results.

The main objective of environmental accounting is the accounting management reform to allow entities to improve their profitability by reducing costs. Basically, environmental accounting is a tool through which the entities can modify existing accounting systems to provide information on environmental costs to managers.

Initially integrated in social accounting, environmental accounting occurrence is influenced by three decisive factors: legislation, stakeholder pressure and cost development.

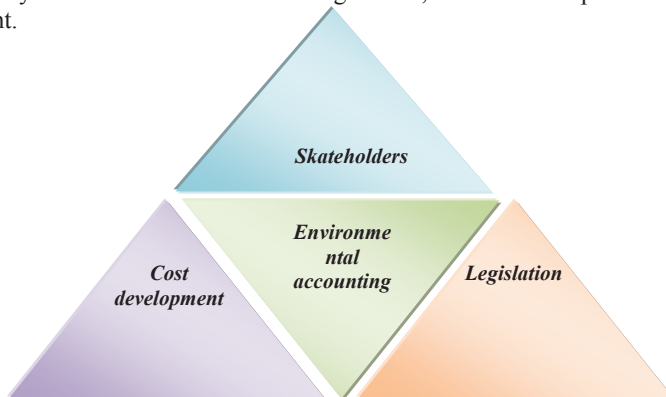


Figure1. The determinants of environmental accounting emergence
 Source: Schaltegger and Burritt (2000), Beauchamp (2005) and Cornier, et al. (1993)

In developing strategies and development policies of the entity, managers must also consider the environmental costs. "The environmental costs are expenses related to pollution prevention and environmental degradation, pollution and environmental assessment, remediation of degradation and environmental pollution" (S. Briciu, 2006, p.101).

Environmental costs are expenses whose benefits have expired, they are no longer valid. These expenses find their balance in the profit and loss account, on income. Despite the large amount of these costs in many industries, no financial-accounting standard requires delimitation and separate recognition from other expenses and income, although for example in Australia, corporate law requires differentiated reporting. Environmental risks are part of the set of risks faced by an organization throughout its activity, and it is important that they are recorded and reported separately, especially when they entail financial risks. If no account is taken of this transparency, equity holders will not be able to properly assess the risk of their investment. Separate treatment of environmental costs allows investors and other financially interested

parties to outline a true picture on economic performance, as well as future opportunities and menaces.

The tools specific to environmental accounting are in permanent evolution. They are real elements for sustainable development. The report on environment uses a set of physical indicators for the health surveillance of land resources. The main instruments for environmental management accounting available to the entity are:

Instruments used by entities in environmental accounting

Table 2.

Field of activity	Instruments
Cost control	- Submission cost method - Activity-based accounting - Full cost - Life cycle analysis - Hierarchical analysis of costs
Financial analysis	- Total cost assessment - Multiple criteria assessment - Environmental risk assessment and uncertainty analysis
Performance assessment	- Ecocontrol - Environmental coefficients - Balanced dashboard

Source: Bennett et.al. (2002)

Among the methods listed in the table above, five will be detailed further, which are the most developed and used in enterprises. These are: the submission cost method, activity-based accounting, full cost method, the method of full cost based on life cycle analysis and eco-control. While the submission cost method, activity-based accounting and eco-control are limited within the company's borders, full cost method and the method of full cost based on life cycle analysis take into account the externalities generated from within the organization.

An integrated cost calculation system should include: *full cost accounting*, *direct costing*, *process costing* and *target costing*.

Overview of the main categories of environmental costs

Table 3.

	Costs for environment protection		Material and energy flow costs	
	Current / past costs	Future costs	Current / past costs	Future costs
Individual calculations	Emission reduction costs (VDI 1979, UstatG 1974)	Environmental Budgets (Wagner and Janzen 1991)		
Direct costing	Environmental direct costing (Roth 1992, Kloock 1990, 1993, 1995) Multi-stage direct costing (Schreiner 1988)	Establishing future environmental costs (Freese and Kloock 1989, Roth 1992, Kloock 1993, 1995)		

Process costing	ABC (Ditz et. al. 1995, Heller and Shields 1995) Environmental process costing (Herbst 2001, Seidel andHerbst 2001, Letmathe 1998)	Activity Based Budgets(Borjesson 1997)	Material and energy flow costs (Fichter et. al. 1997, Kunert 1995, Spengler et. al. 1998, Fischer andBlasius 1995) ABC on material flows (Schaltegger and Muller 1998)	Activity Based on material and energy flow (Schalteggerand Burritt 2000)
Target costing		Costs on environmental target(Seidel andHerbst 2001, Herbst 2001)		

Source: Schaltegger, S., Wagner, M., Current trends in environmental cost accounting – and its interaction with eco-efficiency performance measurement and indicators, 2005.

Based on the general objective of the Sustainable Development Strategy of the European Union, the National Sustainable Development Strategy of Romania sets that the eco-efficient management of resource consumption and their maximal capitalization should be achieved by promoting a model of consumption and production that allows long-term sustainable economic growth and gradual allignment to the average performance of EU countries. To promote this model, the strategy determines the need for employing a permanent and regular dialogue with business associations and social partners in order to agree on some ecological and social performance targets for the main products and processes. In this way, the achievement of the set objectives requires a proactive approach from the entities regarding environmental issues.

Conclusions

Regarding the involvement of companies from Romania in environmental issues, we will make an analysis based on the expenses incurred by them for environment protection.

In Romania, the expenses for environment protection made by the economic producers are shown separately for non-specialized operators, ie those running an environment protection activity as a secondary or ancillary activity to their main business, and for the specialized economic agents, which include units engaged mainly in environment protection activities.

Environment protection expenses by type of expenses and types of producers

Table 4.

	2006		2007		2008	
	Rated values	%	Rated values	%	Rated values	%
Specialized producers (total), of which:	5297304	68	7039354	72	8328234	65
- investments	793154	10	1048084	11	1716516	13
- internal current costs	4101018	53	5487074	56	5637738	44
- external current costs	403132	5	504196	5	973980	8
Non-specialized producers (total), of	2460918	32	2743422	28	4516525	35

which:						
- investments	1125384	15	1329980	14	1550499	12
- internal current costs	961416	12	913847	9	2153762	17
- external current costs	374118	5	499595	5	812264	6
Total costs environment protection producers	7758222	100	9782776	100	12844759	100

Source: processing the data provided by www.insse.ro.

Based on these data, it can be seen that the total expenses on environment protection at the producers' level, the significant share is held by the expenses incurred by the specialized producers (65% in 2008) rather than those incurred by the non-specialized producers (35% in 2008). They evolved contradictorily as a structure during the analyzed periods, but analyzed in time, they showed an upward trend. In 2007, compared to 2006, the share of expenses incurred by the specialized producers, in total environment protection expenses, increased in absolute value with 1,742,050 thousand RON and in relative value by 33%, following that in 2008, compared to 2007, they increased in absolute value with 1,288,880 thousand RON and relative value by 18%.

Analysing the other component considered, namely environment protection expenses incurred by non-specialized producers, it appears that they have experienced significant growth in 2007-2008. Thus, in 2007, compared to 2006, they increased with 282,504 thousand RON in absolute value, following that in 2008, compared to 2007, they increased in absolute figures of 1,773,103 thousand RON, or by 65% in relative value.

The explanation for this development is given by the integration into the European Union and the need for the entities to respect the environmental requirements imposed by the community acquis.

The author's contributions

Personal contributions can be summarized as: revealing the state of knowledge and research in managerial accounting, emphasizing the important role it plays in the entity's information system; signaling the importance of cost type information in management process and emphasizing the innovative role that costs play in decisional-informational process.

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