Emissions trading in financial statements: new Italian accounting standards

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Abstract: Interest in the topic of sustainable business derives from the realization of the scale of the detrimental environmental effects provoked by industrial activity. Consequently, a growing sense of responsibility, at both a political and corporate level, regarding environmental protection, is developing. This paper examines the issues surrounding the recent publication by the Italian accounting association (Organismo Italiano di Contabilità: OIC) of two new accounting standards concerning environmental protection: OIC 7 - energy from renewable sources[1], and OIC 8 on the emission of greenhouse gases.
After a brief introduction on the role of international accounting standards and their relationship with national principles, we shall explore the devices employed in Italy for the control of emissions regarding sources of renewable energy and greenhouse gases, including how they are treated in accounting procedures.

Keywords: Sustainable Business, Environmental Cost Management, Environmental Management Accounting

Introduction

The topic of environmental sustainability involves various disciplinary areas and should be seen as an indispensable value in the model of modern development, no longer measurable just in terms of wealth, but in the wider, long term regarding respect for nature. Thus, also public and private institutions are, directly or indirectly, increasingly involved, and are responsible for the result of their actions on the environment.

Even from a business management perspective, attention and protection of the natural environment are widely accepted values by companies of all types and sizes. Modern business interacts with the external environment using new dynamics, mostly unknown in the past; it is projected in an increasingly extended manner, defining its impact on sustainable development as being of prime importance.

The still ongoing process of development, started back in 1900, has determined today's business reality as totally involved in a coherent action in the field of environmental protection. Even then, the issues to be addressed concerned political and social fields, as well as economic (RH Coase, 1960), which needed to be examined both at a theoretical and conceptual level, as well as practical. Today, although the debate continues, we are in a phase which greatly needs more operational actions. Some instruments have been developed on the basis of social and economic

[1] Green Certificates were first introduced in Europe, in Holland, in 1997, as a method of obliging companies to use energy produced from renewable sources. The innovative system came from Dutch electric energy producers who, through their EnergieNed association, voluntarily set emission allowances. This agreement was later made public through a law called "Environmental Action Plan 2000". On the basis of this agreement, a green labels market was created, parallel to a market where the corresponding physical quantity of renewable energy was exchanged. Following implementation of Directive 96/92/EC the green certificate market system became obligatory, with the Government attributing emission allowances and the contemporary halt of the voluntary system, from 2001.

theories and empirical research, helping to correctly determine, monitor and control the scale of the impact that companies have on sustainability.

Ongoing debate in the EU on environmental responsibility of companies also has "approached the point where emphasis should be shifted from 'processes' to 'outcomes', resulting in a measurable and transparent contribution from business in the fight against environmental degradation in Europe and around the world"[2].

We are now seeing the widespread diffusion of information tools designed to support the activities of government and improve standards of disclosure. Also with regard to mandatory disclosure regarding financial statements, it is clear that there is more receptiveness to requests coming from the economic environment and, therefore, not so far from the new development model based on environmental protection. Various initiatives that the European Union has implemented in accounting derive from this change. Civil law relating to financial statements unfolds on different perspectives which mainly concern protection of the various stakeholders and the establishment of the legal situation concerning accounting rules, seen as the main element regarding the evolution of the role of business in modern society.

This path explains both the legislative and jurisprudential evolution, and the modified doctrinal thinking on the relationship companies have with the environment. Therefore, the many EU initiatives on accounting are flanked by several interventions, often of remarkable relevance, from different countries, including also Italy. In the context of the conceptual framework just outlined, which will be further analyzed, the objective of this paper is to clarify the content and purpose of the recent standards issued by the Italian Accounting Association (Organismo Italiano di Contabilità: OIC) OIC[3] on the so-called "green certificates" (OIC 7)[4] and "gray certificates" (OIC 8). The choice to focus on these issues was inspired by lively debate on the need to define adjustments relating to international agreements on climate change, in particular, related to the link between the system of trading emissions of the European Union and renewable energy in accordance with the guidelines of the Kyoto Protocol[5].

After dealing briefly with the evolution of the dynamics of financial statements, in order to highlight the action of national and international accounting principles, this paper focuses on issues related to the production of energy from renewable sources and emissions of gas from companies and the related OIC standards, OIC 7 and 8. Finally some concluding remarks have been formulated.

1. Financial statements and the main Italian and international accounting standards

In the early 2000s, new interests with regard to the dynamics of financial statements were the subject of numerous measures for the implementation of EU directives aimed at improving the quality of information. Initially, the process implemented by the European Union to reduce the differences between financial statements of the different nations was based on the issuance of Directives[6] within a program of harmonization of company law. The Directives, however, did not bring about a good level of comparison, and effective solutions were not forthcoming concerning preparation and use of financial statements of European companies. Instead, a simple 'formal equivalence' of national accounting norms was obtained. During the debate between the European Commission and

[2]EUROPEAN PARLIAMENT, 2004-2009, Session Document A6 0471/200620.12.2006, Report on Corporate Social Responsibility: a new partnership (2006/2133 (INI)), Committee on Employment and Social Affairs. Rapporteur: Richard Howitt, n.7.

[3] OIC (Organismo Italiano di Contabilità – Italian Accounting Association) arose/was born from the keenly felt need of both the private and public sector in Italy for a national standard setter, endowed with wide representation attributes, able to express national issues in accounting, in a coherent way. The OIC was set up as a foundation on 27 November, 2001. (www.fondazioneoic.eu)

[4] These principles were approved by the OIC Foundation on 7 February 2013.

[5] The Kyoto protocol is an international environmental treaty regarding global warming, signed in Kyoto, 11 December 1997, by more than 180 countries, during the COP3 Conference of the United Nations Framework Convention on Climate Change. The treaty was implemented on 16 February 2005, after also being ratified by Russia.

[6] The status of Directive, usually implemented by national jurisdictions and also approved by law, makes it suitable for accounting normalization, by nature inclined to promptness, uniformity and legal certainly. The modification or issuing of new directives, which is inevitably necessary, involves long activation times, requiring political intervention (approval of laws proceeded by analysis and implementation). This often means that accounting regulations being dealt with have been superseded by more widespread regulations or even in contrast with more accredited International techniques.

Member States, it became increasingly clear that the process of harmonization, based on simultaneous compliance with accounting traditions of the various European countries and the acceptance of minimum requirements imposed by the Directives, did not allow for the delivery of results expected. In addition, we witnessed the increasing need for comparability that could only be satisfied by the use of a corpus of accepted accounting standards at a broader level. Therefore, a strategy was launched for application of internationally accepted accounting standards: IAS, now IFRS. Thus, since 1 January 2005, financial reporting requirements in accordance with these standards, initially issued by the IASC[7] became mandatory for companies trading on regulated markets in any of the member states. The institutional purpose of IASC was: "To develop a single set of high quality, understandable and enforceable accounting standards to help participants in the world's capital markets, and other users, make economic decisions"[8]. From 1999, a strategy was implemented to amend the IASC and, from 1st April 2001, the task of preparing the accounting standards was entrusted to a Board called IASB.
The acceptance of international accounting standards in our legal system triggered a series of problems related to the huge difference between them and those envisaged by Italian civil law. The problem has been tackled at a technical level by the OIC, which has the task to draw up Italian accounting standards for the preparation of financial statements and consolidated financial statements in compliance with the law, by coordinating its activities with those carried out by other European bodies, and assisting the national legislature in accounting matters, in order to incorporate the principles of international accounting standards. The OIC has prepared a series of national accounting standards and guidelines[9] in order to lay the groundwork for the current civil law approach to EU directives and international accounting standards, with clear benefit for comparability of financial statements. With regard to the implementation of European and international policies to protect the environment, the Italian Accounting Board, upon approval of specific accounting principles for environmental protection, has introduced accounting criteria for market mechanisms aimed at boosting environmental protection measures, so as to reduce harmful emissions and increase energy efficiency of industrial processes, and the application of new technologies with low environmental impact[10].

Green certificates and energy production

The production and use of energy from renewable non-traditional sources and the resulting level of environmental impact, have made it necessary to resort to a series of interventions aimed at the use of alternative sources of renewable energy that lower the effects of environmental pollution. These are sources the use of which does not affect natural resources, as they typically regenerate and are considered inexhaustible. Usually, the following sources are considered as renewable:

- Wind (often further divided into onshore and offshore)
- Solar (often further divided into photovoltaic and thermal)
- Wave (often further divided into onshore and offshore) and tidal (often further divided into onshore and offshore)
- Geothermal
- Hydro (often further divided into small - microhydro - and large)
- Biomass (mainly biofuels, often further divided by actual fuel used).

At the same time, there has been an increase in economic instruments suitable for the control of emissions[11] such as Green Certificates - terminology used in Europe - also known as Renewable Energy Certificates (RECs) in the USA, that represent the environmental value of renewable energy generated. They represent a novelty, in line with the international commitments made at Kyoto and with the guidelines contained in the White Paper on

[7] IAS principles were originally formulated and published by the International Accounting Standard Committee (IASC), created in 1973 on the basis of an agreement between the main professional world organizations.
[8] Site: www.iasb.org.
[9] See "Statuto di Costituzione dell'Organismo Italiano di Contabilità" art. 3, (www.fondazioneoic.eu)
[10] "*Presently, there is no authoritative accounting literature in either IFRS or U.S. GAAP that addresses these issues. Both the IFRIC and the EITF have previously considered the accounting for emissions trading schemes, but neither issued guidance that was implemented in practice"*. International Accounting Standard Board, Information for Observers, 20 May 2008, London.
[11] Today, the principal quantitative instruments in use for controlling emissions are "base line and credit" and "cap and trade".

renewable energy, resulting in an action of incentive-based market rules that minimize the burden on the community and are more suitable in a liberalized context.

Their own mechanism is based on the obligation, through legislation, for producers and importers of electricity produced from non-renewable sources, to put annually, a minimum share of electricity produced by plants using renewable sources, into the national electric grid. In other words, the producers of fossil fuels are required to transform an annual percentage of their production from fossil fuels to renewable; if they do not, or can only do so partially, they must purchase green certificates in amounts corresponding to the non-transformed quota and forward them to the GSE (Gestore Servizi Energetici)[12] (Manager of Energy Services). Instead, those who produce from renewable sources are granted a Green Certificate for each MWh produced, every year, which they may trade, that is, grant to producers from fossil fuels that have not reached the required quota. The Green Certificate in bearer form can then be traded freely both through the platform of the Manager of the energy markets, and with bilateral contracts between the parties. Their use aims at the creation of demand for energy from renewable sources based on a legal requirement that increases a corresponding energy offer from renewable sources. Accordingly, anyone who produces or imports energy from non-renewable sources is obliged to include a specific percentage of energy from renewable sources in his production or importation, calculated on the amount of non-renewable energy produced in the previous year. Alternatively, as seen, green certificates equivalent to the amount of the obligation can be bought on the market. They are valid for three years and must be pertinent to the output obligation of that year of production or the following two years.

OIC 7: accounting treatment of the production of electrical energy from renewable energy sources

We shall now address the accounting treatment required by OIC 7 for green certificates in financial statements. As seen, green certificates certify that an amount of energy was produced from renewable sources. Each certificate covers the output of the reference year and the following year it is used, and forwarded to the Network Manager, in order to be canceled as proof of compliance with the green portfolio relative to the operator concerned. It can also be requested with reference to expected production for the following year. The mechanism foresees that GSE may issue preventive or consumptive certificates.

Preventive certificates are related to expected production and may be issued in the current year or in the year preceding production. Also green certificates issued on the basis of monthly measurements of generated energy are part of this type. If actual production is lower than expected production (production deficit) the producer must return the green certificates issued in excess. Alternatively, the GSE can compensate for the difference by holding certificates which apply to other installations for the same year or by using the certificates for the year following the one which produced a deficit. Instead, if actual production is higher than expected (over-production), the GSE will issue a number of green certificates for the excess amount.

With regard to green certificates issued in consumptive, emission takes place in the year following the one in which the production was realized in a quantity equivalent to the same production. Producers and importers of electricity from non-renewable sources must deliver green certificates to the GSE equal to their requirement by 31 March of the year following the reference year.

The mechanism of green certificates is an incentive for companies that produce energy from renewable energy sources and penalizes those that produce from non-renewable sources. For the former, the certificates can be considered as a supplement to income for the period which offsets the higher costs associated with the production of energy from renewable sources. For producers from non-renewable sources, however, the mechanism involves an increase in production costs related to the purchase, on the market, of certificates which are necessary to comply with legal obligations.

Accounting treatment for companies that produce energy from renewable sources.

[12] Green certificates are issued by the Manager of Energy Services (GSE) and each of them contains evidence regarding the production of 1 MWh of renewable energy.

In the case of companies that produce energy from renewable energy sources, certificates can be sold on the market or recalled from the GSE at a price established by the reference standard. In preparing the annual financial statements, the company registers the amount due the GSE under assets, and the related income in the income statement under accruals. The revenues of the certificates received are recognized in the period in which production took place, and in proportion to the production itself. Their sale generates income that has to be recorded in the income statement and a credit to be shown under assets.

If the sale of preventive green certificates occurs during the period of competence, the entire revenue is shown. However, if a part of the amount is not accrued at the year end due to a production deficit, a deferred income for the share of revenues is recorded, to be dealt with in the future. In the case of over-production, it is necessary to integrate the revenues concerning the release of other green certificates by the GSE. If the company carries out a sale after the end of the year, the difference between the book value and net realizable value is calculated and any profit or loss is shown. The company must highlight the issuance of preventive green certificates received in the memo accounts in relation to the commitment to produce a proportional amount of green energy certificates received. The commitment is written for the expected value of the withdrawal guaranteed by the GSE. At year end, the actual energy production determines the total or partial cancellation of the memo accounts.

Accounting treatment for companies that produce energy from non-renewable sources.

For companies producing/importing electricity from non-renewable sources, there is the opportunity to purchase green certificates up to the time that the relevant legislation foresees delivery of the certificates to the GSE. Costs concerning the obligation of delivery of certificates are calculated in relation to the relevant time period.

Purchase of the certificates is recorded in the income statement as a cost and in the balance sheet as a debt.

If the purchase is made within year-end the full cost is recorded. If the quantity of green certificates acquired before year end is lower than the quantity needed for compliance with the law, the company records the burden as a debt due to GSE. If, instead, the quantity purchased is higher, a prepaid asset to future cost must be recorded. If buying occurs after year end, the difference must be calculated between the value of the liability recorded in the balance sheet and the market price and any profit or loss be shown.

Greenhouse gases and the European community

It is well known that greenhouse gases occur naturally in the atmosphere and while being transparent to incoming solar radiation on the earth, they hold back outgoing infrared radiation emitted by the Earth's surface and human activities, thereby helping to increase the so-called greenhouse effect, the phenomenon of global warming.

The European Union has recently set up a system (European Emission Trading System EU ETS)[13] which aims to reduce these gas emissions in a cost-efficient way, in order to meet its commitments under the Kyoto Protocol. However, it should be noted, that since the Kyoto Protocol only regulated the emissions for the period 2008-2012, it was considered necessary to initiate negotiations at an international level towards the adoption of a legally binding instrument for the reduction of greenhouse gases for the period after 2012.

In this perspective, today, companies that carry out their activities in the fields of energy and the production and processing of ferrous metals, mining sector, and manufacturing of paper and paperboard are compulsorily subject to the system known as "exchange of emission allowances". Each operator has an ‘emission allowance’, which gives him the right to release a metric ton of carbon dioxide (CO2), or an amount of any other greenhouse gas with an equivalent global warming potential, freely into the atmosphere[14]. At the beginning of each year, the National Authority issues part of the emission allowances free of charge which they have identified on the basis of a national allocation plan approved by the European Commission to the relevant companies. Quotas have long-term

[13] “The EU emissions trading system (EU ETS) is a cornerstone of the European Union's policy to combat climate change and its key tool for reducing industrial greenhouse gas emissions cost-effectively. The first - and still by far the biggest - international system for trading greenhouse gas emission allowances, the EU ETS covers more than 11,000 power stations and industrial plants in 31 countries, as well as airlines”. www. ec.europa.**eu**/clima/policies/**ets**/index_en.htm.

[14] Art. 3 Directive 2003/87/EC, European Parliament and Council, 13 October 2003.

validity, and are therefore used not only in the current year, but also in subsequent years. The mechanism foresees the obligation on the part of the company to return their shares to the competent authority by 30 April of the year following the year of reference. This mechanism is therefore a strong incentive tool for the reduction of greenhouse gases, aimed at encouraging improvements in the technology used in energy production and industrial processes, as well as the most efficient use of energy[15].

OIC 8: accounting treatment of greenhouse gases

According to Cook (2009) "The Emission Rights affair is worth studying because it illustrates the problems faced by standard setters as they explore the frontiers of accounting".

In this section, we will explore issues that relate to the recognition and successive inclusion in the budget of greenhouse gas emission allowances for companies that fall within the scope of the legislation, as established by OIC 8. This regulates accounting treatment both with respect to companies covered by the rules for reductions in emissions of greenhouse gases, and for company traders who do not perform industrial activities, but who acquire emission allowances for value with the intention of reselling them on the market[16].

At the time a company receives a free allocation of allowances from the National Authority, this operation is recorded with the use of memo accounts, according to the so-called "Commitment System" showing the total number of allowances allocated in the account "*Commitments for emission allowances allocated free of charge*" and a commitment to produce within set limits by the National Authority in the account "*Commitments to the Ministry of Environment for emission allowances allocated free of charge*". These amounts are recorded at market value, based on the interaction between supply and demand at the time the allocation takes place. At year-end in relation to actual gas emissions, the memo accounts are diverted and this commitment is canceled. However, in the case in which the relevant companies produce emissions in excess of the limits imposed, they can buy other allowances on the market. In the case of surplus allowances, these can be sold. Allowances are freely transferable and negotiable through special trading platforms or by contract (Article 19). Platforms for the exchange of emission allowances are private initiatives that assist users in finding and negotiating the transaction of sale of allowances[17].

At preparation of financial statements, when transactions have taken place entirely in the current year, these operations will generate costs or revenues to be recorded as profit or loss in payables and receivables, in the balance sheet. The costs are a "burden of the system" and will be recorded under item B14) *Other Operating Expenses*, revenues will be written in item A5) *Other Revenues*. Instead, in the case in which the relative values of the statutory requirement for the year must be shown in relation to the actual emission of gases, if at year-end the sum of the allowances owned (including those free of charge and those purchased) by the company is less than the quantity necessary for the fulfillment of legal obligations, the deficit can be covered by additional shares purchased on the market. This will be a residual charge incurred for emission allowances not yet purchased as off-set for liabilities to the National Authority. In the case in which the company has allowances that are greater than the legal requirements, these can be used in the following years or sold on the market. If this exceeding amount refers to allowances purchased, a prepaid expense will be recorded for the amount to be rectified for the next year. If the allowances in question were free allowances, these can be forwarded directly to the next year's statement. Emission allowances which are still available at year-end are recorded as inventory, under current assets on the balance sheet *Inventory of Finished Goods and Merchandise*. To record CO_2 allowances as inventory, the Accounting Principle indicates that it is preferable to allocate costs specifically incurred for the purchase of same to individual emission allowances. Changes in inventories of emission allowances are recognized in the income statement as *Changes in Inventories of Raw, Ancillary and Consumable Materials and Goods*.

Lastly, it should be noted that the delivery of emission allowances to the competent authority for the fulfillment of the obligation for the previous year does not involve any accounting registration, as all economic and financial considerations have already been taken into consideration on an accrual basis in the financial statements where the obligation arose.

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[15] OIC 8, art. 5-6-8.

[16] Trader companies which are the subject of OIC8 are not dealt with here.

17 The first Italian platform for the Exchange of Greenhouse Gas Emission Allowances was set up by Gestore del Mercato Elettrico (GME).

Conclusions

The European system for allowances for energy produced from renewable sources and trading greenhouse gas emission allowances, aims at contributing to the solution of environmental policy issues through market mechanisms intent on reducing the level of environmental impact of companies. This paper briefly highlights the procedures by which, following accounting principles, allowances for energy produced from renewable sources and the emission of greenhouse gases are treated. Disclosure and evaluation of RECs in financial statements is discussed. The subject is particularly relevant, especially in relation to the support given by the Italian Accounting Association to promoting growth and that type of competitiveness in companies, in harmony with the pressing demands of environmental protection. The commitment of companies in this field must be supported by structures, laws and the business culture itself, all forces which, in their convergence, can contribute to a sustained and significant improvement of the current state of affairs. This paper also highlights another aspect that relates more closely to the economic-business perspective. The tension towards corporate social responsibility is the basis of a lively international debate which, involving multiple disciplines, is inevitably reflected also on the contents of the financial statements, stimulating legislative action inspired by the prevailing climate. The application of accounting principles OIC7 and OIC8 to financial statements contributes to the achievement of accounting information that also involves issues of social sustainability, amplifying and enhancing the contents, reunites ethical issues with those of a purely economic nature.

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