

Evaluation of the national transport company commitment charter

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Abstract

A Charter of voluntary commitments to reducing CO₂ emissions was officially launched on December 16, 2008 in association with the whole carriers representatives' organisations and 15 carriers in France. The initiative is identified by the logo "Objectif CO₂ - Les transporteurs s'engagent". The "Objectif CO₂" charter is part of an overall scheme to combat climate change and more specifically to reduce CO₂ emissions in line with the findings of the Grenelle de l'Environnement multi-party roundtable on the environment.

The objectives of the "Objectif CO₂" program are to improve the energy performance of the transport sector, in particular road freight (and limiting CO₂ emissions) and provide companies with a reliable, coherent methodological framework, recognized at national level.

The scheme has been running since 2008 and has shown good progression in terms of companies adhering to the charter (300 at the end of 2011, more than 1000 today). It seems sustainable as long as companies are willing to pay and see the benefits in terms of energy consumption (and therefore costs).

In a context of limited budgets, an evaluation was carried out from January till September 2013 in order to determine what will be the future of such a program especially how to manage more than 1000 companies adhering to the charter.

The evaluation has been structured in three steps:

- a description of the history of the program from its origin until today
- an evaluative diagnosis based on an on-line survey performed among all the involved carriers, complemented by interviews of institutional actors and stakeholders, by an international benchmark of other systems prevailing in the world and by a quantitative analysis of the carriers' database
- recommendations based on the conclusions of the evaluative diagnosis and on the suggestions expressed by the stakeholders

Numerous questions have been asked in this assessment, particularly: is a voluntary agreement efficient? Is it a good tool/measure to reduce greenhouse gas emissions? The paper will describe in detail the results of this evaluation and will present the difficulties and the advantages to carry out an evaluation on voluntary agreement in the transport sector.

I Introduction

The transport sector was responsible for 34.2% of CO₂ emissions in France in 2011. These emissions are mainly produced by road transport, which accounts for 93% of total emissions of the sector. The strong impact of the transport sector is due in particular to the fact that over 80% of trade in France is conducted using heavy goods vehicles. There were almost 90,000 transport and storage companies in 2010, and 41,000 alone were road freight transport and delivery companies (the rest is passenger transport companies).

The goal set by the Grenelle Environment Round Table in 2009 was to reduce greenhouse gas emissions from the transport sector by 20% by 2020. To do this, several measures have been implemented, or will be in the future, including the per-kilometre ecotax for heavy goods vehicles, or the increase in combined transport and alternative transport solutions.

What is particularly distinctive about the French transport sector is its large share of SMEs (Small and Medium Enterprises) and VSBs (Very Small Business). By definition, these companies have less room for manoeuvre (less money and time than bigger companies) when it comes to the development of in-house tools or working on the issue of CO₂ emissions.

As far as the transport companies are concerned, performance in terms of fuel consumption and hence GHG emissions, **is therefore a key issue.**

In the context of this aim to reduce CO₂ emissions at the national level and reduce fuel consumption, along with its associated cost, the Ministry of Ecology, Sustainable Development and Energy and ADEME launched a voluntary initiative in December 2008. Since 2011, this charter, entitled "CO₂ objectives – transport companies commit" (Objectives CO₂ – Les transporteurs s'engagent), has concerned both road hauliers and passenger transport companies.

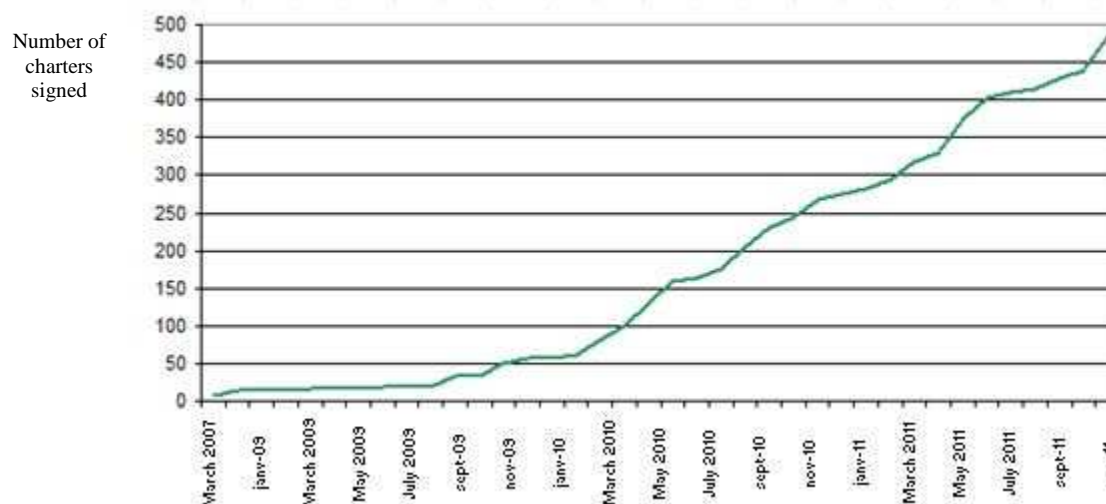
This initiative is voluntary and provides the signatory companies with a methodological framework to help them to improve their environmental performance by reducing their energy consumption and the associated CO₂ emissions. The companies that commit to the charter set themselves emissions reduction objectives for a three-year period. At the end of this first period, they may or may not renew their commitment. Each company that signs the Charter enters its operational data into an Excel tool and on the Internet. ADEME can thus precisely monitor the commitments of these companies.

The CO₂ objective charter is implemented in all of the French regions (including the overseas departments and territories) via the DREAL, ADEME's regional directorates, and in partnership with the local stakeholders who wish to take part: regional councils, professional transport federations, training organisations, etc.

In 2012, most of the signatory companies were SMEs (43% have less than 50 employees) and VSBs. However, large companies have a key role in the initiative.

By 1 October 2012, 720 companies had signed the charter (672 road haulage companies, 89 of which have completed their 3-year commitment period (2008-2011), and 48 passenger transport companies). Even if only 2% of companies (haulage and passenger transport combined) are currently committed to the initiative, this involves over 84,000 vehicles (15% of heavy goods vehicles in France in the case of haulage companies) and over 81,000 drivers.

Figure 1: Trend in the number of charters signed by road haulage companies



The increase in the number of signatories raises the two-fold issue of extending the scope of the charter to include companies that are not yet committed and continuing the initiative for companies that have already completed a three-year period of commitment. Before considering extending the charter to other companies, it is above all necessary to understand precisely how effective and efficient such an initiative is and the impact that it has. This is the objective of this evaluation. This paper is intended to provide quantitative data that can be interpreted and compared by other international stakeholders. Furthermore, only the effectiveness, efficiency and impact of the initiative are discussed. Indeed, the other evaluative questions, that are more concerned with the management of the initiative (internal organisation, mode of governance with the partners, etc.), are very much related to the national context and are therefore of less interest here.

II The method of evaluation used

In order to be able to respond to the evaluative questions, the points of view of the various stakeholders, and all of the information necessary for the evaluation of the initiative and the formulation of recommendations, were gathered by means of four different methods:

- Survey of companies involved in the initiative
- Survey of the other stakeholders
- Use of the transportation company database
- International benchmark.

An online questionnaire was submitted to all of the companies (817) that had committed to the initiative as of the end of January 2013. 346 companies responded to the questionnaire (303 road haulage companies and 43 passenger transport companies) (response rate of 42%).

A further investigation was carried out among institutional stakeholders, connections and also companies that had not committed to the initiative in order to confirm and complete the replies of the transport companies.

The data from the transport company database made it possible to calculate the effectiveness and impacts of the initiative.

The database used contains the Excel spreadsheets of 827 signatory companies (data as of the end of March 2013).

The analysis was carried by dividing the transport companies into 3 categories:

- Road haulage companies having completed their first 3-year commitment period,
- Road haulage companies that are currently committed,
- Road passenger transport companies that are currently committed (none have completed their first period).

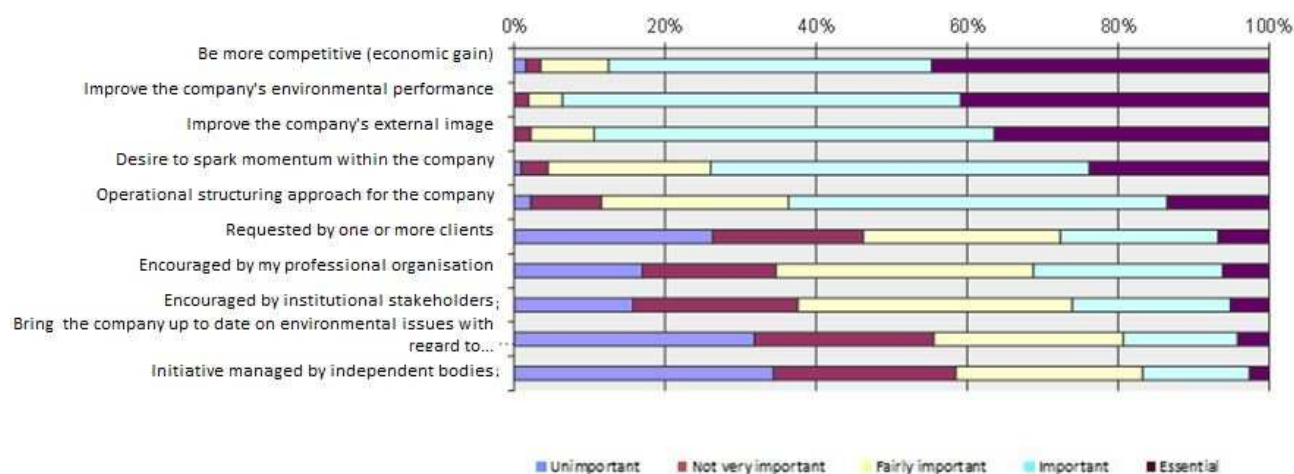
The comparative analysis of several incentives at the international level should allow us to expand on the findings of the evaluation in light of the relevance, effectiveness and efficiency of foreign programs similar to "CO₂ objectives".

III The various results of the evaluation

3.1 The reasons for participating in the initiative

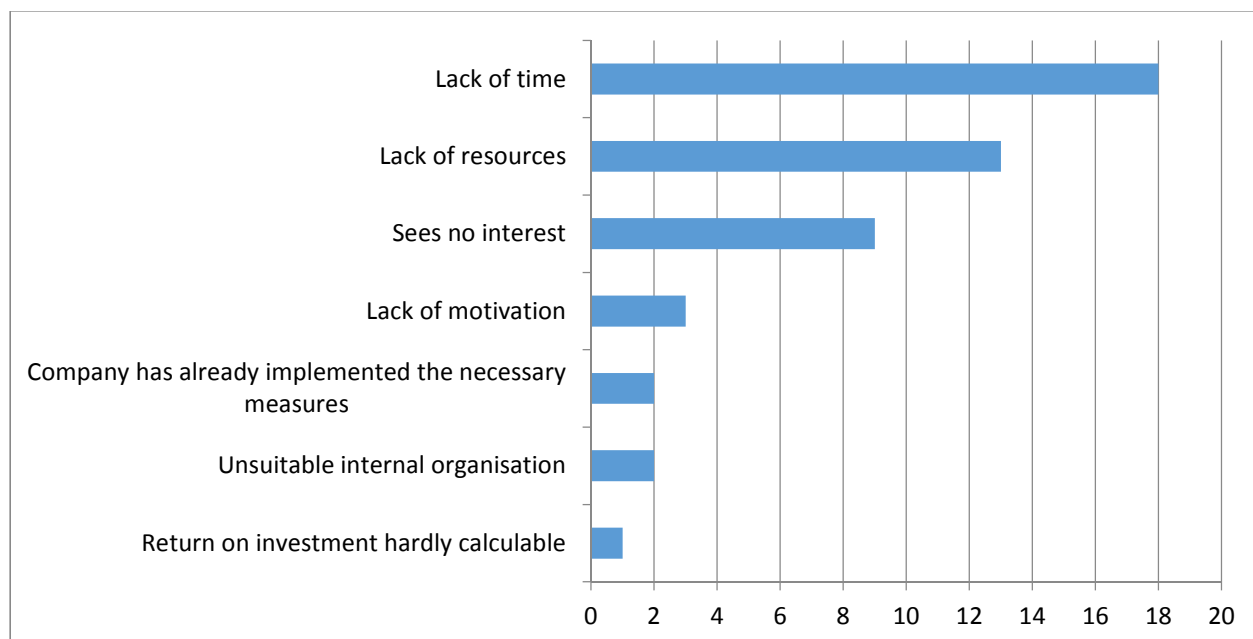
Economic gain (reduction in fuel consumption) is the main reason that encouraged companies to take part in the initiative (139 out of the 311 companies that replied deemed this essential) (fig 2), but it is not the only reason. The environmental aspect, improvement of the company's image and the impact on its internal cohesion (desire to spark momentum within the company) are also very present in the minds of the transport contractors.

Figure 2: Initial reasons which convinced companies to embark on the initiative



Of the 7 reasons why some companies have not yet committed to the initiative, lack of time and lack of resources are the most often cited (Fig 3) accounting for 30% of the replies. The other replies are either related to deferred commitment, or insufficient information on the initiative and its impacts.

Figure 3: Reasons why some companies have not yet committed to the initiative



Number of people who answered: 33

3.2. Effectiveness

CO₂ emissions reduction objectives

The average objective for the reduction of CO₂ emissions of a company over 3 years is 6.2% (based on the 59 companies that replied)

This average objective reflects contrasting situations. Indeed, the reasons, and therefore the potential gain from reducing emissions, differ according to whether or not the transport company has already implemented an environment policy and according to the company's activity (dry bulk, part shipments or full loads, delivery service, etc.). The reduction objective varies from 2% to 20% depending on the company (as it's a voluntary charter, they set their own objectives).

By weighting the reduction objectives according to diesel consumption during the reference period, we obtain an average weighted reduction objective of 5.2%.

In the end, the overall average reduction recorded for the 3-year period of commitment was approximately 1%. Only 3 transport contractors (5%) met their emission-reduction objectives.

Trends in average fuel consumption

The weighted average for the improvement in fuel efficiency is 2.1% compare to the fuel consumption that has fallen only by 0.6% (by weighting according to diesel consumption during the reference period, or 3.5% before weighting).

Out of 59 companies, 46 (78%) increased their average fuel efficiency.

Table 1: Average fuel consumption (n= 59)

	Year 0	Year 1	Year 2	Year 3	Y1/Y0	Y2/Y1	Y3/Y2	Y3/Y0
Average consumption (L/100km)	32.7	32.5	32.2	32.0	-0.6%	-1.1%	-0.5%	-2.1%
Diesel consumption (ML)	677	688	630	634				

In addition to using the data of companies having completed their first period of commitment, we can look at the trends in average fuel efficiency for a larger sample by extrapolating the consumptions of all 374 transport companies with at least one annual report (59 carriers provided data for n+3, 148 for n+2 and 167 for n+1). The average efficiency per period is calculated by weighting the average efficiency of these three transport company categories according to their annual fuel consumption.

Because, all the companies haven't achieved the three year period, there are several methods to make an extrapolation. The two tables below show two different ways to extrapolate.

Table 2: Extrapolation of the average fuel efficiency by taking into account the consumption of the previous period (n=374)

	Year 0	Year 1	Year 2	Year 3	Y1/Y0	Y2/Y1	Y3/Y2	Y3/Y0
Average consumption (L/100 km)	33.1	32.7	32.4	32.3	-1.0%	-1.0%	-0.2%	-2.2%
Diesel consumption (ML)	1581	1594	1515	1520				

Table 3: Extrapolation of average fuel efficiency by taking into account the *difference in consumption* compared with the previous period (n=374)

	Year 0	Year 1	Year 2	Year 3	Y1/Y0	Y2/Y1	Y3/Y2	Y3/Y0
Average consumption (L/100km)	33.1	32.7	32.3	31.9	-1.0%	-1.5%	-1.2%	-3.6%
Diesel consumption (ML)	1581	1594	1509	1498				

We thus obtain an estimated improvement in average fuel efficiency of between 2.2% and 3.6% by the end of the three-year commitment period, with average annual consumption savings of around 1%.

3.3. Cost effectiveness

In order to know the cost effectiveness of such voluntary agreement, especially for the government, all the budget used for the charter is calculated as a function of the results in CO₂.

Table 4: Calculation of the cost-benefit ratio (2007-2012)

	Subsidy fund (k€)	Operating budget (k€)	Total
ADEME (transport department)	589	312	901
ADEME (communication)	135	18	153
MEDDE (Ministry)	100	57	157
Central	824	387	1211
ADEME (Regional Departments)	1147	700	1847
DREAL (Regional department of Ministry)		413	413
Others funds Regions + Europe	623		623
Regions	1770	1113	2882
Private funds (transport federation and companies)	328	663	992
Total (5 years)	2922	2163	5085

Public expenditure 2007-2012 (€K) (2 901k€ for ADEME)	4093
Tonnes of CO ₂ avoided (extrapolated as of the end of 2012 for all companies)	717,121
Amount per tonne of CO₂ avoided (€/t CO₂)	5.7
Total expenditure 2007-2012 (€K)	5085
Amount per tonne of CO ₂ , taking into account private funding (€/t CO ₂)	7.1

The public sector cost per tonne of CO₂ avoided is €5.70.

The Quinet report recommends a value of €32/t CO₂ for 2010 (€56/t by 2020). So, 5.7€ by tonne of CO₂ avoided is very efficient.

3.4. Impact

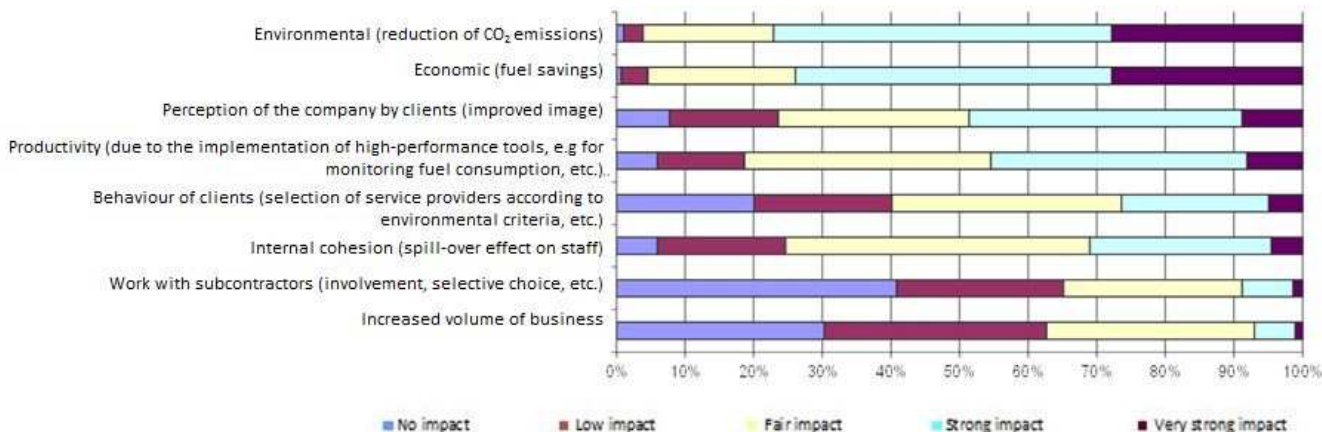
In absolute terms, the companies involved in the initiative are responsible for approximately 1/4 of CO₂ emissions of HGVs using the French road network (2010 data).

The total avoided emissions of the signatory companies for the period from 2008-2012 accounts for approximately 0.5% of the emissions from heavy goods vehicles in France for this same period (715 kt CO₂ out of a total of almost 142 Mt CO₂).

Theoretically, if the initiative were to include all transport companies, its contribution would be around 2%.

In addition to this impact on CO₂ emissions, other impacts have been estimated: Over 70% of the 284 signatory transport companies who responded consider the initiative to have a significant or even very significant impact in terms of environmental and economic gain (Fig 4). Signing the charter has a very limited impact on anything related to subcontracting.

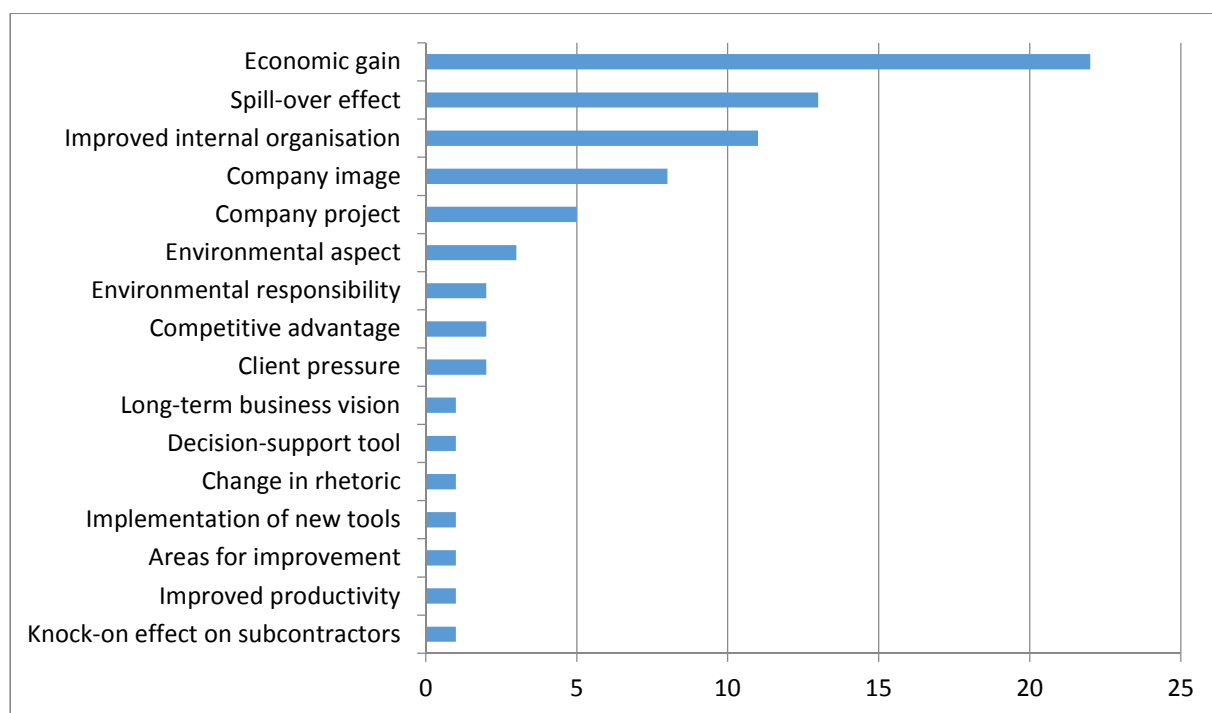
Figure 4: Main impacts of the initiative



The approach has a significant impact in terms of spill-over effect within the company, improvement of its internal organisation and improvement of the company's image. The transport companies estimate the impact on economic gain to be considerable. The environmental gain is directly linked to the economic gain (fuel consumption is proportional to CO₂ emissions). The transport companies nevertheless regret that taking part in the initiative has not provided them with more direct competitive advantages compared with other transport companies (there is no increased volume of business).

Stakeholders involved in the initiative were also surveyed on its impact (fig 5). Four impacts stood out: economic gain, spill-over effect within the company, improvement of the company's internal organisation and improvement of the company's image. The other factors mentioned were environmental responsibility, advantages over competitors, the environmental aspect and client pressure. Factors such as an increase in the volume of business, improvement of working relationships with subcontractors and improved productivity were little-mentioned or not at all.

Figure 5: All of the impacts cited by stakeholders
(Number of people who answered)



In addition, 68% of the 284 participants indicated that the initiative has not encouraged a global environmental approach to be established within the company (12% did not reply to this question). Among the remaining 20%, the majority has already an environmental approach in the company (waste management, certification, carbon footprint...)

IV Conclusions

The evaluation of the effectiveness and efficiency of the initiative clearly shows that a voluntary energy efficiency measure such as the CO₂ charter allows energy savings to be made at relatively little cost to public stakeholders. However we need to qualify this finding.

Firstly, even if the initiative had involved all transport companies, its contribution to fuel consumption savings in the transport sector would be theoretically around 2% (without deadweight effect). On the macro-economic level, the contribution of the charter to reducing CO₂ emissions in road transport and creating a more balanced modal distribution therefore seems very small.

Secondly, the "gCO₂/tkm" indicator allows fluctuations in the activity levels of a transport company (in tkm) from one year to another to be overlooked, but not variations in productivity from one year to another (loading rate, rate of empty returns). Because of this, trends in "gCO₂/tkm" include both variations in productivity related to economic developments and improvements in energy efficiency resulting from the implementation of the plan of action.

In addition, the gCO₂/tkm criteria is problematic for haulage companies who work by volume or pallet (glass wool, polystyrene, etc.).

Moreover, lot of actions would have been taken anyway by companies. Indeed, the deadweight effect has been estimated to about 80% (239 on 290 companies have answered that without the charter they would have taken the action).

Therefore the energy savings calculated do not solely reflect the impact of the charter. They also include the economic context, which ultimately biases the interpretation.

In addition to calculating effectiveness and efficiency from company monitoring data, it is important to take into account the impacts of the charter. These effects, estimated by conducting surveys of the participants, show that, in addition to the main expected effect of economic gain, a number of other impacts are felt (improvement of the company's image, spill-over effect, improved internal organisation, etc.). The signatory companies consider these various impacts to be very positive, though they vary according to the size and profile of the company. However, two somewhat negative aspects were mentioned: commitment to the charter does not seem to provide any noteworthy competitive advantage with respect to clients, and the impact of the charter on non-signatory companies seems low.

Evaluation of the effectiveness, efficiency and impact of an energy-efficiency measure is essential in order to be able to judge an initiative's true utility. However, in addition to these three issues, the evaluation should also assess the relevance and the internal and external consistency of the initiative so that it may be optimised if necessary. This paper does not discuss these elements, but they are nevertheless essential for an overall review of the initiative. The evaluation that has been carried out has resulted in the drafting of 17 recommendations (described in detail in the evaluation report), based on the findings of this assessment.

The main recommendation is to develop a certification programme in order to maximize the rate of re-enlistment. The strategic recommendation is to define a goal for the scheme (either in term of number of companies involved or trucks, or in term of CO₂).

ADEME and its partners have thus been able to optimise the CO₂ charter in order to:

- make it more effective,
- make it more sustainable,
- further increase the efficiency of the initiative,
- improve the positive impacts so that more companies sign the charter.

References

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