# [FRANCE] $CO_2$ targets programme

## Programme Objectif $CO_2$

(*French voluntary program to reduce GHG emissions of road freight & passengers transport operators*)

### About the measure

| Policy instrument | Sector | Starting date and status |
|---|---|---|
| **cooperative (voluntary agreement)** | **Transport** | **[2008] – [on-going]** |

Launched in 2008 by the French Ministries for Energy & Transport and ADEME[1], in collaboration with road carriers associations, this **voluntary scheme** aims at reducing GHG emissions of road transport. The programme provides participating transport operators with a framework and **methodological tools in order to improve their environmental impacts** by acting on their vehicles fleet, the fuel choice, on drivers and on the company organization.

This scheme targets road carriers and shippers for their own fleets, whatever the size or transport activities. Its scope has been progressively extended from heavy road transport to passengers' road transport and light duty. To join this initiative, carriers must sign a **charter**, set two targets over a 3 year-period expressed in gCO2eq/km and $gCO_2$ eq/ton.km; shape an action plan to meet these targets, and fill in an online tool with their own data (www.objectifco2.fr).

A National Steering Committee, including the ministries, ADEME and road carriers associations, pilots the scheme, whereas regional committees handle charters and approve companies' projects. They are jointly composed of the DREAL[2], regional boards of ADEME and professional organizations.

Mainly funded by public budget, this scheme has also benefited since 2016 from funding from the French white certificates scheme as a **special programme**[3]. In this framework, the road transport companies benefit from the support of independent officers who monitor their performances.

A **quality label** ("Objectif $CO_2$" label) was launched in 2015 to reward carriers who achieved a high level of environmental performance (verified by independent auditors selected by ADEME). This label ensures the verification of data quality & reliability, and the consistency of the methodology used to assess companies performances, and requires an on-site audit. If defaults/inconsistencies are detected during the audit, the companies must set up corrective actions within 90 days after notification. Once corrections are implemented, the auditors transmit their report to the unit in charge of the label management, which shares this report with the national steering committee to decide of issuing the label for a 3-year period or not.[4]

[1] The French Public Agency for Environment and Energy Management

[2] Regional departments of environment, urban planning and housing

[3] The corresponding energy savings are not included in reporting due to article 7 of the EED.

[4] Signing the charter is not mandatory to apply for the quality label.

The EPATEE project has received funding from the European Union's Horizon 2020 Research and innovation programme under grant agreement No 746265.

| Expected reduction in CO2 emissions and/or energy savings in 2020 | Benchmark |
|---|---|
| As a voluntary scheme, there is no fixed target in terms of energy savings for the programme as a whole. However, for the related special programme of the white certificates scheme, a target was set to the 300-labelled companies over a 2-year period (2016 and 2017).<br><br>Moreover, companies committing to the programme must set themselves objectives over a 3-year period.[5] | There is no benchmark data regarding energy saving but for example, the US programme "Smart way" launched at the beginning of 2004 has helped its partners to save 215.4 Mboe (~30Mtoe), and involved around 3,700 enterprises companies representing a broad cross-section of industries; and 200 major industry associations & NGO, states and localities[6]. Since 2004, it has helped avoiding the emission of 103 Mt of air pollutants (NOx, PM, and CO2).<br><br>In comparison, the members of the British Logistics Carbon Reduction Scheme (LCRS) are collectively committed to 8% reduction in the intensity of CO2e emissions by 2015, compared to a 2010-baseline. Between 2010 and 2015 it has achieved a reduction in tailpipe GHG emissions of 7% with an average emissions level of almost 13% lower per vehicle.km than the trend for the wider logistics industry.<br><br>NB : LCRS funding comes from FTA (Freight Transport Association) membership fees that are based on company's annual turnover and fleet size |

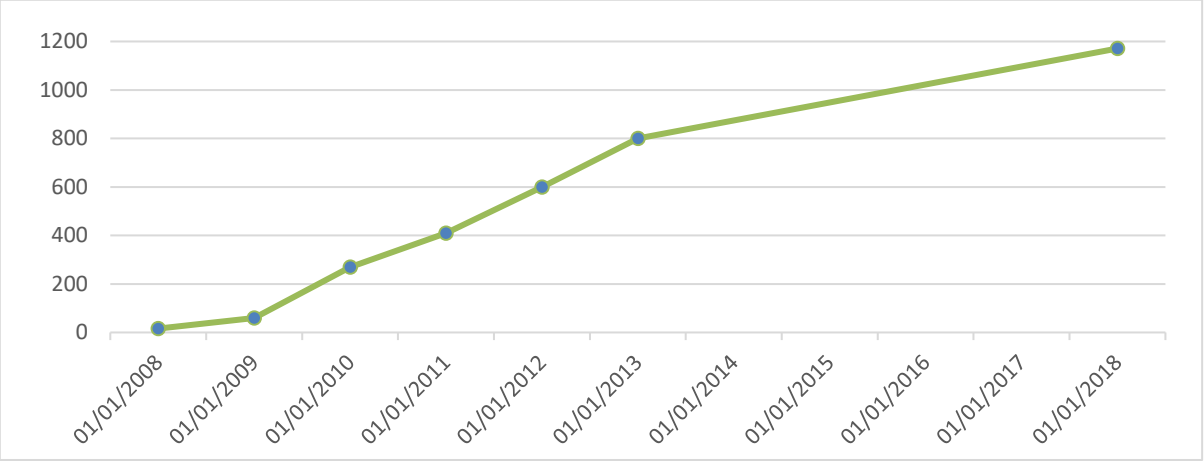
## Means and outputs

Since 2008, more than 1,400 enterprises (1,170 companies specialized in good transport and 240 specialized in passengers transport) have been involved in the initiative[7].

[5] The study done in 2013 for ADEME highlighted the lack of quantitative objectives for the scheme but noted that very few similar foreign schemes neither do.

[6] Data come from the official website of the programme https://www.epa.gov/smartway/smartway-program-successes (watched on April 2018)

[7] Data at the beginning of 2018 (the list of involved companies is available at http://www.objectifco2.fr/index/documents#categ-6)




*Source: ADEME*

Figure 1. Number of good transport operators involved in the programme.

Table 1. Programme funding for the period 2007-2012.

| **Programme funding for the period 2007-2012** (k€) | **External expenses** | **Internal resources** | **TOTAL** |
|---|---|---|---|
| *National level* | *824* | *387* | *1211* |
| ADEME | 724 | 330 | 1054 |
| Ministry for energy | 100 | 57 | 157 |
| *Regional level* | *1770* | *1113* | *2883* |
| Regional boards of ADEME | 1147 | 700 | 1847 |
| Regional Directorate for Environment, Planning and Housing | 0 | 413 | 413 |
| Other funding (Regions and European Union - ERDF) | 623 | 0 | 623 |
| **TOTAL PUBLIC BUDGET** | **2594** | **1500** | **4094** |
| | | | |
| | Part of the support actions not funded with public budget | Part of the human resources not funded with public budget | **TOTAL** |
| **PRIVATE FUNDING** | 328 | 663 | **991** |
| | | | |
| **TOTAL COSTS (public + private)** | **2922** | **2163** | **5085** |

*Source: AJI-Europe, 2013 (table 4 p.7)*

- **External expenses** (public budget): all external expenses made by public bodies for the programme, including subcontracted studies, additional staff in regions, costs of events, …
- **Internal expenses** (public budget): permanent staff involved in the programme (estimated in full-time equivalents by the different services, and assuming average full wage of 70,000 euros per full-time equivalent)

The evaluators (AJI-Europe, 2013) highlighted that the programme activity was low in the first year (2007). They estimated the average annual public budget to 819,000 euros per year.

## Data about $CO_2$ emissions reduction & energy savings

| Unit | Main source of data |
|---|---|
| tons of CO2e avoided (see details below) | • Data directly filled in the web-based tool by participants<br>• Survey performed for the evaluation commissioned by ADEME in 2013 |

Due to the general objective of the programme, the focus for the results is on reductions in CO2e emissions directly related to fuel consumption (per km or t.km) and estimated according to the European standard EN 16258 for GHG emissions calculation ("from well to wheel emission factors"). The extension of the scope to GHG emissions was implemented by article 67 from the French law for energy transition and green growth (2015). Before this law, transport operators were obliged to inform their customer on the CO2 (only) emissions caused by their services.

The web-based tool developed to centralize data from carriers (e.g. fuel consumption, tons of freight carrier, distances, and type of vehicles, average speed, declivity when applicable) allows the monitoring of GHG emissions (and certain air pollutants since 2018) and performances indicators in comparison to targets (expressed in gCO2e/km and gCO2e/tonne-km), and calculates fuel and emission-savings and return on investment for different actions and for different vehicle types.

The **cumulative $CO_2$e savings at the end of 2016** since the beginning of the initiative (2008) have been estimated to around **1.6 million tons of $CO_2$eq. This amount**represents 0.26% of the total GHG emissions of France in 2015 including LULUCF[8] (based on the official inventory of GHG emissions made by CITEPA). This **cumulative savings in 2016** represents **in average 400,000 tons of $CO_2$eq per year** (from actions implemented over 2008-2016).

According to the official website of the scheme, the average fuel saving ratios estimated by type of action implemented by the participants are:

- up to 5% of fuel saved by limiting the max speed at 80 km/h;
- up to 10% of fuel saved by training driver to eco-driving;
- up to 15% of fuel saved in average by using an hybrid vehicle.

### Sources of uncertainties about energy savings

The main uncertainties about estimation of $CO_2$e emissions reduction come from the internal data collection, measurement & reporting procedures of transport operators (especially for operators that assessed their emissions from default values).

NB: participating companies are encouraged to have their data independently verified but this is not mandatory (excepted for those applying for the label).

The data collected in the framework of the evaluation led by ADEME in 2013 from the online survey may include additional uncertainties/errors/bias due to questions formulation, level of knowledge of

[8] Land Use, Land-Use Change and Forestry

the surveyed person and its availability when the survey was performed. Furthermore, some uncertainties are due to extrapolation of some data (see below for more details).

## Evaluation of the reduced CO2 emissions & saved energy

### Calculation method(s) and key methodological choices

Before applying to the programme, transport operators must fullfill certain conditions, including the **monitoring** of the vehicles stocks and fuel consumption per vehicle and/or per driver and per transport mean, and the monitoring of merchandising flows and subcontracting processes. Then, the company must carry out a **diagnosis** to define a **reference situation**, collect the required data, assess the past GHG emissions and the reduction potential thanks to the scheme, set an action plan on a 3-year period to achieve this emissions reduction, specify 2 environmental performance indicators to monitor the achievement of actions, and estimate the potential return on investment of the different actions[9].

The methodology for the estimation of $CO_2e$ emissions is based on the one recommended by the French Ministry for Energy and ADEME to help transport operators fullfilling their obligation to publish the GHG emissions caused by their transport services (since 2010 for $CO_2$ emissions, and since 2017 for other GHG emissions ; for more details, see *Other useful references*). Based on the European standard EN16258 for GHG emissions calculation, it follows a 4 step methodology described in the French Transport code (articles D.1431-1 to D.1431-23):

1. Distribution of the transport service into segments
2. Calculation of the quantity of energy consumed for each segment (and per type of energy)
3. Conversion of the amount of energy source to the amount of greenhouse gas for each segment (thanks to emission factors, see details below)
4. Sum of all GHG emitted by the different segments.

In addition, the methodological guide provided by the French Ministry and ADEME to transport operators gives different methods/advices for key parameters estimations or measurement (distance, fuel consumption, weight of transported goods or passengers, empty running…) (see Minister for the Ecological and Inclusive Transition, 2017).

As neither the European standard nor the French transport code provides specific rules for the GHG accounting of empty running (only examples for one empty way & one load way vs transit loop), the guide strongly recommends to take into account return journey whatever the chosen allocation rules. Regarding subcontracted transport activities, the guide recommends transport operators to develop their own estimation models for each subcontractors[10].
NB: default value per transport mean and per activity type are allowed until July 2019

[9] When the transport operator contracts a third party to make its diagnosis, it must respect the specifications document available on the web site of the programme.
[10] Operators willing to apply for the label must get a road subcontracting lower than 35% of the total road sales.

The evaluation led in 2013 by ADEME has assessed the total impact of the programme in terms of $CO_2$ emissions reduction according to the following formula:
$tCO_2$ avoided = Σ_N ($gCO_2/t.km_{PN}$ – $gCO_2/t.km_{P0}$) x t.km_PN

With:

- $gCO_2/t.km_{PN}$ corresponding to the $CO_2$ emitted per travelled ton.kilometer during year N (with N ranging from 1 to 3)
- $gCO_2/t.km_{P0}$ corresponding to the $CO_2$ emitted per travelled ton.kilometer before the implementation of the programme

NB: when the value of emission per t.km was not available, the emissions per travelled kilometer was used.

The recommended methodology for the assessment of environmental performance is based on the $CO_2$ emissions and a variable representing the activity of the transport operator (number of transported tonnes/products…) and **reflecting the efficiency of the transport service** and the organisational level of the company. For complex cases, it is for example recommended to divide the company activity into sub categories, and when no physical data is available, sales data may be used but particular attention must be paid on the potential effect of margin evolution on this parameter.

The CO2e savings are calculated using the following sources for the **emission factors**:

- ADEME database for emission factors (http://www.basecarbone.fr/) regarding electricity & pump fuel;
- JRC data for liquid fuel emission factors (upstream phase) (https://iet.jrc.ec.europa.eu/about-jec/downloads);
- The French Interprofessional Technical Centre for Studies on Air Pollution (CITEPA, OMINEA 2011) and the European decision 2007/589/CE (for upstream and downstream liquid fossil fuel), and data from a LCA on fossil and gaseous fuels led in 2007 by the French energy supplier ENGIE (ex GDF-Suez)
- HBEFA database (HandBook of Emission Factors for Road Transport ; http://www.hbefa.net)
- Default value for air transport given by the General Directorate of Civil Aviation (yearly updating) (http://eco-calculateur.aviation-civile.gouv.fr/)

## Ex-post verifications and evaluations

The ex-post evaluation commissioned by ADEME in 2013 started by examining the data transmitted by companies involved in the scheme through the web tool of the programme. The data covered the period from the official start of the programme (December 2008) up to March 2013 and concerned 857 enterprises involved in the initiative. The evaluation assessed the trends for fuel efficiency by extrapolating the consumption of all 374 transport companies with at least one annual report (59 companies provided data for N+3, 148 for N+2 and 167 for N+1). The average efficiency per period was calculated by weighting the average efficiency of these three transport company categories according to their annual fuel consumption. Nevertheless none specific ex-post verification has been done. In addition, the evaluation also made an online survey of the companies that have joined the programme (346 answers received from 817 companies contacted).

Since 2015, the companies willing to get the label must be audited by an independent auditor selected by the AFT (see references for more information). During the on-site audit, a particular attention is paid to:

- The internal steering of the scheme
- The definition of the scope

- The procedures for data collection
- The calculation of the fleet performance (validation of the calculation methodology used for the reference period);
- The documentary proficiency/procedures.

## Other indicators monitored and/or evaluated

| Indicator | Explanations |
|---|---|
| Efficiency in terms of cost per ton of emitted $CO_2$ avoided | $$\textbf{Public efficiency} = \frac{Total\ public\ expenses\ (in\ euros)}{CO_2\ emissions\ avoided\ (in\ tCO_2)}$$ (all data taken for the same period) estimated at **5.7 euros/tCO2** in the 2013 evaluation (AJI-Europe, 2013), based on data for 2008-2012<br><br>$$\textbf{Total efficiency} = \frac{Total\ expenses\ (in\ euros)}{CO_2\ emissions\ avoided\ (in\ tCO_2)}$$ (total expenses include all expenses made by public bodies and private actors involved in the scheme ; all data taken for the same period) estimated at **7.1 euros/tCO2** in the 2013 evaluation (AJI-Europe, 2013), based on data for 2008-2012 |
| Pollutants emission | Following the evaluation led in 2013, a study commissioned in 2015 by ADEME (CITEPA, AJI Europe, 2015) has highlighted the indirect positive impact of the scheme on the reduction of atmospheric pollutants (PM, NOx, VOC) and led to the development of new functionalities for the data collection tool to allow the monitoring of atmospheric pollutant emissions (required from 2018). |

## Other aspects evaluated

The evaluation led by ADEME in 2013 was designed to examine five main evaluation criteria: relevance, coherence, effectiveness, efficiency and impacts. The analyses based on the data collected from participating companies (from the regular monitoring and the online survey specifically done for the evaluation) were completed by a survey of the public bodies and other partners involved in the scheme, 5 regional case studies and international benchmarking.

The survey included 77 interviews with regional boards of ADEME, DREAL (Regional Directorate for Environment, Planning and Housing), Regional Councils, local project officers, road carriers associations at national and regional level, transport companies that did not join the programme, etc. This provided complementary insights about the effectiveness of the scheme and how it could be improved. For example, this enabled to identify reasons why companies were or were not joining the programme.

The five regional case studies were meant to better understand the operationnal implementation of schemes, and to identify ways of improvement taking into account specificities at regional level. It highlighted in particular a lack of information transmission between the regional department of ADEME and the headquarter partly because of the lack of reporting tool.

In addition, to reinforce the reliability of the programme a label has been implemented to check the achievement of objectives.

The international benchmarking included a comparative analysis of seven voluntary schemes for transport companies. It was meant to put the results from the French CO2 targets programme into a broader perspective and to enrich the recommendations.

## Focus on the limits of the indicator gCO2e/t.km

The evaluation supervised in 2013 by ADEME shows that this voluntary energy efficiency measure allows energy savings at relatively little public cost. However, the indicator "$gCO_2$/t.km" enabling to monitor activites variations should be used carefully especially for companies transporting huge volumes of “light” materials such as glass wool or polystyrene. Moreover, this indicator does not consider the deadweight effect (it was estimated that 239 out of 290 companies would have implement the actions without the scheme), the economic context which may biase the results interpretation, or the effect of the scheme on the company's image and its own organization.

## Experience feedback from stakeholders

### Interview with Gregory CHEDIN, Economist at ADEME (who supervised the programme evaluation in 2013)

**1. What were the evaluation objectives? and how was it implemented?**

The evaluation process started with the request from the manager of the scheme (who depends on the ADEME's transport department) to the ADEME's evaluation committee. The reasons of this evaluation were the needs to get an overview of the impact of this innovative and dynamic scheme which was in operation for many years (the scheme was launched in 2008), and to prepare its future.

On request of the evaluation committee, ADEME's directors gave mandate to the evaluation department to plan the evaluation in the multi-annual evaluation plan of ADEME, and propose a plan for the scheme evaluation.

After an evaluation diagnosis to frame data collected by evaluators, it was decided to focus the evaluation on:

- the intrinsic relevancy of the scheme (coherence between objectives & the sector needs and evolution)
- the internal coherence (adequacy between the scheme and means)
- the external coherence (adequacy between the scheme and other programmes)
- the effectiveness (objectives reaching)
- the efficiency (ratio cost-benefit)
- impact measurement (unexpected effects)

**2. What were the main limits/barriers?**

The evaluation was limited by time and budget: it prevented evaluators to get a representative pool of not committed transport operators (in order to better understand why they are not involved in the programme).
Furthermore, the extrapolation of data collected to estimate the impact of the scheme on $CO_2$ emission reduction may have biased the results interpretation. Indeed, data of companies involved for only one year were not necessarily representative of their involvement during the entire period of the scheme, and the behaviour of certain companies was potentially biased by the short-term perspective of the involvement (3 years).

**3. What were the main lessons learnt from the evaluations (about the impacts of the scheme and what could be improved)?**

The evaluation led in 2013 has highlighted in particular:

- additional benefits of the scheme on pollutants emission reduction (that led to the enlargement of the scope to pollutants such as NOx and particles matters);
- the need to reinforce the reliability of data transmitted by transport operators by introducing a labelling system based on data checking and the control of the objectives achievement (that led to the launch in 2015 of a label including an audit procedure);
- the need for reporting procedures improvement in particular between central and regional administration.

**4. What would you like to highlight about your experience related to the evaluations of the scheme?**

All evaluations supported by ADEME are reviewed in order to monitor the implementation of recommendations but operational decisions to ensure this implementation are not necessarily taken into account.

## To go further

### About the measure

- Official website of the programme: www.objectifco2.fr
- All public documents regarding the initiative are available at this page (in French):

http://www.objectifco2.fr/index/documents#categ-6

- Brochures in English presenting the programme and its charter:

For freight transport:
http://www.objectifco2.fr/docs/upload/99/Objectif-Co2-TRM-8p-A4-2017-en.pdf
For passenger transport:
http://www.objectifco2.fr/docs/upload/99/Objectif-Co2-TRV-8p-A4-2017-en.pdf

- The official webpage of the French Ministry for Ecology transition & solidarity:

www.ecologique-solidaire.gouv.fr/programme-objectif-co2

- Minister for the Ecological and Inclusive Transition, 2017. Methodological guide for information on GES emissions of transport services in application of article L. 1431-3 of the French Code for transport (*Information GES des prestations de transport Application de l'article L. 1431-3 du code des transports*)
  (updated version following the implementation of article 67 from the law n° 2015-992)

https://www.ecologique-solidaire.gouv.fr/information-ges-des-prestations-transport

- Description of the policy measure in the MURE database:

http://www.measures-odyssee-mure.eu/public/mure_pdf/transport/FRA22.PDF

### References of the evaluation(s)


- AJI-Europe, 2013. Evaluation de la charte « Objectif CO2 – Les transporteurs s'engagent [Evaluation of the CO2 targets charter – transport operators commit] Synthesis report of the evaluation done for ADEME, November 2013.
  http://www.ademe.typepad.fr/files/synthese_evaluation_objectif_co2_final.pdf
- CITEPA, AJI Europe, 2015. Estimation des gains potentiels en émissions de polluants atmosphériques (PM, NOx, COV) des actions de la charte d'engagements volontaires « Objectif CO2 Les transporteurs s'engagent » [*Estimation of potential reductions in pollutants emissions from actions of voluntary commitments in* the *CO2 target programme*]. Synthesis report of the study done for ADEME, May 2015.

https://www.ecologique-solidaire.gouv.fr/sites/default/files/impact%20des%20%C3%A9missions%20de%20polluants%20atmosph%C3%A9riques%20dans%20la%20charte%20%C2%A0Objectif%20CO2%20synth%C3%A8se.pdf

- Chedin, G., 2014. Evaluation of the national transport company commitment charter. Proceeding of IEPPEC (International Energy Policy & Programme Evaluation Conference) 2014.
  http://www.iepec.org//conf-docs/papers/2014/Gregory%20Chedin.pdf


### Other useful references

- The webpage of the French Ministry for Ecology transition & solidarity dedicated to GHG information for transport (last updated from March 2017)
  https://www.ecologique-solidaire.gouv.fr/information-ges-des-prestations-transport
- Law n° 2010-788 of 12 July 2010 on France's national commitment to the environment
  www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000022470434

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