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Introduction to French white certificates for industry

PUBLIC SUMMARY

ALLICE

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Introduction to French white certificates for industry
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Executive summary

Since its introduction in 2006, the French white certificates scheme (*Certificats d'Économie d'Énergie* – CEE) has become a key policy instrument for demand-side management in France. It provides an incentive and framework for carrying out work to optimise energy consumption in six sectors: residential buildings, tertiary buildings, agriculture, industry, transport and networks. As part of the French government's objective of achieving carbon neutrality by 2050, the CEE scheme has proven to be a pioneering tool that can be used to encourage the widespread development of energy-saving initiatives across the country.

The scheme can benefit everyone (individuals, local authorities, businesses) by guiding them towards approved energy-efficient solutions and providing significant financial support for the acquisition of these solutions. However, the world of French white certificates has its own rules and a complex ecosystem and undergoes regular changes, all of which can discourage those unfamiliar with the system. This is particularly true in the industrial sector, for which specific provisions have been made.

The purpose of this document is therefore to provide an overview of the CEE scheme and to shed light on its various mechanisms. It is intended for industrial players, although many of the observations are valid for other sectors too. This guide provides both an introduction to the CEE scheme and more in-depth explanations of certain specific points. It includes:

A presentation of the founding principles of the scheme;

A summary of its history and major developments;

A detailed explanation of its three main mechanisms: standardised operations, specific operations and programmes;

Details about specific features of the scheme: compliance checks, CEE accounting, and the cycle of obligation periods;

A glossary defining the vocabulary of French white certificates and the roles of the stakeholders;

Additional resources for further reading.

Contents

Part 1

The main principles of the scheme

The CEE scheme[1] (sometimes referred to in French as *"Primes CEE"* or *"Primes Éco-énergie"*) is based on the principle whereby **public authorities oblige energy suppliers to encourage their customers to carry out energy efficiency work by means of financial aid.** The government sets a national target for energy savings, which is distributed among the various energy sources (electricity, gas, liquefied petroleum gas, heating oil, district heating and cooling) on the basis of their share in national consumption. For each type of energy, the obligation is then divided between energy suppliers in proportion to their sales. The "obligated parties"[2] can fulfil their obligation through four mechanisms, which are described in this guide: carrying out standardised operations, carrying out specific operations, contributing to a CEE programme and purchasing white certificates.

One of the special features of the scheme is that it relies on contributions from energy suppliers rather than public money. It is estimated that the scheme encourages obligated parties to invest €3-4 billion in energy-saving operations each year [1], and this figure is increasing. It should be noted, however, that the cost borne by the obligated parties is passed on in the price of energy sold to individuals and local authorities.

The beneficiaries[3] of the scheme are the customers of energy suppliers, which include private individuals, businesses and public authorities. The scheme applies to six sectors: agriculture, residential buildings, tertiary buildings, industry, networks and transport.

Obligated parties often rely on agents[4] or delegates[5] to manage their obligation – between 2015 and 2017, 44% of French white certificates generated were issued to agents or delegates [2].
It should be noted that the scheme also includes "eligible parties"[6]. These are parties who are not subject to an obligation but can nonetheless finance energy-saving operations and obtain white certificates in return. These players can then sell the certificates to obligated parties on the CEE market. In this way, the French white certificates system has given rise to an ecosystem of specialised companies that has evolved over the years and is highly dependent on the development of the scheme.

Since May 2021, the CEE scheme has had a registered collective trademark to make it easier for the general public to identify the scheme and the players involved. The CEE trademark is owned by the French State. Its use is compulsory for obligated parties, eligible parties and coordinators of CEE programmes, and is reserved exclusively for these parties.

What actually is a white certificate?

CEE is an intangible asset issued by the French government, enabling energy savings financed by obligated parties to be counted and tracked. **Each CEE issued corresponds to a saving of 1 kWh cumac (= discounted cumulative kilowatt-hour[7]) of final energy[8].** Obligated parties that fail to comply with their obligation must pay the government a penalty proportional to the volume of energy savings not achieved, at a rate of €0.02 per missing kWh cumac, i.e. €20/MWhc [3]. For comparison, the purchase price of French white certificates has fluctuated between €6.50 and €9.50 per MWhc since 2019 (spot price, [4]). The penalty is therefore highly punitive and, in practice, it is rare for an obligated party to fail to meet its obligation.

Between 2018 and 2021, industry accounted for 17% of French white certificates issued, putting it in 3rd place in the ranking of sectors producing the most French white certificates [5]. More than 85% of these certificates were generated by standardised operations, and 4.1% by specific operations. At the time of writing, the "industry" sector has 33 active Standardised Operation Sheets, out of a catalogue of around 215 sheets for all sectors combined.

Part 2

Brief history of the CEE scheme

Prompted by the Kyoto Protocol, the CEE scheme was introduced in France by the Energy Policy Framework Law of 13 July 2005 (No. 2005-781), known as the "POPE Law" [6].

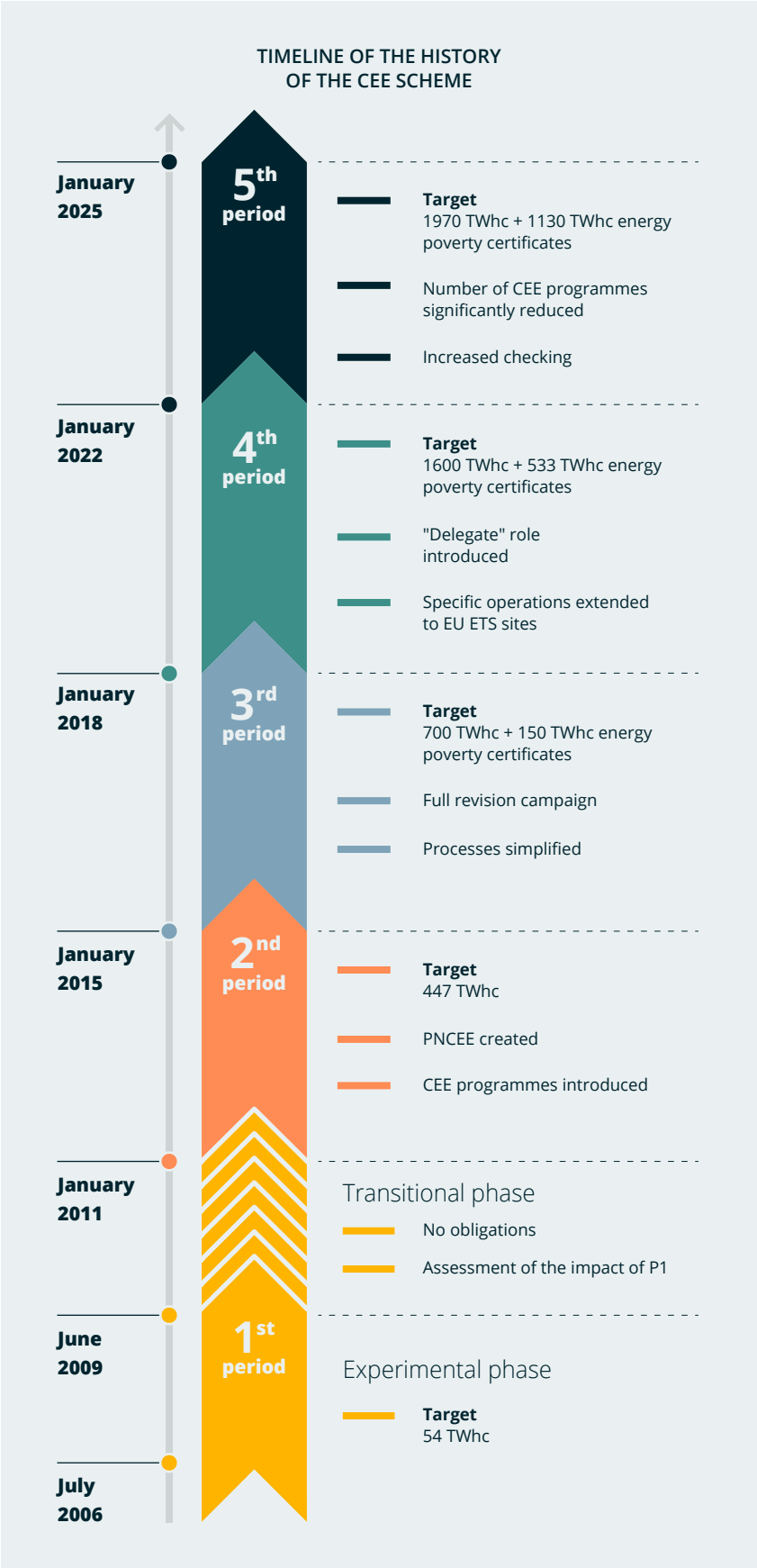


FIGURE 1

The scheme is organised into periods of three to four years. **Figure 1** opposite summarises the history of the scheme

2.1

FIRST PERIOD, FROM JULY 2006 TO JUNE 2009

The scheme began with an initial three-year period (known as "P1"), which was an experimental phase [7]. The target for energy savings obligations was modest (54 TWh cumac) and was ultimately exceeded: 65.3 TWh cumac saved, 97.7% of which through standardised operations. 86.7% of the savings were made in the residential sector.

The obligated parties were sellers of electricity, gas, LPG, heating oil, and district heating and cooling. Eligible parties included all the obligated parties, as well as public authorities and all legal entities, "provided that their energy-saving operations do not fall within the scope of their main activity and do not generate direct revenue for them".

The first period was followed by a transitional period without any CEE obligations (from July 2009 to December 2010), during which the impact of the experimental phase was assessed. The scheme was extended by Law No. 2010-788 of 12 July 2010 [8], and resumed in 2011.

2.2

SECOND PERIOD, FROM JANUARY 2011 TO DECEMBER 2014

The second period (known as "P2") extended over four years and marked a significant increase in the ambitions of the scheme: the volume of obligations was set at 447 TWh cumac, i.e. a 6.2-fold increase for the same duration compared to P1. P2 saw several major changes [7]:

- The *Pôle National des Certificats d'Économie d'Énergie* (PNCEE)[9] was created by ministerial order on 30 September 2011 [9] in order to centralise the processing of CEE applications (previously handled at regional level) and to set and ensure compliance with the CEE obligations [10].
- Suppliers of motor fuels exceeding a minimum annual sales threshold were added to the list of obligated parties.
- The definition of eligible players was restricted, excluding a number of legal entities such as manufacturers and agricultural cooperatives. Before this change, these parties could be both beneficiaries and eligible parties, "provided that their energy-saving operations do not fall within the scope of their main activity and do not generate direct revenue for them" [7].
- The CEE programmes were introduced into the scheme, providing obligated parties with a new mechanism for meeting part of their obligations.

At the end of the period, the target was again exceeded, with a total of 537.9 TWh cumac saved.

2.3

THIRD PERIOD, FROM JANUARY 2015 TO DECEMBER 2017

The obligation target for the third period (known as "P3") was set at 700 TWh cumac (plus, from 2016 onwards, 150 TWh cumac of "energy poverty"[10] certificates), i.e. more than twice the P2 target for the same duration, and the equivalent of an investment in energy-saving operations by obligated parties of nearly €2 billion [7].

Several improvements were made based on feedback from the previous period:

- The procedure for obtaining certificates was simplified: the application process was changed to a declarative commitment from the applicant[11], with checks carried out after the event. The required documents were also standardised.
- To ensure greater transparency, a steering committee was set up to ensure dialogue between the institutions and stakeholders involved in the scheme.
- On the recommendation of France's *Cour des Comptes*, a major revision was carried out, in particular to bring the scheme in line with the European directives on energy efficiency and the eco-design of energy-related products. The Order of 22 December 2014, known as the "14th Order", replaced the Standardised Operation Sheets hitherto in force with new sheets with standardised reference situations and methods of proof [11]. Over the three-year period, 13 other orders were issued, adding a further 106 Standardised Operation Sheets to the scheme

In addition, the operational details of the CEE scheme were integrated into the French Energy Code ([12], articles R. 221-1 to R.221-30 and R.22-1 to R.222-12).

2.4

FOURTH PERIOD, FROM JANUARY 2018 TO DECEMBER 2021

Continuing the sharp increase in the scheme's ambitions, the fourth period (known as "P4") opened with an obligation target of 1200 TWh cumac of conventional certificates, and 400 TWh cumac of energy poverty certificates. Decree No. 2019-1320 of 9 December 2019 extended the period by one year and increased the targets to 1600 TWh cumac of conventional certificates and 533 TWh cumac of energy poverty certificates.

P4 was characterised by an extension of the scheme at multiple levels:

- Decree 2017-1848 of 29 December 2017 introduced the status of CEE delegate [13].
- A record 75 CEE programmes were launched, generating savings of 266 TWh cumac [7], [14].
- The CEE scheme was extended to installations subject to Emissions Trading System (ETS) quotas, a scheme requiring European industrial sites that emit large quantities of greenhouse gases to comply with emissions quotas, through an amendment of Article L221- 7 of the French Energy Code (Article 143 of the 2019 PACTE Law [15]).
- For operations replacing a fossil fuel energy source with a renewable or recovered energy source for the production of heat, a change was made to allow the CEE scheme and the ADEME[12] *"Fonds Chaleur"* (Heat Fund) to be combined under certain conditions.
- Premiums[13] known as *"Coups de Pouce"* were introduced to encourage standardised operations targeting insulation and heating for private individuals.

In December 2021, the DGEC[14] announced that the number of white certificates requested would ensure that the P4 objectives would be met, with 6 months of surplus for future targets [16]. The month of December 2021 marked a record for the volume of certificates requested (96 TWh cumac) and issued (127 TWh cumac) [14].

2.5

FIFTH PERIOD, FROM JANUARY 2022 TO DECEMBER 2024

The targets for the fifth period (known as "P5"), initially set at 2500 TWh cumac, were increased (+25%) in July 2022 to 1970 TWh cumac of conventional certificates and 1130 TWh cumac of energy poverty certificates [12]. Obligations are now allocated based solely on volumes sold, and not on energy prices. This has significantly altered the balance of obligations, with increases of 83% and 52% respectively for natural gas and heating oil suppliers, but a fall of 11% for electricity suppliers.

The changes announced point to a period in which the system will be tightened:

- Premiums are to be refocused on high-impact projects. In addition, the permitted proportion of premiums in the obligations of obligated parties is now capped at 25% [7].
- The number of programmes will be drastically reduced. In industry, it has been announced that the three existing programmes (PRO-SMEn, PROREFEI and PRO-INVEEST) are to be discontinued and replaced by the PACTE INDUSTRIE programme. In addition, the proportion of programmes in the obligations of obligated parties is now capped according to the size of the obligated party, favouring access to programmes for small obligated parties [16] – See **Table 2** in Chapter 3.3.
- The DGEC has announced an objective of revising all the Standardised Operation Sheets (prioritising the most frequently used) and adjusting their reference situations and certificate allocations. ADEME has estimated that 25% of the certificate allocations overestimate the actual energy savings generated by the operations.
- The checking system is being significantly strengthened in terms of the resources deployed, the number of operations checked and the type of checks.

Part 3

The three main mechanisms of the CEE scheme

There are three ways of obtaining white certificates in the industrial sector: standardised operations, specific operations and contributions to a CEE programme.

3.1

3.2

3.3

3.1

STANDARDISED OPERATIONS

The main mechanism for obtaining white certificates (representing 85% of the volume of certificates issued) is to carry out an energy-saving operation listed in a Standardised Operation Sheet (FOS[15]). Each sheet lists a reproducible energy-saving operation and allocates a fixed volume of white certificates to it. The catalogue encourages widespread use of the scheme because it simplifies the process of obtaining white certificates and enables beneficiaries to determine the financial aid they will receive.

In April 2022, the scheme had 216 active FOSs, 33 of which were for industry. The number of FOSs is constantly changing as ministerial orders are issued to create, revise and withdraw them. Over 45 ministerial orders have been issued since the scheme was set up.

For those wishing to delve deeper into the details of a standardised operation, each FOS is associated with a Calculation Sheet[16], which details the assumptions, calculations and parameters used to draw up the FOS. Recent Calculation Sheets also include a record of successive revisions of the associated FOS. There are also "Explanatory Sheets", which provide details of the terms used and the technologies, and may concern several FOSs. All these documents can be consulted on the ATEE[17] website [20].

The Calculation Sheets and Explanatory Sheets complement the FOSs, but are not essential to understanding the standardised operation.

In a nutshell:

Nomenclature

Each Standardised Operation Sheet is given a reference number for easy identification, according to the following nomenclature:

STANDARDISED OPERATIONS AND THEIR SHEETS

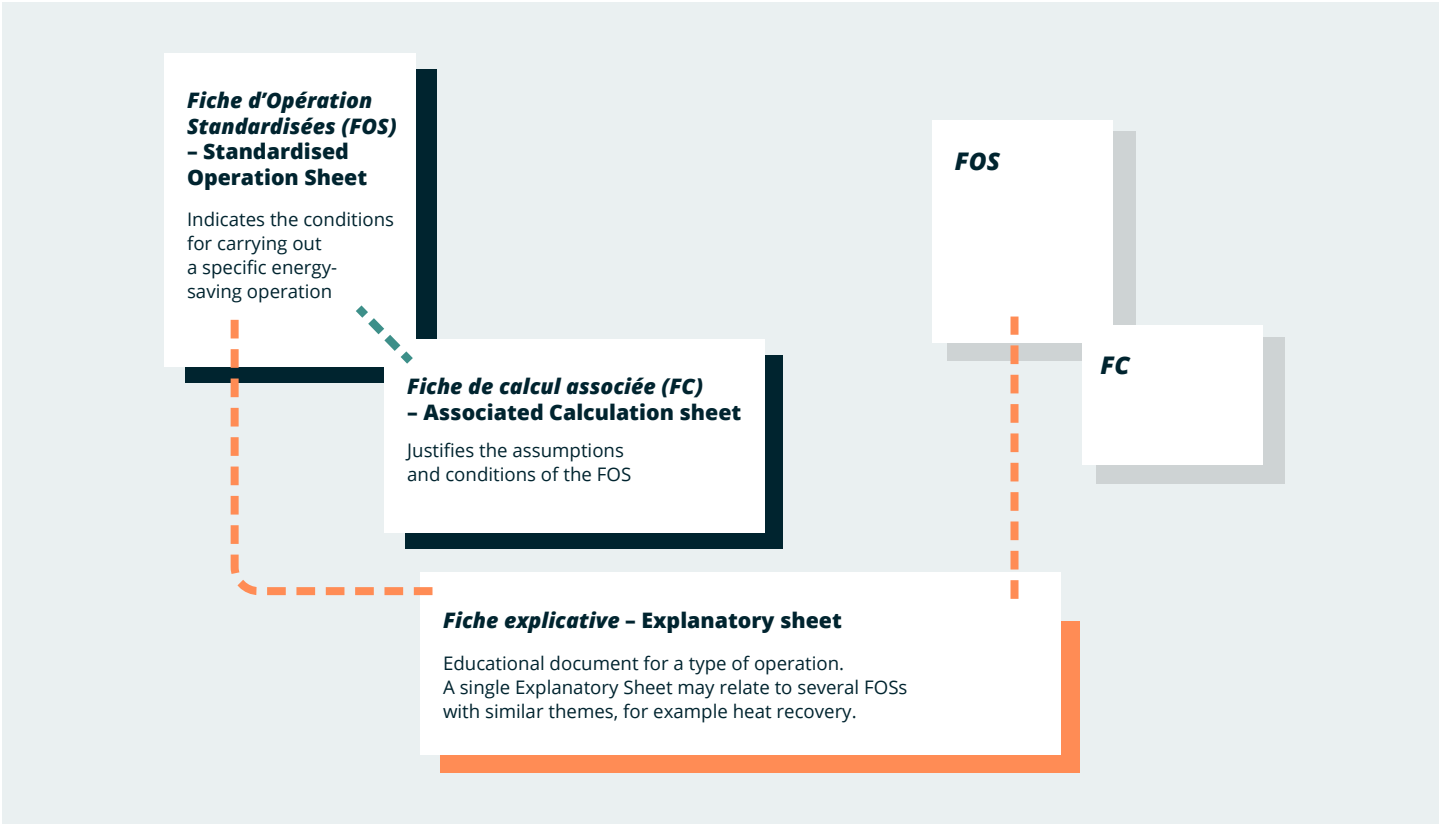


FIGURE 2

AAA-BB-XXX, where AAA is the (French) acronym identifying the sector, BB the sub-sector, and XXX the operation number (in order of publication within each sub-sector). Sheets numbered 0XX predate the full revision carried out in the 3rd period (2014) and have all been withdrawn; subsequent sheets are numbered 1XX.

It should be noted that certain sub-sectors can be found in several sectors: for example, there are AGRI-UT-XXX and IND-UT-XXX sheets.

This internal classification within the CEE scheme reflects the scope of application of an energy-saving operation. It relates to the activity of the premises where the operation will be carried out, which may be different from the site's main activity. The NAF code of a site is therefore not a relevant indicator for determining eligibility for an operation: operations carried out in the offices of an industrial production site, for example, come under the *Tertiary Buildings* sector. In addition, there are a certain number of sheets whose scope of application is flexible, for example some sheets for the Industry sector can be used (with or without conditions) for sites in the *Tertiary Buildings* or *Agriculture* sectors. These exceptions are explained in the CEE FAQ section on the website of the French Ministry of Ecological Transition [21]. ATEE and the DGEC should be consulted if in doubt.

FOS NOMENCLATURE BY SECTOR AND SUB-SECTOR

SECTOR	ACRONYM
Agriculture	**AGRI-**
Bâtiment résidentiel (*Residential building*)	**BAR-**
Bâtiment tertiaire (*Tertiary building*)	**BAT-**
Industrie	**IND-**
Réseaux (*Networks*)	**RES-**
Transport	**TRA-**

SUB-SECTOR	ACRONYM
Équipement (*Equipment*)	**-EQ-**
Services	**-SE-**
Thermique (*Thermal*)	**-TH-**
Utilités (*Utilities*)	**-UT-**
Enveloppe (*Envelope*)	**-EN-**
Bâtiments (*Buildings*)	**-BA-**
Chaleur et Froid (*Heating and cooling*)	**-CH-**
Éclairage (extérieur, ndlr) (*Lighting (exterior)*)	**-EC-**

Structure of a Standardised Operation Sheet

Every FOS has the same six chapters:

1.

Sector of application

Indicates which of the six sectors of the scheme the sheet belongs to. May include details restricting the scope of application.

E.g. "Industry, existing building, excluding offices"

2.

Designation

Specifies the nature of the operation, generally in more detail than in the title of the sheet.

E.g. The title of sheet IND-UT-118 is "Burner with heat recovery device on industrial furnace". Its"Designation" chapter specifies: "Installation of a self-recovery burner or a regenerative burner (self-regenerative or pair of regenerative burners) or a heat recovery device on the flue gases to preheat the combustion air on an industrial furnace [...]".

TABLE 1

3.

Conditions for obtaining certificates

All the regulatory, administrative and technical parameters that an operation must meet in order to comply with the FOS and generate white certificates.

E.g.
- "Any IE3 motor as defined by European Commission (EC) Regulation No. 640/2009 of 22 July 2009 is excluded from the standardised operation"

- "The documents proving that the operation has been carried out shall mention that the equipment was installed by a professional, and must give the equipment brand name and part number"

- "The temperature of the fumes leaving the furnace is greater than or equal to 600°C"

4.

Standard service life

Estimate of the service life of the equipment based on data from existing industrial equipment, expert opinions or previous FOSs. This value is used to define the discounted service life of the equipment, which is used to calculate the corresponding number of certificates.

E.g. In the FOSs in force for industry at the time of writing, the standard service life varies between 3 and 30 years, with the vast majority being 14 or 15 years.

5.

Amount of certificates in kWh cumac

Explains the formula used to calculate the volume of white certificates associated with the operation carried out. The number of certificates generally depends on technical parameters (temperature range, equipment power, quantity of heat recovered, etc.) and operating parameters (discounted service life, operating mode, climate zone, etc.). Sometimes the amount is based on pre-calculated formulas that already incorporate some of these parameters. Industrial companies can consult the corresponding Calculation Sheet for further details of the calculation.

6.

Appendix: Contents of part A of the sworn statement

Specifies the information required to complete the sworn statement for the work, which is a document that must be signed by the beneficiary and the installer[18].

E.g. Date and address, invoice reference, characteristics of the equipment installed, commitment to comply with the eligibility conditions, etc.

Process for drawing up Standardised Operation Sheets

The FOS drafting process mainly involves three key players in the scheme: ATEE, ADEME and the DGEC (the latter through its Energy Savings and Renewable Heat Office[19]. The standardised process is summarised in **Figure 3** and detailed below. Each milestone may mark the end of consideration of a proposed sheet, or a return to an earlier stage.

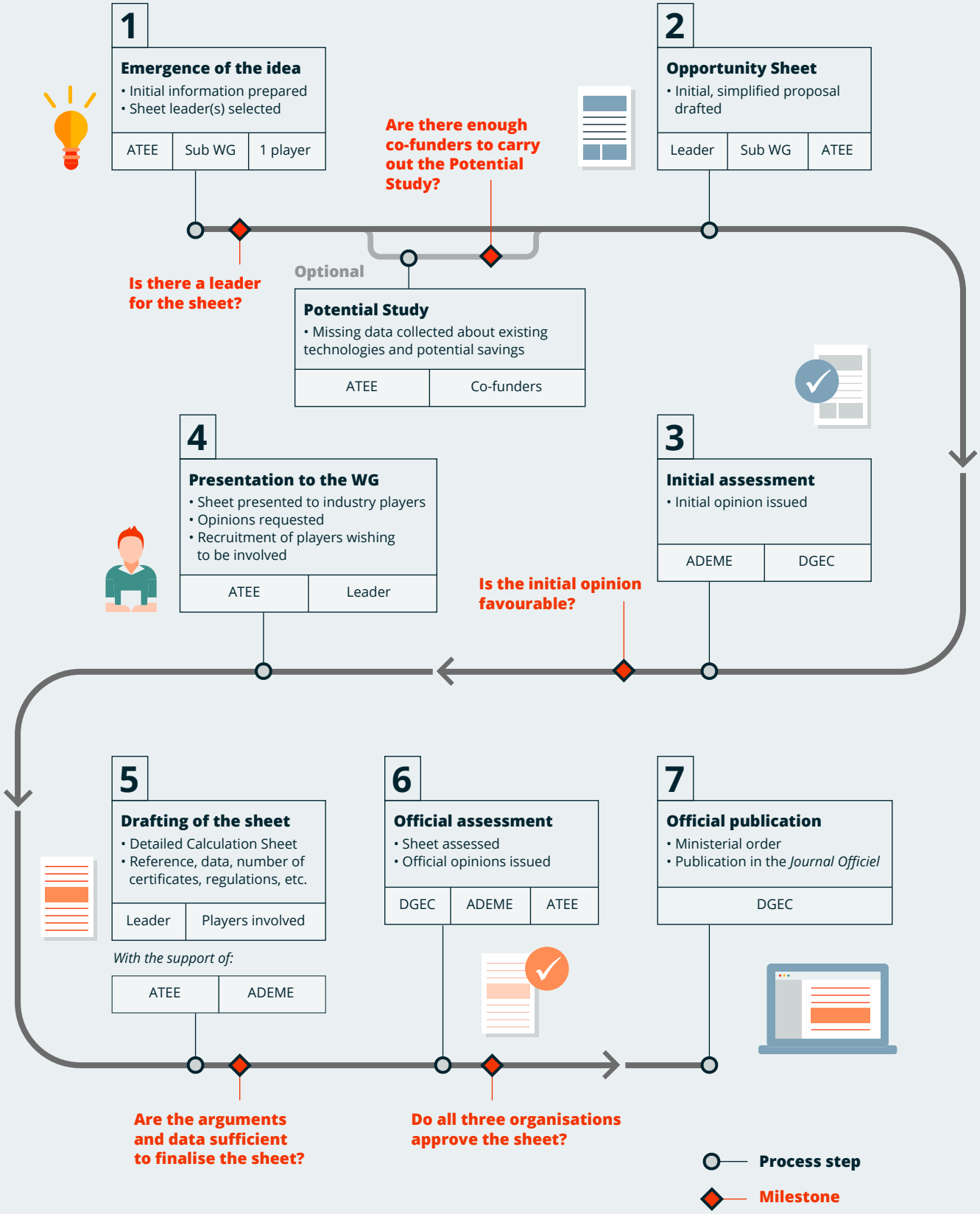

1
Emergence of the idea
• Initial information prepared
• Sheet leader(s) selected
ATEE
Sub WG
1 player
2
Opportunity Sheet
• Initial, simplified proposal drafted
Leader
Sub WG
ATEE
Are there enough co-funders to carry out the Potential Study?
Is there a leader for the sheet?
Optional
Potential Study
• Missing data collected about existing technologies and potential savings
ATEE
Co-funders
4
Presentation to the WG
• Sheet presented to industry players
• Opinions requested
• Recruitment of players wishing to be involved
ATEE
Leader
3
Initial assessment
• Initial opinion issued
ADEME
DGEC
Is the initial opinion favourable?
5
Drafting of the sheet
• Detailed Calculation Sheet
• Reference, data, number of certificates, regulations, etc.
Leader
Players involved
With the support of:
ATEE
ADEME
6
Official assessment
• Sheet assessed
• Official opinions issued
DGEC
ADEME
ATEE
7
Official publication
• Ministerial order
• Publication in the Journal Officiel
DGEC
Are the arguments and data sufficient to finalise the sheet?
Do all three organisations approve the sheet?
Process step
Milestone

FIGURE 3

1

Emergence of the idea
The starting point for drafting a new FOS can take several forms. Generally, candidate operations are identified during discussions between professionals within thematic sub-working groups (Sub-WG). Thanks to its overall vision and experience, ATEE can also suggest topics for sheets to be explored. Finally, sometimes an industry player contacts ATEE directly with an idea for a sheet.

A leader or group of co-leaders emerges – often manufacturers who would benefit directly from the existence of a sheet as a way of promoting their solution. The sheet leader(s)are the driving force behind the discussions and are responsible for drafting the Opportunity Sheet[20].

Optional: Potential Study
When a subject of interest is identified, it may happen that the data available for the reference situation[21], i.e. the energy performance figures for the equipment in question, is incomplete. In this case, ATEE may take the initiative of setting up a Potential Study to expand its knowledge and assess the interest of a FOS. This mechanism is not included in the scheme's standard process and is therefore not covered by a dedicated budget.

ATEE relies on a co-financing model where any interested party can make a financial contribution to the study in order to gain access to the results.

2

Drafting the Opportunity Sheet
With the help of ATEE, the sheet leader draws up an initial simplified document: the Opportunity Sheet. This has the same structure as a FOS, but there is no associated Calculation Sheet. The sheet leader completes the various chapters with the available information.

3

Initial review of relevance
ADEME and the DGEC examine the Opportunity Sheet and issue an initial opinion based on a variety of more or less explicit criteria: sufficiently mature technology, sufficient potential for operations, existence of multiple suppliers[22] on the market, conflicts with existing sheets, available data, perceived obstacles, etc. An unfavourable opinion may mean that the proposed sheet is abandoned. In the event of a favourable opinion, this stage enables the leader to identify the points to be addressed in the subsequent stages.

4

Presentation to the working group
Within its CEE Club, ATEE leads several sector-specific working groups, one of which is dedicated to industry. Four times a year, the members – around one hundred players – meet online to take stock of current activities: news on the scheme, revisions and withdrawals of sheets, presentation of newly proposed sheets ("Opportunity Sheets"), FAQs between manufacturers and government departments, etc. The proposed sheet is presented to the Industry working group so that the sheet leader can address the initial questions and comments from other industry players. This is also an opportunity to identify players interested in contributing to the drafting of the FOS, in order to set up a dedicated sub-working group.

5

Drafting of the FOS and the associated Calculation Sheet

Led by the sheet leader, the sub-working group collects data, defines the key parameters and details the calculations required to draw up the FOS and the Calculation Sheet. The resulting FOS is a consensus between the players involved. ATEE supports the sub-working group throughout the process, and ADEME is often consulted at regular intervals.

6

Official examination

Once the sheet has been finalised, it is submitted to ATEE, ADEME and the DGEC's Energy Savings and Renewable Heat Office for their opinion. A favourable opinion from all three bodies is required in order for the sheet to become an official FOS. In the event of disagreement between the parties, the final decision lies with the Head of the Climate and Energy Efficiency Department of the DGEC, which is particularly vigilant about the possible windfall effects that sheets could generate. A refusal at this stage marks the end of the project.

7

Official publication

The DGEC's Energy Savings and Renewable Heat Office draws up the ministerial order, which is then examined by the *Conseil Supérieur de l'Énergie* and published in the *Journal Officiel*. The new FOS is added to the catalogue of existing sheets, and can be used for white certificate applications.

The process of drawing up an FOS is interlinked with key events for the scheme (e.g. the date of the next working group or ministerial order). It depends on the availability of the institutions and the project leaders, who carry out the drafting in parallel with their usual professional activity. In addition, the time required to acquire data and calculate the number of certificates varies depending on the subject of the sheet. Generally speaking, 6 to 36 months elapse between the emergence of the idea and the official publication of the FOS.

Process for revising and withdrawing Standardised Operation Sheets

The FOS revision process is always initiated by the DGEC. The DGEC sometimes asks an external service provider to assess the FOS: on the basis of an analysis of its eligibility conditions, the associated number of certificates, changes in the reference situation, usage and any fraud identified, the service provider issues an opinion as to the need for a revision, and if necessary, makes proposals for amendments. Industry players are informed and consulted through the Industry working group led by ATEE, and ADEME is asked to act as an independent expert.

The schedule for future revisions is generally drawn up 1 to 2 years in advance, and is regularly updated and published in the public minutes of the CEE Steering Committees [22] and at the annual CEE symposium [16] which ADEME and ATEE take turns organising every other year.

Common reasons for a revision are:

- New regulations or changes in the available technology that necessitate a revision of the reference situation, which generally results in a reduction in the volume of white certificates associated with the sheet;
- Detection of windfall effects or fraud for a sheet;
- Detection of ambiguities in the wording of the sheet or recurring errors in applications, requiring the addition of information or clarification of the sheet;
- The publication of a new sheet that cannot be combined with an existing sheet, meaning this information must be specified in both documents.

In the event that changes in the situation render a sheet obsolete or make the associated number of certificates too low to be a real incentive, the DGEC may schedule the withdrawal of the sheet in question. If this is the case, all applications submitted before the official withdrawal date will be considered for white certificates, even if they are processed after the withdrawal date.

Obtaining white certificates through standardised operations

HOW TO APPLY

The process of obtaining white certificates by carrying out a standardised operation involves the following stages [23], [24] :

FIGURE 4

SUMMARY DIAGRAM OF THE PROCESS FOR OBTAINING WHITE CERTIFICATES THROUGH STANDARDISED OPERATIONS

The process is initiated by the future beneficiary, who identifies (or asks a third party to identify) potential energy savings on their site, their investment capacity and the actions considered standardised operations under the CEE scheme. In practice, this preliminary study is often carried out directly by an installer or an obligated party (energy supplier, agent or delegate) with an in-house design office.

The beneficiary chooses the obligated party with whom it wishes to work (sometimes through a competitive tendering process). The two parties sign a Financial Incentive Agreement. This document sets out the amount of the financial incentive paid for the volume of certificates issued, the payment terms, the schedule and any associated services. The agreement will also serve as proof of the obligated party's "active and incentivising role" in the decision to implement the project(s).

The beneficiary then selects an equipment supplier (manufacturer or installer) to carry out the work. The equipment supplier must have the *"Reconnu Garant de l'Environnement"* (RGE) certification. Some obligated parties offer complete packages: they have a design office to carry out the design and sizing studies, professionals to carry out the work on site, as well as off-the-shelf solutions or a list of partner equipment manufacturers. In this case, the beneficiary can rely on the expertise of the obligated party. The quotation or purchase order will serve as proof that the work has been commissioned. The work commissioning date must be after the date on which the Financial Incentive Agreement is signed.

The installer carries out the operation in compliance with the conditions imposed by the FOS.

The beneficiary and the installer sign a sworn statement confirming completion of the work. This document, together with the invoice and the technical data sheet for the equipment installed, will serve as proof of completion of the work.

For certain operations, the FOS requires an inspection to be carried out before the CEE application is submitted. This inspection is the responsibility of the obligated party, who must appoint an accredited inspection body to come and check the conformity of the work on site. If the work does not pass the inspection, the installer must carry out further work before the application is submitted. This mechanism is becoming more widespread – for more information, *see chapter 4. Checking of operations.*

The obligated party must submit an application to the PNCEE via the Emmy platform[23] within a maximum of 12 months following the work completion date. From this point on, the obligated party is referred to as the "applicant". The beneficiary and the installer must provide the PNCEE with the necessary supporting documents. Since CEE applications for standardised operations must cover a volume of more than 50 GWh cumac, the applicant can combine several hundred or even several thousand standardised operations. This threshold reduces the number of applications that the PNCEE has to process. There are two exemptions to this rule:

- Several small applicants can file a joint application under the responsibility of a designated "grouper" in order to reach the threshold.

- If an applicant cannot reach the threshold, the applicant may submit its application, together with a sworn statement that no other application for a volume below the threshold has been or will be submitted during the calendar year of the application.

At this stage, French white certificates are said to be "requested"[24].

8

The PNCEE receives the CEE application. It examines the application and, if necessary, requests additional information or corrections from the applicant. The PNCEE has two months from receipt of the complete application to respond. In practice, the PNCEE and the applicant may go back and forth several times, and it is not uncommon for an application to be validated 18 months after it was initially submitted.

9

Once all or part of the operations covered by the application have been validated, the PNCEE issues the white certificates to the applicant's Emmy account – at this point, the certificates are said to have been "issued"[24]. If certain operations have been rejected, the PNCEE informs the applicant of the reasons.

10

Once the applicant has obtained their certificates, they pay the financial bonus to the beneficiary of the operation, within the agreed period. It should be noted that there are two common practices that allow the beneficiary to obtain the financial aid in advance, thus reinforcing the incentive nature of the scheme:

- As part of the Financial Incentive Agreement, the obligated party may undertake to pay a deposit to the beneficiary before the work begins so that the beneficiary does not have to advance the entire amount while waiting for the CEE bonus payment.
- As part of its commercial offer, the installer may propose an immediate discount on the invoice for the operation. The beneficiary pays the installer the cost of the operation less the CEE bonus, and the obligated party then pays the bonus to the installer once the application has been accepted.

CONTENTS OF THE APPLICATION

Simplified since the 3rd period of the scheme, CEE applications for standardised operations are based on sworn statements from the beneficiary, the applicant and the installer. The application must include at least the following information:

- Type of operations: standardised
- Proof of applicant's eligibility to receive white certificates
- A table summarising each operation carried out:
  - Identity of the applicant, the agent (if applicable), the beneficiary, the installer, and the inspection body (if applicable)
  - Applicant's internal reference, Emmy reference and the CEE operation reference
  - Expected volume of certificates and associated financial amount; premium where applicable
  - Work commissioning date and invoicing date
- For each operation carried out:
  - Proof that the work has been carried out (e.g. invoice), signed by the beneficiary and the installer.
  - Sworn statement of compliance with the ministerial orders defining the standardised energy-saving operations covered by the application.
  - Financial Incentive Agreement signed prior to commissioning of the work (proof of the applicant's "active and incentivising role" in initiating the work)
  - Proof of non-cumulation with other schemes

Types of premium

In some cases, requests for white certificates for standardised operations may be eligible for a premium, i.e. extra certificates, resulting in a stronger financial incentive for the beneficiary. These premiums enable the government to make the scheme more attractive for priority actions. There are currently premiums for three categories of action [20, 21]:

- **Operations carried out in a ZNI zone** (island areas not connected to the continental grid): Corsica, DROMs, COMs, Ponant islands, Chausey islands. The volume of certificates issued for these operations is multiplied by 2.
- **Operations carried out as part of an Energy Performance Contract** (EPC)[25], for a residential or tertiary building. The premium varies according to the terms of the EPC.

- **Operations that fall under the *"Coup de Pouce"* scheme.** The premium varies according to the income level of the beneficiary (private individual) [27].

  — Within the *Coup de Pouce* scheme, the "Heating" premiums reward the replacement of a fossil-fuel boiler with a renewable energy solution, in a private home or in a tertiary or residential building, whether individual or collective.
  — The "Insulation" premiums reward insulation work on ground floors, attics or roofs carried out in the homes of private individuals.
  — The "Renovation" premiums are awarded for overall renovation work on individual or collective residential buildings.
  — The "Thermostat" premiums reward the installation of devices to control energy consumption in individual buildings.

It should be noted that until the start of the 5th period (January 2022), there was a premium for **operations aimed at households with a high level of energy poverty.** For this, the volume of energy poverty certificates issued was multiplied by 2, or by 3 if the operation was also in a ZNI.

3.2

SPECIFIC OPERATIONS

Principle

The aim of the Standardised Operation Sheets is to cover common energy-saving operations that are reproducible on a large scale and carried out under conditions that are sufficiently similar to be standardised. However, particularly in industry, there are many cases where an operation cannot be covered by an FOS, for a variety of reasons:

- The operation is not covered by an existing FOS.
- The operation is covered by an existing FOS, but falls outside the technical limits of the sheet (e.g. temperature range, power, quantity of heat recovered, etc.).
- The operation is covered by an FOS which is not intended to apply to the sector of the site concerned.
- The operation is carried out on an appliance leased by the beneficiary, and the leasing period is less than the standard service life stipulated in the FOS.
- The site of the operation is subject to EU ETS quotas (more information in *chapter 3.2.3*).

There is therefore a "Specific Operations" mechanism to cover operations that fall outside the standard framework. To a certain extent, this mechanism can also be a strategy to help players enter the scheme: by obtaining white certificates for a specific operation, industrial players benefit from investment support for their project, while generating quantified feedback to support the future development of Standardised Operation Sheets.

However, the procedure is more complex, as each operation is carefully examined to avoid fraud and windfall effects.

Obtaining white certificates for specific operations

The process of obtaining white certificates for specific operations is more complex than that for standardised operations. The application comprises an administrative section and a technical section [23]. The subtleties of this approach are described in detail in a technical guide published by ADEME in 2021 [28].

As specific operations deal with non-duplicable operations, it is necessary to justify certain elements that would have already been taken into account in a Standardised Operation Sheet. The administrative section of an application for white certificates for a specific operation must therefore include all the elements listed for a standardised operation, plus:

- Proof that the operation was not carried out for the sole purpose of complying with the regulations in force.
- Commitments from the beneficiary and the installer that they will provide the documents required for the CEE application exclusively to the applicant (the aim is to prevent the same project being submitted by multiple applicants).

The technical section of the application must contain the following information:

- An energy audit
- A description of the reference situation (regulations or typical case study), the situation before the operation and the projected situation after the operation. An energy-saving project that would result in an increase in greenhouse gas (GHG) emissions compared with the initial situation is not eligible.
- A calculation of the expected annual energy savings, the amount of CEE certificates requested, and justification for the service life used.
- A calculation of the project's Payback Time (PBT). Note that projects with a PBT of less than 3 years are not eligible for CEE certificates.

As specific operations are rarer than standardised operations, applicants can submit an application as soon as they reach a total of 20 GWh cumac, instead of 50 GWh cumac for standardised operations. On receipt of the complete application, the PNCEE has 6 months, renewable once, to respond to the application. It may ask ADEME to assess the technical aspects of the application to check their relevance. In practice, the PNCEE and the applicant may go back and forth several times, and it is not uncommon for an application to be validated more than 24 months after it was initially submitted. This type of operation therefore requires working capital to cover the cost of the work while waiting to receive the CEE payment.

Extension of the scheme to installations subject to EU-ETS quotas

Since the PACTE Law of 22 May 2019 [15], sites subject to EU-ETS quotas are eligible for the CEE scheme if:

- They are equipped with an ISO 50001 certified energy management system.
- They have an activity that is eligible for the issue of free GHG emission allowances, or an activity involving the supply of heat to sites eligible for free emission allowances.
- The energy-saving operation does not lead to an increase in GHG emissions.

However, these sites only have access to the specific operations mechanism, so each application is examined with particular care. The criteria to be met are more stringent than in the case of a standard application [28]. They include:

- The application must comply with the recommendations of the "ETS Guidelines", which define rules for determining the reference situation, the service life and the methods for calculating the volume of certificates.
- The calculation of the PBT must take into account the value of the emission allowances for the avoided GHG emissions.
- The projected energy savings must be validated by subsequent on-site measurements carried out by the CEE applicant over a minimum period of 6 months.

3.3

CEE PROGRAMMES

Principle

The CEE programmes are large-scale initiatives designed to inform, train and innovate in order to reduce energy demand and energy poverty. They help to democratise the scheme among beneficiaries, develop the skills of the many stakeholders involved, run renovation campaigns and reduce energy poverty among the most disadvantaged households.

Financially contributing to a CEE programme is a third way for obligated parties to obtain white certificates. It differs from standardised and specific operations in that it aims to finance actions that contribute to energy savings in an indirect or difficult-to-quantify manner [29]. This mechanism represents 11.5% of the white certificates target for the 5th period.
In addition, new provisions were introduced at the beginning of the P5 period to facilitate access to programmes by small obligated parties [30]:

VOLUME OF OBLIGATION OF THE OBLIGATED PARTY	PLAFOND CAP ON THE PROPORTION OF CONTRIBUTIONS TO CEE PROGRAMMES IN ITS OBLIGATION
> 1 TWhc	650 GWhc + 15% of the obligation exceeding 1,000 GWhc
0.5 - 1 TWhc	400 GWhc + 50% of the obligation exceeding 500 GWhc
< 0.5 TWhc	80%

CAPS ON THE PROPORTION OF CONTRIBUTIONS TO CEE PROGRAMMES IN THE OBLIGATION OF OBLIGATED PARTIES

TABLE 2

Creation of a CEE programme

In order to create a new programme or to renew one that is coming to an end, the DGEC publishes a call for programmes on the website of the Ministry of Ecological Transition, based on specifications specifying the theme and objectives of the programme, an initial estimate of the associated volume of white certificates, and all the eligibility and assessment criteria for applications. Programme coordinators can respond by sending in an application, which is followed by an interview.

Among the programme selection criteria, the following key concepts are recurrent [20, 21]:

- Target audience: the programme is aimed solely at energy consumers or professionals whose activity is linked to energy savings.
- Incentive: in the same way as a standardised or specific operation, the CEE programme must focus exclusively on actions that could not have been implemented without the support of the CEE scheme.
- Exclusive: the entire budget allocated to the programme must be earmarked for energy-saving initiatives.
- Innovation: the programme proposes actions that have not yet been tried out in France, or demonstrates, using figures, the benefits of renewing an existing scheme.

The DGEC selects the programme coordinator, if necessary with the support of ADEME's expertise, then officially creates the programme by ministerial order, indicating the purpose and duration of the programme, the identity of the coordinator and the maximum volume of white certificates that will be issued.

Selection by call for programmes is the preferred method for selecting programmes, but there is one exception. If a programme is likely to be run by a public or not-for-profit organisation that is a leading player in the field (e.g. ADEME, AVERE), the organisation may be asked to submit a programme without going through a public call for programmes. Of course, ADEME cannot be asked to act as an independent expert to assess an application when it is itself an applicant.

In the weeks following the official launch of the programme, a new call for applications is issued by the DGEC, this time in the form of a call for funders. This is aimed at any obligated or eligible party (other than the programme coordinator) who wishes to contribute to the programme's funding. It is divided into tranches of 100 GWhc, which must be split between a minimum of two separate funders. The selection criteria are defined by the programme coordinator, who oversees the choice of funders, with the support of the DGEC.

Once the programme coordinator and funders have been selected, the programme is set out in an agreement between all the parties involved: DGEC, ADEME, the coordinator and the funders. This agreement defines the programme objectives, the budget, the commitments and rights of the parties involved, the operational process, the list of deliverables and the audit and evaluation procedures. The budget is calculated as follows:

Total budget =
Maximum number of white certificates available
x
conversion coefficient (€/CEE)

The CEE programme is now operational.

Life cycle of a CEE programme

Over the life of the programme, the stakeholders meet every three to six months in Steering Committees (COPIL) to take stock of the actions carried out and those to come, to define the communication strategy, to update the financial statement and to approve the release of funds where necessary [30]. The programme coordinator is also responsible for carrying out an annual self-assessment of the programme and must be able to provide the DGEC with a list of beneficiaries if requested.

Each year, the DGEC selects a sample of programmes to be audited. The audit is carried out at the programme's expense and at any point in its life cycle, and aims to assess whether the programme is being properly implemented and whether the agreement is being complied with, both financially and technically (actions carried out, deliverables, etc.). The programme coordinator is responsible for appointing an independent auditor and providing all the necessary documents.

In addition, ADEME and the DGEC regularly organise themed workshops to allow the coordinators of different CEE programmes to share feedback and best practices.

Closing of a CEE programme

At the end of the programme, the coordinator completes an end-of-programme report, which will be made public. This summarises:

- The purpose of the programme,
- The progress of actions undertaken and the resources deployed,
- The results achieved and the deliverables produced,
- An assessment of the impact of the programme
- The difficulties encountered
- Any links with other programmes
- Possible follow-up to the programme

The programme can then follow one of three paths:

1) Continue outside the framework of the CEE scheme, under co-financing agreements between the coordinator and interested financial backers.

2) Be presented for renewal during a call for programmes. In this case, the coordinator must use the programme report and assessment to argue the case for renewal.

3) Stop definitively.

Existing programmes

In June 2022, the CEE scheme had 57 active programmes, corresponding to a total investment by obligated parties of €1.37 billion and the delivery of the equivalent of 236 TWh cumac of white certificates [21, 22]. The transport and building sectors together accounted for 68% of the programmes and 88% of the budget invested.

At the time of writing, industry, for its part, has only one active programme, called *"PACTE Industrie"*[33]. Created in 2023 and managed jointly by ADEME and ATEE, it offers support and training courses on energy-saving issues for manufactures. It has a substantial budget (€49 million over 3 years), as it comprises various components that take over from previous programmes and schemes:

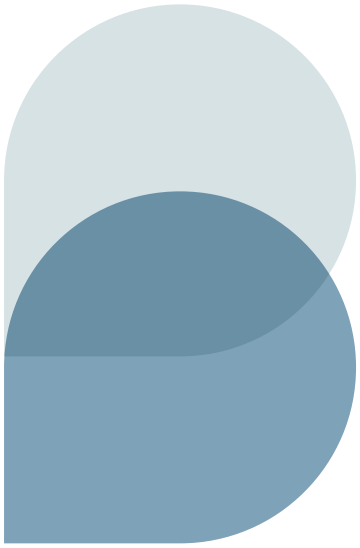
- Course for technical energy advisors at industrial sites
  - "PROREFEI" training course, on structuring an energy strategy
  - Completion of an analysis to identify opportunities for changing the energy mix
  - "PRO-SMEn" financial incentive, to support implementation of the ISO 50001 standard at a site
- Course for executives and CSR managers
  - "ACT Step-By-Step" personalised support and training, to help define a decarbonisation strategy and investment trajectory
  - "ACT Evaluation" personalised support and training on evaluating a decarbonisation strategy
- Course for financial directors (opening in 2024)
  - Project finance training
  - Coaching for the management of low-carbon investment projects

This training and support is provided by ADEME-approved service providers, with 40% to 80% co-financed by the programme, and the remainder paid by the beneficiary.

Obtaining white certificates through a CEE programme

In the same way as for an application for white certificates for standardised or specific operations, a obligated or eligible party that finances a CEE programme must submit an application to the PNCEE in order to claim the corresponding white certificates. Among other things, this application must include the programme report; details of all expenditure relating to the programme, certified by a chartered accountant; and a sworn statement from the programme coordinator confirming payment of the funds by the obligated party [30]. The application must be for a minimum amount equivalent to 20 GWh cumac of energy savings. On receipt of the complete application, the PNCEE has 2 months to respond to the request.

Part 4



Checking operations

With a view to encouraging widespread implementation of operations, French white certificates are claimed on the basis of a sworn statement from the parties involved (the obligated party, the beneficiary and the installer) and on the basis of declaratory documents. Safeguards therefore need to be put in place to limit fraud and poor workmanship. Part of this work is carried out when drawing up and revising the Standardised Operation Sheets, by setting eligibility conditions (limited size of project, compulsory feasibility study, etc.) and adjusting parameters to the reality on the ground (revision of the associated number of certificates, exclusion of specific cases, etc.). The second part of this work takes place at the other end of the process, in the form of checks of CEE applications. These checks can take various forms [34]:

Documentary checks

Documentary checks were the first checking mechanism used in the system. They consist in the PNCEE requesting the supporting documents and associated calculations that the applicant does not have to send with their initial application but is required to archive. The purpose is to check the conformity of the documents and the consistency of the calculations.

On-site inspections

This is the most costly and time-consuming mechanism. It involves checking that the declared work has been carried out correctly by means of an on-site inspection by an accredited body appointed by the PNCEE.

Checks by direct contact

At the time of writing, this mechanism is being tested. It involves contacting the beneficiary of an operation directly by telephone, post or e-mail to ask them to complete a questionnaire. As the beneficiary is the company, individual or local authority that benefits from the energy savings, it is theoretically in their interest to report any faulty work so that the PNCEE can oblige the CEE applicant to have the work redone by an installer.

Checks to be carried out by the applicant

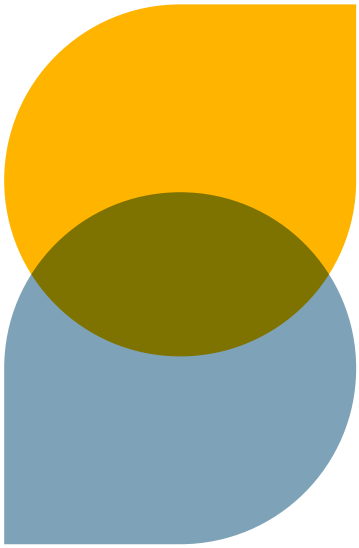
This new checking mechanism – the only *ex ante* check – was introduced for operations eligible for the *"Coups de Pouce"* measure in 2018 and extended to certain CEE sheets in 2021. The CEE applicant is obliged to appoint an inspection body to carry out a check on a sample of operations in the application before it is submitted to the PNCEE. The inspection body must be COFRAC-accredited in the field of expertise corresponding to the operations being inspected. Each FOS is associated with one of 8 fields of expertise, defined in the 42nd ministerial order (2021) [30, 31]. If the proportion of non-compliant operations detected exceeds a defined threshold, the operations must be corrected or withdrawn from the application before submission to the PNCEE.

This mechanism makes it possible to detect non-compliance upstream and reduce the number of applications to be processed by the PNCEE. This mechanism is to be extended to a large number of Standardised Operation Sheets during P5. At the time of writing, the most checks are triggered following a complaint from the beneficiary or the installer, or a report from a partner administration [34]. A small proportion of checks are carried out by random sampling.

However, the DGEC has announced a significant increase in the number of random sample checks to be carried out during P5. Its aim is for 7.5% of applications to be checked by this method by 2022, rising to 15% by 2023 [16]. This corresponds to a budget of between €6 and €8 million, which is more than double the budget for checks in P4. Unlike the financing of operations, this budget for checks is borne directly by the State. Alongside this, exchanges of information between the PNCEE, the fraud control department, the tax authorities, the customs authorities and the police and gendarmerie will be stepped up.

Each year, the PNCEE publishes a public report on the checks carried out, indicating in particular the proportion of non-compliance detected.

Part 5



CEE accounting and trading

The majority of energy-saving operations are financed by obligated parties (energy suppliers, agents and delegates), and the associated certificates are issued directly to them by the PNCEE. However, some operations are financed by eligible parties who are not subject to an obligation. These players are therefore issued with white certificates, which they can sell to obligated parties in one of two ways: "forward" sales, i.e. at a price defined even before the certificates are generated, or "spot" sales, i.e. after the certificates have been generated, at a price in line with the market [2].

There is therefore a market and an exchange rate for French white certificates, and these vary according to current events. For example, as the end of a CEE period approaches, obligated parties who have not fulfilled their obligation seek to purchase certificates from eligible parties, thereby increasing demand and, in turn, the price of the certificates. Conversely, a large stock of white certificates in the accounts of obligated parties or an unambitious level of obligation reduces the need to purchase certificates, thereby lowering demand and the price of the certificates. It should be noted that certificates issued may only be used to meet the obligation for the period during which they were issued or the obligation for the following period (article R221-25 of the French Energy Code [12]), which limits speculation.

To provide a framework for this market, an online platform called Emmy [37], [38] acts as a national registry, centralising key services for the scheme:

- Obligated and eligible parties use the platform to submit their CEE applications to the PNCEE, which can then make requests for corrections or additional information via the platform.
- The PNCEE issues the certificates by crediting them to applicants' electronic accounts.
- Obligated and eligible parties buy and sell certificates via the platform. The platform keeps a record of all CEE transactions and ensures that the signatures binding the parties are valid.
- It reports monthly on changes in the price of conventional white certificates and energy poverty white certificates (which have a higher price).
- Finally, the PNCEE uses the Emmy accounts to check whether each obligated party has fulfilled its obligation.

Any obligated or eligible party wishing to hold or trade French white certificates must have an account on Emmy.

Part 6

The cycle of CEE periods and administrative reconciliation

The CEE scheme operates for successive periods of 3 to 4 years. For each new period, the volumes of obligations are redefined, usually with a significant increase compared with the previous targets.

A change of period is also an opportunity to make changes to the regulatory framework and the workings of the scheme. Six months before the end of each period, the Ministry draws up a report evaluating the scheme, covering the energy savings made, the cost to obligated parties, the impact on energy prices, and any fraud observed. On the basis of this report, it submits its proposed changes for the coming period to the French Parliament (Article L221-1-2 of the French Energy Code) [12]).

The end of each period is followed by a special phase called administrative reconciliation, which consists in verifying that each obligated party has complied with its obligation [7]:

2 months after the end of the period

Obligated parties must have sent their energy sales volumes for the completed period by e-mail to the Minister responsible for energy. These declarations will be used to define their obligations for the new period, and must be certified by a chartered accountant or auditor.

5 months after the end of the period

The Ministry publishes the obligations for the new period.

6 months after the end of the period

The company responsible for maintaining the Emmy register sends the Ministry the statement of each obligated party's account. The Ministry verifies that each obligated party's account contains a volume of certificates equal to or greater than its obligation.

- In the event of non-compliance with its obligation, the obligated party is given formal notice by the PNCEE to acquire additional certificates. If the obligated party does not comply with this formal notice within the allotted time, it is required to pay the Treasury a penalty of €0.02 per missing kWh cumac. It will also be subject to a surcharge of 10% per six-month period of late payment ([34]; Articles L221-3 and L221-4 of the French Energy Code [12]).

- If the obligation is met, the PNCEE asks the company responsible for maintaining the Emmy register to deduct the equivalent of the obligation fulfilled from the obligated party's account, leaving only any surplus certificates, which can be counted for the following period. The obligated party is notified of this operation.

Further reading

« Certificats d'économies d'énergie pour les entreprises », ADEME et ATEE, mars 2020, réf. librairie ADEME n°010355

Catalogue des fiches d'opérations standardisées pour l'industrie : https://atee.fr/efficacite-energetique/club-c2e/fiches-doperations-standardisees/industrie

« Guide technique pour le montage d'un dossier CEE dans le cadre d'une opération spécifique », ADEME, novembre 2021, réf. Librairie ADEME n° 011619

« Questions-réponses sur le dispositif CEE », la FAQ du Ministère de la Transition Énergétique régulièrement mise à jour : https://www.ecologie.gouv.fr/questions-reponses-sur-dispositif-cee

Glossary

This glossary defines terms that are specific to the French white certificates scheme or that are used in the summary. The glossary entries are sorted in alphabetical order. A reference to the glossary is made the first time a term appears in the summary.

ADEME

Public body of an industrial and commercial nature under the supervision of the Ministry of Ecological Transition and Territorial Cohesion, the Ministry of Energy Transition and the Ministry of Higher Education and Research [39]. ADEME plays an important role in implementing public policies on energy and environmental protection, and administers numerous calls for projects and funding schemes in these areas. ADEME is also involved in the French white certificates scheme as an independent technical expert. It contributes to the validation of proposals for new FOSs and the evaluation of certain specific operations, and monitors the CEE programmes.

Agent (FR: *mandataire*)

Company working on behalf of an obligated party to manage all or part of the latter's white certificates obligation. Unlike delegates, agents can be likened to subcontractors.

Applicant (FR: *demandeur*)

A player who submits an application for French white certificates to the PNCEE based on standardised or specific operations, or its contribution to a CEE programme. Only obligated parties (including delegates), eligible parties and agents may be applicants.

Associated Calculation Sheet (FR: *fiche de calcul*)

More detailed than the FOS, the Calculation Sheet sets out the assumptions and parameters used to draw it up, as well as the method used to calculate the volume of certificates attributable to the operation concerned. It provides a written record of the preparation and revision of the FOS.

ATEE

A non-profit organisation (Association Loi 1901) set up in 1978 to promote energy management. As an interface between institutions and companies and a long-standing expert in energy efficiency and renewable energies, it runs thematic working groups open to all member companies and local authorities. In particular, it runs the "CEE Club", which has working groups dedicated to each sector targeted by the scheme. These forums are the ideal place to find out about the timetable for ministerial orders, work together on ideas for new FOSs, and keep up to date with the latest news on the scheme.

Beneficiary *(FR: bénéficiaire)*

End user of the energy-saving operation financed by an obligated party; either the owner of the equipment installed or the recipient of the service provided. This may be a company, a local authority, an individual or group of individuals, etc.

Certificates requested and certificates issued *(FR: CEE déposés et CEE délivrés)*

For administrative reasons, there can be a time lag of up to 18 months between the start of an energy-saving operation and the receipt of the corresponding white certificate. To avoid confusion, it is customary to speak of "certificates requested" or "operations undertaken" when the operation has been carried out and the application has been received by the PNCEE; and of "certificates issued" once the PNCEE has validated the application [22].

Compliance with the obligation is assessed based on applications submitted during the period studied, even if the processing time means that some of the certificates are issued after the period's closing date.

Conventional" certificates and "energy poverty" certificates *(FR: CEE "classique" et CEE "précarité")*

Since 2015, a proportion of the operations financed by obligated parties have been targeted at households in situations of energy poverty. The corresponding "energy poverty" certificates have their own obligation targets, monetary value and rules regarding premiums.
In contrast, white certificates generated by any other type of operation are referred to as "conventional" certificates [7].

DGEC

Within the Ministry of Ecological Transition, the Directorate-General for Energy and Climate is responsible for drawing up and implementing policy on energy, energy raw materials and the fight against global warming and atmospheric pollution [42]. It is the DGEC that defines the overarching guidelines for the CEE scheme and manages the scheme via its Energy Efficiency and Air Quality Sub-Directorate.

Delegate (FR: délégataire)

Company to which an obligated party transfers all or part of its obligation. The delegate is included in the list of obligated parties and manages the obligation in its own name. Unlike an agent, the delegate is completely independent of the original obligated party.

Eligible party *(FR : acteur éligible)*

Eligible parties can, in the same way as obligated parties, be rewarded for implementing financial incentives to carry out energy-saving operations. However, they are under no obligation to do so, and can therefore sell the white certificates obtained to obligated parties. Eligible players include local authorities and their public establishments, the Agence Nationale de l'Habitat, social housing providers and any semi-public company involved in the construction or management of social housing [43].

Emmy

The Emmy online platform is the national register for French white certificates [37], i.e. the CEE market place. It centralises monitoring of white certificates issued by the PNCEE and of CEE transactions between eligible and obligated parties. It also enables the players involved to track the monetary value of the certificates.

Energy Performance Contract (EPC)

A contract signed between a client and an energy efficiency services company with the aim of guaranteeing a reduction in the client's energy consumption as verified and measured against a contractual reference situation over a given period of time, through investment in works, supplies or services. If the objectives of the contract are not achieved, the contract provides for financial penalties ([41], Article 1).

Energy Savings and Renewable Heat Office

DGEC department reporting to the Energy Efficiency and Air Quality Sub-Directorate, and divided into two branches: Renewable Heat, and Energy Savings. The latter is responsible for drafting legal texts relating to the French white certificates scheme, approving proposed Opportunity Sheets, and selecting and auditing CEE programmes [34]. Within the department, two people deal with Standardised Operation Sheets, and five people deal with CEE programmes [40].

Final energy

Form of energy distributed to the consumer and invoiced by the supplier, downstream of the energy transformation stages.

Installer *(FR : installateur)*

The manufacturer, assembler or integrator in charge of the work involved in carrying out the energy-saving operation. Sometimes referred to as a "professional". The installer provides some of the documents needed for the certificate application: part numbers of the equipment installed, a sworn statement that the work has been carried out correctly, etc.

Kilowatt-hour "cumac"

The kilowatt-hour is the unit of energy generally used to bill energy consumption. 1 kWh corresponds to the consumption of an appliance operating at a constant power of 1 kW for 1 hour.

The term "cumac" is a contraction of the French words for "cumulative" (FR: cumulé), meaning the cumulative savings made over the lifetime of the equipment, and "discounted" (FR: actualisé), which refers to the application of a discount rate to reflect the reduction in savings each year resulting from wear and tear on the equipment and the increased energy performance of newer, competing equipment [1,2]. The discount rate is set at 4%: the savings generated in year n+1 correspond to the savings generated in year n divided by 1.04.

STANDARD SERVICE LIFE	1	2	3	4	5	6	7	8	9	10
Discount coefficient	1	0.962	0.925	0.889	0.855	0.822	0.790	0.760	0.731	0.703
Discounted service life	1	1.962	2.886	3.775	4.630	5.452	6.242	7.002	7.733	8.435

11	12	13	14	15	16	17	18	19	20
0.676	0.650	0.625	0.601	0.577	0.555	0.534	0.513	0.494	0.475
9.111	9.760	10.385	10.986	11.563	12.118	12.652	13.166	13.659	14.134

For example, if a motor has a standard service life of 15 years and saves 100 MWh per year when it is installed, it will generate:

CEE = Annual energy savings×Discounted service life
= 100 000 × 11.563 = 1 156 300 kWh cumac

Obligated party *(FR: obligé)*

PEnergy supplier (electricity, gas, LPG and vehicle fuels, domestic heating oil, district heating and cooling) with sufficient sales volumes to be subject to the CEE scheme, i.e. the obligation to provide their customers with financial incentives to carry out energy-saving operations.

Opportunity Sheet *(FR: fiche d'opportunité)*

Standardised document used to submit a proposal for a new Standardised Operations Sheet to ATEE, ADEME and the PNCEE. If approved, the Opportunity Sheet is used as the basis for the official FOS and the associated Calculation Sheet.

Pôle National des Certificats d'Économie d'Énergie *(National Centre for White Certificates – PNCEE)*

This is a national department of the DGEC, reporting to the Energy Efficiency and Air Quality Sub-Directorate. It is responsible for defining CEE obligations, processing CEE applications and archiving supporting documents, issuing white certificates and carrying out checks. The PNCEE has around twenty employees [34].

Premium *(FR: bonification)*

A tool that allows the volume of French white certificates generated by a type of energy-saving operation to be increased according to predefined criteria, so as to encourage the deployment of these operations. For example, an insulation operation carried out for a beneficiary in the energy poverty category could generate twice as many certificates as the equivalent operation carried out for a standard beneficiary (coefficients vary depending on the conditions and the CEE period).

Reference situation

The volume of white certificates generated by a standardised or specific operation corresponds to the energy savings achieved by the equipment installed compared to the norm or "reference situation". For standardised operations, the reference situation is defined in the FOS and is based on statistical data representative of the state of the market or the available equipment on a national scale, or failing this, on the basis of regulations. For specific operations, it is justified and calculated on a case-by-case basis for each application.

Standardised Operation Sheet (Fiche d'Opérations Standardisées – FOS)

Reference document drawn up by ATEE, ADEME and the DGEC in conjunction with professionals from the sectors concerned, and published by ministerial order. Each FOS provides a framework for a common energy-saving operation, defining its scope, the conditions for obtaining white certificates, the supporting documents required, and the associated number of white certificates [35]. FOSs are commonly referred to simply as "sheets".

Supplier *(FR: Offreur)*

For the purposes of this study, "supplier" refers to any player marketing a technical industrial solution whose installation can generate energy savings for a customer. These are mainly equipment manufacturers, and also resellers.

White certificate (CEE)

An intangible asset issued by the government to eligible players who provide financial support for the deployment of energy-saving operations. White certificates correspond to a physical reality (1 French white certificate = 1 kWh cumac of energy saved) and have a monetary value, defined in a specific market.

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- Public summary | November 2023

Notes

ALLICE IN BRIEF

ALLICE's mission is to bring together stakeholders to innovate to decarbonise industry. The alliance has 3 major objectives:

- **Bring together all sectoral stakeholders to innovate collectively to decarbonise industry:** industrial operators, solution providers, energy suppliers, thought leaders, engineers, financial players, research laboratories and skills centres, professional federations and organisations, etc. ;
- **Support the development of a range of high-performance** and differentiating decarbonisation solutions in France and internationally,
- **Support industrial players** in accelerating their decarbonisation.

ALLICE is a neutral organisation which facilitates exchanges and works to bring together stakeholders which are currently dispersed, while also taking the sector's financial aspects into account. With a cross-disciplinary approach, ALLICE facilitates technology transfer and the emergence of projects which are enhanced by diverse stakeholders.

Founded in 2018 by CETIAT, in association with CETIM, CTCPA, CTMNC, CTP and Blunomy (formerly Enea Consulting), ALLICE is supported by ADEME. As of 2024, it has more than 120 members and partners and has already produced or committed to more than 40 collective studies with a budget of €2 million (roadmaps and economic studies, comparative studies of decarbonisation solutions, technological state of the art reviews).

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