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Performative struggles and theory-practice decoupling in the design and the implementation of a market-based instrument, French tradable certificates for energy efficiency

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Abstract

The design and implementation of the French energy efficiency certificate provides an opportunity to test the hypothesis of the performativity of the economic theory associated with the cap-and-trade market-based instrument. The empirical study of its design and implementation, through interviews and regulatory analysis, reveals a progressive dynamic of decoupling from its initial principles, in particular the equivalence between the quantity of energy saved and the allocation of certificates. Recent adaptations of the instrument attempt to integrate an alternative definition of efficiency based on cost estimation and subsidy allocation. By focusing on calculation practices, this chapter contributes to the understanding of performative struggles and theory-practice decoupling associated with market-based instruments. The chapter identifies four conditions for theory-practice decoupling: competing theories of efficiency, attachment to the instrument, a new principle of action, and weak checks on conformity to theory.

Introduction

In the early 21st century, the European Commission promoted market-based instruments to support climate change mitigation, renewable energy, and energy efficiency. MBIs are an important illustration of Michel Callon's (2007) suggestion that economic theory is no longer just a social science aimed at understanding economic behavior, but an engineering science that contributes to the creation of new economic realities (Blok 2011; Callon 2009; MacKenzie 2009). Market-based instruments for environmental protection have been created and developed through an intellectual exploration by economics, which has been largely involved in their legitimization. They are usually associated with Ronald Coase's theorem (Coase 1960), which promotes the internalization of market externalities through the allocation of property rights and the organization of their exchange. According to Ronald Coase's theorem, the exchange of property rights between economic agents, assuming no transaction costs, allows for an efficient allocation of resources regardless of the initial distribution of property rights. This economic theory inspired John Dales to prescribe a system of transferable quotas for water pollution (Dales 1968). The policy instrument, formalized by Montgomery (1972), spread to many areas of environmental protection and spawned intense discussions in environmental economics (Freeman and Kolstad 2006). Subsequently, it was associated with climate change mitigation in the negotiations of the Kyoto Protocol (Meckling 2011) and adopted by the European Union in its policies against greenhouse gas emissions (Braun 2009; Engels 2006; Voss 2007), in favor of renewable energy (Lauber and Schenner 2011) or energy efficiency (Mallard 2020).

There is an extensive research literature in economic sociology on the controversies and readjustments of market-based instruments designed to address public concerns (Frankel et al. 2019). The analysis of the implementation of the European Union Emissions Trading Scheme

(EU ETS) and the Clean Development Mechanism (CDM) has significantly contributed to the construction and discussion of performativity theory by highlighting the influence of economic expertise (Callon 2009; Voss 2007; Braun 2009) and ideological and political forces (Lohmann 2008; Blok 2011). Implementation showed how integrating the instrument into an international agreement and European political and calculating practices produced spectacular unexpected effects (MacKenzie 2009). Numerous adjustments revealed the inertia of learning dynamics by European institutions (Neyland et al. 2019), the never-ending political negotiation of the scope (Bryant 2016), and the limited impact on competitiveness (Ehrenstein and Neyland 2021).

However, this research rarely evaluates the extent of these adaptations with respect to the original theory: to what extent these adaptations may or may not contradict the theory. Some issues and expertise may be complementary to the initial theory and can contribute to the design by informing some key decisions of the implementation. Adjustments may also be justified by the practical considerations of implementation and be judged to be "consistent" with the theory. Deviations may be triggered by "performative struggles" (Callon 2007), when explicit and implicit competing theories may significantly interfere or clash with the initial theory (D'Adderio and Pollock 2014).

This chapter borrows from the sociology of public policy the notion of instruments (Halpern 2010; Lascoumes and Le Galès 2007), which encourages the identification of intermediaries and activities through which a policy is implemented. This notion helps to explain how performative struggles can lead to a decoupling between the principles of an instrument and its design and implementation. We borrow the notion of decoupling from organizational analysis: decoupling can be a strategy for members of an organization to deal with the divergence between external

legitimacy constraints (formal adoption of a method or theory) and pragmatic issues at the implementation level (Bromley and Powell 2012; Meyer and Rowan 1977).

This chapter describes the design and implementation of a market-based instrument, the Energy Efficiency Certificate (EEC)¹, in France, from initial discussion in 2002 to recent modifications in 2021. The EEC is based on the distribution to energy suppliers of obligations to contribute to energy efficiency in proportion to their sales. Energy suppliers can meet this obligation by purchasing EECs from other actors that organize and finance energy efficiency activities, such as local authorities, social housing and specialized intermediaries. When they initiate an energy efficiency project, these actors receive one EEC for each MWh of gas and electricity saved. The EEC can be considered a market instrument, as it allowed a policy objective to be marketized through the buying and selling of an allowance. Through the certificate market, each energy efficiency project would be rewarded proportionally to the energy gained by selling certificates to energy suppliers.

After presenting the academic debate on performativity, the chapter reconstructs a narrative of the design and implementation of the instrument. This narrative is based on field research with interviews with the original designers of the instrument, officials directly involved in the design of the instrument and some participants in key activities, but also actors indirectly involved through the evaluation, as officials and academics. The interviews helped to identify and interpret key documents. The interviews were very consistent about the history of the instrument. In a first phase, the designers of the instrument (government advisors and civil servants) aimed at

¹ I will use this expression as it is the most usual in the English language. The French name is “certificat d’économie d’énergie”, or energy saving certificates.

clarifying the objectives, making explicit adjustments for its practical implementation and controllability, trying to respect as much as possible the basic principles of the market mechanism. During this phase, the performativity of the instrument was affected by a competing instrument based on the tax credit. In a second phase, as the economic impact of the ECCs increased, the administration responsible for their design progressively deviated from the basic principles. The administration introduced a controversial practice of allocating bonus certificates to specific projects in order to increase support for them. This practice became systematic: coefficients were defined for each type of operation to adjust the revenue from certificates to an estimated cost of the operation. The systematic and general introduction of coefficients contradicts the principle of equivalence on which market-based instruments are constructed (Levin and Espeland 2002; MacKenzie 2009). This fundamental deviation was motivated by a different theory of efficiency than the one supporting the market-based instrument.

From theory performativity to decoupling from theory

Market-based instruments are an excellent subject for studying the performativity of the economy. The notion of performativity is associated with how particular economic ideas, models, and instruments perform, configure, and shape the economy (Callon 1998). In this chapter, we focus on planned performativity, situations in which economic experts contribute to the design of new economic instruments and markets to manage collective concerns, such as pollution (Mackenzie 2009), natural resources (Holm and Nielsen 2007), biodiversity (Barral 2021), and other situations in which economic experts identify "market failures" (Reverdy et al. 2021).

The thesis of the performativity of economic theory has generated numerous debates that have enriched the analytical approach and possible conclusions (Cochoy et al. 2010). First, it has been accused of confirming the main claim of economic theories, namely that the behavior of

economic agents can be consistent with the theory and thus achieve the expected results in the real economy (Miller 2002). Second, it has been accused of taking a positivist view of the transfer from science to practice, as if economic expertise were unified and coherent and its enactment unambiguous and disinterested (Mirowski and Nik-Khah 2007). Callon (2007) responds to these critics by arguing that they have misunderstood his intellectual project, explaining that economic performativity is achieved through a laborious construction of assemblages of instruments, discourses, rules, and human skills, as a process of enactment embedded in various material and social contingencies.

The introduction of market-based instruments for greenhouse gas (GHG) mitigation in Europe is a good example of the influence of economics on the design of a policy instrument: EPA economists were involved in the initial US experience and its formalization, and EU DG Competition considered a market-based instrument as the best way to integrate "environmental externalities" into the European market (Braun 2009, Skjærseth and Wettestad 2010). The increasing influence of economic analysis of law in the field of European competition policy (Davies 2016) facilitated the criticism of other approaches such as technical regulation or direct subsidies. Market-based instruments were in line with the principles of non-discrimination between projects (fair competition) and the objective of limiting market distortions. DG Competition also promoted market-based instruments for renewable energy (Lauber and Schenner 2011), which was not affected by international agreements as greenhouse gas mitigation.

The purpose here is to examine the extent to which the original theory associated with the instrument is preserved, enriched by complementary logics or theories (Asdal 2014), or undermined by a competing one or by the constraints of implementation. Four modes of

adaptation can be identified. First, these instruments must be configured according to policy objectives. For example, in the case of cap-and-trade instruments, economic theory assigns to the political authorities the role of defining the geographic and technical scope of obligations, the overall level of pollution, and the conditions for the initial distribution of allowances (Schmalensee et al. 1998). Second, the instrument must be adapted to the practical constraints of implementation and controllability: it follows a process similar to the one observed by Breslau for the design of the electricity market, which he qualified with the expression "applied Platonism" (Breslau 2011). Regulatory design refers to an idealized model, and each new specification must be justified in relation to the model and the policy objectives associated with the instrument. For market-based instruments, the key activities are the construction of classifications and technical metrics that define equivalences between the contribution to an environmental objective and the allocation of credits (Levin and Espeland 2002; MacKenzie 2008), and the methodology for characterizing the additional effect of a project through counterfactual reasoning based on a reference situation (Ehrenstein and Muniesa 2013).

This second step is usually presented by the designers of the instrument as 'technical' in order to depoliticize their activity (Barry 2002). Sociologists have shown that the detailed design ultimately turns out to be as political as the activities identified a priori as "political" (Frankel et al. 2019). The detailed design of economic policies is a relational space of different and sometimes interacting versions of economics (Asdal 2014). In the energy sector, for example, the adaptation of the market model involves a great diversity of expertise and political issues such as security of supply and European integration (Silvast 2017).

According to Callon (2009), the performativity of economics includes the evaluation of the effects of instruments and an exploratory market design by NGOs, scientists, economists, in a

context of reflexive modernity (Beck et al. 1992). Reflexivity could concern both initial parameters of the instrument (such as quota distribution rules, the scope of projects associated to the market), but also detailed rules (equivalences, additionality...). In the EU, this reflexivity led to the creation of an additional mechanism, the quota stability reserve for the EU ETS, to stabilize the CO₂ quota price (Neyland et al. 2019). However, many authors studying the GHG credit market discussed critical capacities and considered that reflexivity suffers from structural governance weaknesses (Lohmann 2008, Blok 2011).

The evaluation of the failure or success of performativity raises methodological and theoretical questions. According to Callon (2007), failure or success "(...) becomes clear only at the end of the tests to which it is put, through the cooperation it triggers, the oppositions and controversies it generates" (p. 330). MacKenzie (2003) introduced the concept of counter-performativity: aggregate behavior can lead to an outcome opposite to that originally intended. According to Rilinger (2022), the failure of performativity can be produced by conditions that deviate from some of the intrinsic hypotheses of the economic design, hypotheses that could not have been identified or made explicit. Many attempts to address collective concerns through market mechanisms have failed in the sense that they did not meet the objectives or were not politically accepted (Frankel et al. 2019).

The thesis of performativity probably reaches a limit when the detailed design and implementation contradicts the initial principle of the instrument and does not respect the condition of "applied Platonism" (Breslau 2013). Decoupling occurs when the designers and intermediaries systematically introduce adjustments that do not respect the initial hypotheses, neutralize the economic mechanism, and allow the implementation of contradictory principles of efficiency on a large scale. For example, the redesign of the French electricity market (Reverdy,

Breslau 2019) could be qualified as decoupling because the French parliament reintroduced a regulated tariff for nuclear power, bypassing the electricity wholesale market mechanism, for electricity furniture.

Inspired by organizational analysis (Meyer and Rowan 1977, Bromley and Powell 2012) and public policy analysis (Lascoumes and Le Galès 2007), we open here the hypothesis that public authorities could pursue pragmatic goals in the design and implementation of instruments, to the point of gradually deviating from the original theory. The decoupling could be encouraged by various competing ideologies and pragmatic cognitive ideas (Heidbreder 2013). Decoupling is made possible by a lack of control, the complexity of implementation, and a degree of opacity (Bromley and Powell 2012). Decoupling might be preferred to abandoning the instrument for reasons of legitimacy (Meyer and Rowan 1977) or because some related parties and intermediaries are satisfied with the benefits it brings them (Voss and Simons 2014). For this reason, decoupling is difficult to characterize: many actors may have a motivation to demonstrate that the mechanism is still related to the theory it inspired.

How the favorable context for market-based instruments influenced the initial design of EEC?

The creation of a market instrument for energy efficiency was first discussed in France in 2002 during the debate on energy policy organized by the government, between a technical association for energy and environment² (Association Technique Energie Environnement, ATEE), the public

² ATEE was created in 1978 in the context of the oil crisis and the beginning of an energy policy. Financed by major energy producers, consumers and public authorities, its mission is to promote technical solutions to control energy

agency for the environment and energy efficiency (Agence de l'Environnement et de Maîtrise de l'Energie, ADEME), and the Direction for Energy and Raw Materials at the Ministry of Industry (Direction Générale en charge de l'Energie et des Matières Premières, DGEMP³).

The first principle of this instrument was to impose energy savings targets on energy distributors to be achieved with their customers. This idea, inspired by the US policy of demand management, was well received by French utilities, which had developed energy efficiency services for consumers as part of their public service mission. In the context of the liberalization of the electricity and gas sectors, the formalization of this obligation was therefore an opportunity to turn this activity into a competitive advantage.

The second principle was to encourage other economic actors to contribute to energy efficiency actions by allowing them to obtain certificates for the amount of energy saved and to sell the certificates to energy suppliers to help them meet their obligations. This possibility of exchange could create a market. The justification for the exchange of certificates comes from a favorable institutional context in Europe for market-based instruments for environmental concerns. The Energy Law published in 2005, which defines the EEC mechanism, clearly refers to the EU Emissions Trading Scheme and the economic arguments defending market-based instruments in terms of efficient allocation⁴. The exchange of certificates was also defended by the members of

demand. It relies on a small team of permanent staff and brings together more than 2,200 members who participate voluntarily in the production of technical expertise.

³ In 2008, the issue of energy was moved from DGEMP to a new Direction for Energy and Climate (Direction Générale de l'Energie et du Climat, DGEC) attached to the Ministry of the Environment.

⁴ Law n° 2005-781 of 13 July 2005 of the program setting the energy policy guidelines

the ATEE, who advocated the development of energy services to compete with the dominant historical suppliers. ADEME was also convinced by the positive feedback from the previous implementation of a market-based instrument for the same purpose in the United Kingdom, launched on April 1, 2002.

The Energy Act promoted the creation of a market between two types of participants. On the one hand, the electricity and gas suppliers, the so-called "obligated parties", to whom the energy administration distributes obligations according to the quantities of energy supplied and the sales revenue; on the other hand, the "eligible parties", the leaders of energy efficiency projects, of which the initial non-exhaustive list includes industrialists, service providers, municipalities, social landlords, etc. The law defines the nature of the exchange between these two types of participants by creating energy savings certificates based on a unit of measurement: the cumulative and discounted kWh, or "kWh cumac", which corresponds to the cumulative quantity of energy saved following an investment (installation of an energy-efficient appliance, insulation work, etc.)⁵.

Beyond the initial idea, however, such an instrument presupposes a number of parameters inherent in its principles. First of all, any market-based instrument presupposes the existence of an overall political objective, which is then distributed among the parties involved. In this case,

⁵ The energy savings achieved in each year following the first year are discounted by dividing the previous year's savings by 1.04, which results in a discount rate of 4%. The discount rate assures the commensurability between energy saving over the years.

the political authority defines by law an amount of energy to be saved for several years⁶. The definition of the total amount of energy to be saved has an economic implication for the obligated parties, who will have to finance the actions.

The detailed design of the instrument: the constraints of standardization

In the first phases of its implementation, the detailed design of the instrument was fully in line with the economic principles of market-based instruments, such as the commensurability between actions and the allocation of certificates. On the supply side, the administration in charge of the energy sector (DGEMP and, after 2008, DGEC) defines technical rules for the characterization of energy savings and their conversion into EEC. The administration defined standardized operations with a theoretical energy gain for each of them. To do this, it defined theoretical baseline conditions from which experts would be able to calculate energy gains and ensure the additional effect: the baseline condition for building insulation is the average performance of the existing building stock; for equipment, the calculation takes into account the minimum performance for equipment listed in the EU Eco-design Directive. The designers preferred a cautious interpretation of the evaluation of energy gains, implementing their own representation of household investment decisions. This representation rather referred to the behavior of a privileged household, able to invest regularly in the renewal of its heating equipment and whose home insulation was in the average range. It did not take into account a household living in a

⁶ Since its creation in 2006, the system has gone through four periods, with increasingly ambitious objectives, from 54 TWh cumac for the first period to 2133 TWh cumac for the last one.

poorly insulated house with a very limited investment capacity. The choice of baseline condition had the effect of excluding households that would be most in need of investment subsidies.

The second design activity is the calculation of energy gains. The evaluation of the technical characteristics of the equipment or intervention is entrusted to the ATEE, which collaborates with experts from energy suppliers, equipment suppliers and representatives of artisans. While the adoption of a market mechanism was intended to avoid the capture of regulation by private interests, the calculation of energy gains per operation is not exempt from this type of attempt. According to the instrument designers, obligated parties and equipment suppliers have tended to encourage an overestimation of potential savings. This allows the obligated parties to reach their targets more quickly and the equipment suppliers, who are in competition with each other, to defend the performance of their equipment. ADEME has limited expertise in detecting abuses. In the event of a conflict, the DGEC acts as arbitrator, recognizing that the mechanism is seriously vulnerable to "capture" of the regulator by private interests.

The detailed design faces similar practical constraints as the GHG credit in the CDM, such as characterizing the contribution to environmental goals through standardization of operations and counterfactual reasoning (Chiapello and Engels 2021). This necessary practice faces intrinsic contradictions with some promises, such as the ability to avoid capture. Capture is displaced from the calculation of costs to the evaluation of the contribution to the environmental objective.

The coexistence of instruments with different definitions of efficiency

Since its creation, the EEC suffered from the coexistence of another policy instrument, the tax credit for the purchase of energy equipment, which remained the main energy policy instrument in terms of financial support⁷. It provided a direct subsidy, calculated as a percentage of the equipment purchase bill, which depended (from 15% to 50%) on the different types of equipment, with annual variations according to budgetary arbitrations and parliamentary amendments. Since the same investments were supported by both instruments, the EECs often played a marginal role in financing those that were already profitable under the tax credit. During the first and second periods, the energy efficiency targets were limited and easily achieved thanks to the tax credit, and the price of the certificates remained quite low, i.e. 2-4€/MWh cumac.

Gradually, in the following phases, both the increase of the targets and the increase of the prices of the certificates changed the nature of the contribution of the certificates. The combination of EEC and tax credit has achieved a certain balance between the operations. Insulation measures tend to be supported by the EECs, equipment such as boilers by the tax credit. According to the DGEC, the overlap of the two mechanisms should be beneficial by compensating for some of its arbitrary limits in the calculation of energy gains for the EECs. Conversely, the EECs allow a certain continuity of financing despite the budgetary uncertainties of the tax credit, which is revised each year according to the annual state budget law. Nevertheless, this system creates uncertainty and complexity for the craftsmen who have to explain the two mechanisms to their clients. It also creates numerous inconsistencies when the tax credit is modified as a result of the annual state budget without being coordinated with the EECs.

⁷ The French tax credit is a reduction in personal income tax and takes the form of a subsidy for households that pay no tax.

Thus, from the very start, the performativity of the theory was hindered by the coexistence of the market instrument with a previously implemented instrument defined on a very different theoretical basis, whose economic effects prevented the new instrument from producing the expected effects. But at this stage, the deviation from the theory is not integrated into the instrument itself.

Diversification of evaluations and performativity struggles

At the end of the second period (2014), the EEC system was also strongly contested by obligated parties and some academics, who emphasized the costs for consumers and the opacity of the system (Giraudet and Finon 2015). The administration published the first critical reports on its effectiveness. According to these reports, the renovations in private homes did not lead to a measurable reduction in the bill, raising questions about the calculation of potential benefits, the quality of the installation, and rebound effects among consumers⁸. Academics came to the same conclusion (Blaise and Glachant 2019). In addition, they believed that the coexistence with the tax credit made the evaluation difficult.

Political criticism focused on the social impact: the mechanism mainly benefited a wealthy population able to invest, which combined the tax credit with access to bank loans. In response to these criticisms, the government decided to redirect part of the EECs to households in precarious energy situations. As of 2016, operations related to vulnerable households would be subject to

⁸ CGEDD, CGEiet, IGF, Les certificats d'économies d'énergie : efficacité énergétique et analyse économique (Energy-saving certificates : energy efficiency and economic analysis). 2014

specific certificates and would be subject to separate obligations. This segmentation of the market partly responded to the social criticism of the instrument.

Between 2015 and 2018, as a result of more ambitious energy-saving targets, the price per MWh cumac increased significantly, from 2€ to 9€. The increase soon raised questions among the market designers: the more efficient operation (low cost and high energy saving) could give a significant profit for intermediaries or beneficiaries. This issue was raised before by an administrative report written by civil servants of the Ministry of the Economy in 2014⁹.

The administrative report of the Ministry of Economy argued that the remuneration based on the estimated MWh saved could lead to large disparities in payback periods depending on the nature of the investment. In 2019, the ADEME adopted the same criticism on the windfall profits for industrial investments¹⁰. Implicitly, these reports questioned the principle of financing the project on the basis of the energy saved, considering that the public support (through the ECCs market) should be defined at the level necessary to trigger the action, according to the different technical situations and households. The DGEC was also concerned about the profits generated by the mechanism for some operations. It therefore regularly asked the ATEE to revise the standard in order to reduce the number of MWh cumac attributed to low-cost operations. In the absence of a cap, the calculation was discreetly adjusted to avoid providing windfall profits to operations that were too lucrative because they were too efficient. This strategy requires a good knowledge of operating costs and an anticipation of the EEC price. The DGEC relied on data from the

⁹ CGEDD, CGEiet, IGF, idem.

¹⁰ ADEME, Evaluation du dispositif des certificats d'économie d'énergie –Rapport synthétique. (Evaluation of the energy-saving certificate device - Summary report) 2019

renovation observatories set up by the utilities or the ADEME. These adjustments were modest, but they introduced new methods of evaluating efficiency by integrating the evaluation of the cost of actions in the allocation of EECs.

The decoupling process: the generalization of bonus calculation

New "counterperformance" of the mechanism led to stronger adjustments in allocating certificates to efficiency projects. In 2016 and 2017, obligated parties warned the Ministry of the risk of failing to meet the targets for the period, which could lead to a sharp increase in the price of certificates and, consequently, a significant increase in energy prices. In order to adjust the volume, the Ministry then introduced a bonus principle, which consists of increasing the remuneration of certain operations by adding a multiplier coefficient to the initial quantification of the MWh cumac. In this way, the operation can generate more certificates, be better financed and thus be better facilitated. This led to the creation of more certificates (as a result of the existence of more operations, each of which is more highly valued), which would allow obligated parties to meet their obligations without an excessive increase in the price of certificates. For the obligated parties, the budget remained under control. This bonus practice thus made it possible to adjust the total cost of the policy.

This practice had its critics among obligated parties and within the ATEE. They felt that it distorted competition between solutions. For the concerned projects, the bonus increased the revenues: some companies were able to attract customers by offering insulation work for 1€, which was very profitable for all the intermediaries (advertisers, tradesmen...). It has led to unscrupulous interventions by companies that do mediocre work, for beneficiaries who would not be able to control it, or who would not be motivated to control it because they would not pay for it.

A sharp increase in EEC prices in 2018 prompted the DGEC to once again resort to bonuses. However, the DGEC rationalized the calculation method. It integrated the tax credit mechanism and tried to ensure that the additional support did not exceed the total cost. A principle of zero residual cost for the most vulnerable households was adopted by the DGEC, integrating a new understanding of the consumer's choice, coming from the professional representatives, according to whom it would be "*impossible for the vast majority of individuals*" to insulate their attics or low floors "*without the one-euro offers*"¹¹.

The calculation method starts from the desired target in terms of minimum premium for each type of work. For example, the target for the insulation of attics and roofs is a minimum premium of 20€/m². However, the technical calculation of energy saved gives 1.4 MWh cumac per m² for this operation. Assuming a MWh cumac price of 5.5€, the DGEMP applies a coefficient of 2.57 to the initial calculation so that the operation receives 20€/m². The same calculation is applied to all types of plants. The coefficients range from 1.29 to 17.3 in order to obtain the target "minimum premium" evaluated for each operation. This means that a project that saves 1 MWh cumac will receive between 1.29 and 17.3 certificates, depending on the type of operation.

There are some inconsistencies in this new strategy. The amount of revenue from EECs for each operation still depends on the market price of the certificates. For the calculation of the bonus coefficient in 2019, the DGEC had arbitrarily taken a certificate value of 5.5€/MWh cumac. However, the value of certificates depends on unpredictable factors, including the effect of subsidies. In 2019, the price remained high at around 9€/MWh cumac, which meant that the

¹¹ ADEME, idem.

subsidized companies received much more funding than initially calculated. The administration learned from this experience that the calculation of the coefficients must answer two contradictory objectives: stabilize the price of the EECs by controlling the volume of emitted certificates and, at the same time, avoid overpaying the operations. An official suggested this image: *"The administration acts like artillerymen in the First World War: it fires the projectile, looks where it falls and readjusts the angle"*.¹².

Thus, the bonus policy was rationalized in order to provide a subsidy for each operation, adjusted with other sources of financing and according to the capacities of the households, and finally to keep the EEC prices under control. Observers and officials stress the importance of the DGEC's intervention. An academic explained: *"When the DGEC defines the level of the premium for each operation, we are no longer in a market mechanism"*.¹³. Academic papers confirm that the practice of bonuses contradicts the principles of the market mechanism (Giraudet et al. 2020, Glachand et al. 2020, Crampes and Léautier 2021). In a market-based instrument, the equivalence between energy savings and the allocation of certificates is essential because it guarantees that funds are allocated to the most efficient projects. Bonuses break the equivalence between certificate allocation and contribution. The bonus affects the commensurability and the mechanism of allocation to more efficient operations.

Why maintain a market-based instrument that has lost its original logic and has become particularly complex and fragile in the face of cyclical fluctuations or estimates? According to the

¹² Interview with a civil servant involved in the detailed calculation of coefficients

¹³ Interview with an academic.

interviews, the maintenance of the instrument has less and less to do with economic theory and more and more to do with its institutional status and the relationship within the government. Since it is based on a system of obligation and exchange, it escapes budgetary arbitration, parliamentary debates on state budgets and the control of the Ministry of the Economy. This instrument is entirely under the responsibility and control of the Ministry of the Environment. The associated costs do not appear in the state budget and do not constitute public expenditure: *"For the time being, the political objective is to make the system last, because it is difficult to deprive oneself of some 4-5 billion euros in extra-budgetary funds that are directed towards virtuous effects"*.¹⁴ The EEC also enjoys a positive political image because the cost of the policy is hidden in energy bills. However, this strategy is also controversial within the administration. Considering the EEC as a mechanism that combines taxation and subsidies, officials of the Ministry of Economy and Finance are concerned about the lack of transparency and invisibility in the state budget and in the calculation of what they consider to be mandatory taxation. They are also concerned that the allocation of financial support is not optimized.

Conditions for decoupling

This type of decoupling is not limited to the French EEC. The UK Tradable Green Certificate was also about differentiating between different categories of projects (renewable energy technologies such as solar PV, wind, etc.) by allocating them different quantities of green certificates for one MWh of renewable electricity. Overly profitable projects were given fewer certificates per MWh of electricity, while less efficient projects were given more certificates, in order to adjust revenues to the costs of each technology (Woodman and Mitchell 2011). In

¹⁴ Interview with civil servant.

contrast, we do not observe this kind of segmentation and adjustment coefficient in the case of the EU ETS.

The comparison with these two other regulatory market-based instruments allows us to suggest conditions favorable to the decoupling process. The first condition for decoupling is a critical evaluation based on alternative theories of efficiency. The original theory of economic efficiency assumed that, in the context of public authority ignorance of costs, the market-based instrument optimizes the allocation to lower-cost operations. But this economic theory of efficiency ignores the distributive effects of the market instrument associated with the inframarginal rent: since the market price of the allowance is formed by the cost of the most expensive operations (marginal cost), those less expensive, considered as inframarginal, benefit from the same allowance price. The difference between their costs and the price produces a profit, the inframarginal rent. This problem was not completely ignored by the initial promoters of the instrument, who thought that the mechanism would optimize itself: the most attractive opportunities would be financed first, become saturated, which would lead to an increase in the price of the kWh cumac to seek more costly operations. However, experience has shown that there is no saturation because the construction sector is not necessarily able to take on one type of operation and then another. Given the specialization of craftsmen, a diversity of operations must be encouraged. Criticism of the windfall profits generated by the instrument stems from another implicit theory of efficiency and equity associated with traditional subsidy policy. According to this logic, the level of support should be adjusted to the additional costs of operations. The support should make the operation affordable if it is deemed sufficiently efficient. This is typically the traditional efficiency logic of civil servants. The same concern motivated the abandonment of tradable green certificates (Cointe and Nadaï 2018, Lauber and Schenner 2011). Another issue, the lack of EEC price

control, was also considered as a counter-performance by civil servants. According to the theory of market-based instruments, the price increase should be considered as a natural result of the mechanism responding to the scarcity of quotas or certificates. Another principle of efficiency, the control of the budget, is gradually asserting itself as the collective awareness of the economic effects of the mechanism. The EU ETS faces the same problem of fluctuating quota prices, but adopts a different solution, the market stability reserve (Neyland et al. 2019).

A second condition for decoupling is attachment to the instrument, even if the functional promises of the instrument are contested. Underperformance does not necessarily mean that the instrument is abandoned. The resistance could be explained by its structural properties (Voss and Simons 2014), the coalition of actors that benefit from its specific design: the members of the cabinet of the Ministry of the Environment support the EEC because it finances an environmental policy without a discussion in the state budget. The EEC also benefits from the support of experts and intermediaries who contribute to its organization. These supporters of the EEC need that the instrument is not evaluated as a tax subsidy mechanism. Therefore, EEC rely on the "rationalized myth" (Meyer and Rowan 1977) of the efficiency of market-based instruments. This myth is preserved by the fact that the adjustments are "technical" and not visible.

A third condition of decoupling is the introduction of new principles of action in the adjustment of the mechanism, which contradict the original theory. The economic rationale, calculation methods, and professional values of civil servants have deeply influenced the design of the instrument, leading to the differentiation in the allocation of allowances. By rehabilitating their ability to calculate project costs, civil servants have recovered a role that was contested by the New Economy of Law (Stigler 1971), considering that the administration faces information asymmetry and strategic capture, and only the market mechanism can allocate resources

efficiently. The ability of the public authority to compensate for distributive effects makes the difference between "positive allocation", such as CDM credits, TGC and EEC, where allowances are allocated to economic actors who have no obligation, and "negative" allocation, based on an initial allocation to polluters, such as the EU ETS quota (Chiapello and Engels 2021). In the case of positive allocation, the entire positive contribution is converted into certificates (or credits) that are remunerated by the exchange mechanism. The difference between the project cost and the market price leads to a significant inframarginal rent for low-cost projects (Blok 2011). In the case of negative allocation, the initial allocation of allowances can become a strategy to reduce windfall profits (Wettestad and Jevnaker 2019). For example, European authorities have introduced discrimination between electricity production and industrial installations, as well as between industrial sectors (Ehrenstein and Neyland 2021). This possibility to intervene in the parameterization of the instrument probably reduces the motivation to violate the principle of equivalence between emission reductions and quotas. It could explain why only the French EEC and the UK TGC were affected by the practices of project discrimination and adjustment coefficients, and not the EU ETS.

Finally, decoupling is facilitated by the lack of control over compliance with the original principles of the instrument. The initial formalization left implicit many of the rules and principles that justified its existence and guaranteed its effectiveness, such as the rules for allocating certificates according to performance in terms of energy savings. The decision to entrust the detailed design to the Cabinet of the Ministry and the DGEC, which is directly answerable to the government, and not to an independent authority, has allowed the implementation of an alternative definition of efficiency. Thus, officials of the Ministry of Finance tried to denounce the hypocrisy of qualifying the EEC as a market mechanism in order to

requalify it as a tax and subsidy mechanism in order to obtain the right to control it. But they did not defend the original principles of the mechanism.

Taking into account the organizational and institutional context in which a public policy instrument is designed and implemented helps to explain the dynamics that promote the decoupling of theory and practice. Indeed, this organizational context helps to explain how actors appropriate different complementary or contradictory theories, develop their autonomy of action, and translate theories more or less faithfully to the situation at hand. It explains how a definition of efficiency justifying a market instrument (allocation to the more efficient project in a context of ignorance of costs) could be abandoned by French officials involved in the design and implementation of the EEC, in favor of another definition of efficiency (adaptation of subsidies to costs). The concept of the instrument of public action makes it possible to take into account both the initial influence of the theory and its social roots and permanence, even if it departs from the initial theory that gave rise to it. The instrument is both a resource and a constraint for action, but it could also be malleable to integrate conflicting expectations.

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