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Can Energy Savings Certificates help in boiler scrappage programs?

Exploring the market agencing of a detachment policy

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Can Energy Savings Certificates help in boiler scrappage programs? Exploring the market agencing of a detachment policy

Decreasing our use of energy resources constitutes a major detachment challenge for contemporary society. This article investigates the involvement in this challenge of a recent public policy instrument, the Energy Savings Certificates (ESC) system. It focuses on a particular application in the implementation of boiler scrappage schemes, through which consumers are invited to replace an old heating appliance with a new, more virtuous one in exchange for a premium paid by the State. 3 scrappage programs conducted in France between 2011 and 2017 are examined. Using the perspective of market agencing, the article sheds light on the entanglement of scrappage programs and ESC infrastructure and on the specific role of the State in this public policy context.

Helping consumers to detach from certain market goods is a growing public policy concern, one that is probably no more salient than in the field of energy: detaching our economy from the carbon that has contributed so much to its prosperity is a huge contemporary challenge. The field of research on the decarbonisation of the economy and on energy transitions now offers a wide range of avenues for investigating this issue. Whether they are part of the traditional reflection in economy on the implementation of change (Biber et al, 2017), of the so-called multi-level perspective (Geels et al, 2015), or based on Science and Technology Studies (STS) and pragmatism (Labussière and Nadaï, 2018), these approaches all insist on the need to put market dynamics at the service of public policy objectives. Some of the methods envisaged in these perspectives for dealing with carbon-related goods considered harmful to the environment are based on what can be called ‘market detachment policies’: instead of acting in a regalian manner – either on the supply side by preventing the commercialization of the goods or, on the demand side by prohibiting their consumption – the State tries here to make economic actors ‘naturally’ detach from them, under the soft pressure of market mechanisms.

The Energy Savings Certificates (ESC) system¹ is an emblematic tool in that matter, which has been put at work since the beginning of the 2000s in different European countries with the objective to fight against global warming. This system has triggered many public debates but it has been poorly studied by social scientists. In the frame of this paper, I would like to qualify the market detachment policy – or, to be short, the ‘detachment policy’ – involved in this system aiming at promoting energy savings. To this end, I propose to focus attention on one of the many programs developed under this system, which has emblematic features: the scrapping of boilers.

Scrapping programs, whereby consumers are invited to replace an old product with a new, more virtuous one in exchange for a premium paid by the State, are a longstanding public policy invention. This market based instrument was used in various countries in the automobile sector since its introduction in the US at the beginning of the 1990s, mainly with the aim of accelerating the turnover of the vehicle fleet in order to lower the level of traffic air pollution

¹ ESCs are also known by other names in scholarly literature or in public policy, including Energy Efficiency Credits (EECs) and Tradable White Certificates (TWCs).

(Lucsko, 2014).² The use of this approach for heating appliances developed a decade later, and it benefitted from the first implementation of Energy Saving Certificates in the UK in the frame of the ‘Efficiency Energy Commitment program’. It was also mobilised in France in a series of operations that took place from 2011 onwards. As we will see, these operations were more or less successful, but they draw attention to the dynamics of market reconfiguration that is at stake in that kind of detachment policy. To account for this dynamics, I propose to consider scrappage programs through the movement of market agencing (Cochoy et al, 2016) – and, as a matter of fact, of market re-agencing – that they involve. On the basis of an exploratory study of 3 operations, I will characterize the re-agencing dynamics featuring the use of ESC schemes in scrappage programs.

The paper is organized as follows. In the first section, I will briefly recall the functioning of the ESC system, present the related boiler scrappage operations and display my analytical and empirical approach. In the subsequent section I will investigate the process of detachment and market re-agencing that underlies boiler scrappage programs. In the third section, I will attempt to characterise the way the ESC system plays in the implementation of this detachment policy, examining five specific challenges facing the State in these operations.

1. Studying a detachment policy

The Energy Savings Certificate system

In its principle, the ESC system is based on a luminous, although a bit counter-intuitive, hypothesis: the actor that should be at the centre of the fight to reduce energy consumption is not the consumer but the energy supplier himself! Thus, the preferred agent of a detachment policy should be the actor who, in the ordinary functioning of the market, is the most keen to promote attachments. ESC schemes develop complex and strange strategic games to induce energy suppliers to subsidize renovation works or the purchase of technologies to reduce energy demand.

In concrete terms, the system provides that energy suppliers – who are referred to in the system as ‘obliged parties’ – will help customers or other actors in their ecosystem to achieve energy saving; to this end, the State sets them a savings target apportioned to their market shares, to be achieved over a given period, an objective that is quantified in ‘kWhCumac’³; to achieve these objectives, the obliged parties must accumulate certificates attesting that they have subsidized energy savings operations; at the end of the period, the State takes stocks up and if the obliged parties have not achieved their objectives, they must pay to the State a penalty for each kWhCumac missed.

² Economics and policy research have quite well qualified the implications of this kind of intervention in the market dynamics, questioning notably the modality of determination of premiums allowing to maximise the incentive effect (Alberini et al, 1995), the capacity of this policy to really generate positive environmental effects (van Wee et al, 2011), the potential deadweight loss effects generated, its relationship with inspection and maintenance policies or other public policy approaches (Hahn, 1995). The scholarship on this topic doesn’t study the interaction of scrappage programs with policy tools such as the Energy Saving Certificates scheme.

³ In the ESC system, the accounting unit for energy savings is the ‘kilowatt-heure CUMulé et ACTualisé’ (cumulated and discounted), hence the abbreviation ‘kWh Cumac’. For the period 2011-2013 the French State had set an overall energy saving objective of 345 Terawatt-hours Cumac to be achieved by energy suppliers and distributors.

The system is based on a series of reference documents, codified in the law, listing the technologies and operations that are eligible to the scheme and specifying the kWhCumac they bring in. For example, if an obliged party pays a premium to a resident of a 100 m² apartment to help him replace his boiler, it will receive a certificate of 110 000 kWhCumac⁴. The acquisition of the certificate is validated by obtaining an attestation that authenticates the energy-saving operation: for the replacement of the boiler, the resident will forward to the obliged party an attestation provided by the installer proving that the work has been carried out. The certificate and the attestation are recorded in a national electronic register that keeps the accounting of the savings generated by all the obliged parties and makes it possible to check, at the end of the period, whether their targets have been met. Obligated parties are also allowed to trade certificates: the Energy Savings Certificate policy thus combines an incentive scheme for enhancing energy savings and a certificate market running somewhat like the Emission Trading Scheme (ETS) set up in Europe to implement a ‘carbon market’.

A controversial market based instrument

In fact, professional economists have largely supported the market design of this public policy tool. The technical term for ESC in economic theory is ‘Tradable White Certificates’ (TWC), a category of market based instrument comparable with the ‘Green’ and ‘Brown’ certificates used in analogous regulation infrastructures such as the ETS. TWC were the subject of EuroWhiteCert, a European project conducted from 2005 to 2007 and involving research team from 11 European countries who contributed to structure research on this topic (Labanca and Perrels, 2008). Research conducted since then has focused on the different dimensions of the implementation of TWC: the market design of the system (Pavan, 2008), the analysis of its transaction costs (Mundaca, 2007), the evaluation of its effectiveness compared to other energy efficiency public policy measures (Giraudet and Quirion, 2008), the link with renewable energy policies (Del Rio, 2010), the articulation with other certificate systems, and in particular the ETS (Bertoldi and Hud, 2006).

Outside the field of economics and law strictly speaking, few academic work has specifically focused on this tool. Little is known about the associated market configurations and forms of social organizations. It is mainly through public debates that have taken place in the media and in controversial forums that these aspects can be apprehended. In France, for instance a series of debates have recently developed, involving the consumer association *UFC Que Choisir*⁵ and public institutions such as the *Cour des comptes*, the *Conseil Général du Développement Durable* or the financial fraud prevention body *Tracfin*. These debates have criticised the complexity of the scheme and its opacity for the consumer, wondered who are the real winners of the system, questioned its real effects on environmental performance and denounced the fraudulent abuses that accompanied them (trafficking in certificates, etc.).

These debates indicate that an analysis of the ESC policy is needed that goes beyond economic modelling in order to account for how the system constructs particular ways to decarbonize the economy. It is in this direction that I would like to contribute, by mobilizing the STS approach to markets (Callon et al, 2007) and what is now called the perspective of ‘market studies’ (Kjellberg and Helgesson, 2007; Araujo et al, 2010 ; Geiger et al, 2014 ; Cochoy et al, 2017). I

⁴ The amount of kWhCumac collected depends on a series of technical parameters, like for instance the region where the boiler is installed, considered from the angle of a ‘climatic zone’. See « Arrêté du 19 juin 2006 définissant les opérations standardisées d’économies d’énergie », Journal Officiel de la République Française n°156 du 7 juillet 2006 page 10178.

⁵ See UFC Que Choisir (2018).

will focus attention on the specific case of boiler scrapping schemes: they are only one of many operations undertaken in the context of ESCs, but they will allow me to point to some emblematic features of the modalities of detachment offered by this policy. I will examine 3 boiler scrapping programs and investigate the processes of ‘market re-agencing’ (Cochoy et al, 2016) they involve.

Empirical approach

Let me present briefly the three scrapping operations. Program 1 took place between March and June 2011 and it was aimed at homeowners equipped with a gas boiler that was more than 15 years old: they would receive 100 euros if they would replace it with a new conventional boiler, and 250 euros if they would replace it with a condensing boiler, whose environmental performance was considered better.⁶ Program 2 started a little later that year, in April and ended in December. This time it concerned oil-fired boilers. It also targeted appliances over 15 years old and the bonus were the same as in the program for gas boilers. Program 3, announced in September 2017, involved much higher premiums (up to 3000 euros, granted on the basis of a resource-tested scheme), and it was intended to push the replacement of oil-fired boilers by boilers using renewable energy. To study these operations, I will draw on an analysis of French press material and of documentation gathered on Internet. I have collected 207 articles published between 2006 and 2018 in the general and specialised press commenting on the implementation of these programs⁷. This core was enriched by collecting by hand some 50 other articles, as well as a large number of other related documents (press releases from relevant ministries and organizations, advertisements, technical papers etc.).

This material provides a view on the scrapping operations based on a wide range of publicly available documents concerning them: announcements by political and business leaders, statements by representatives of concerned groups, expert analysis, testimonials from citizen, etc. I propose to use this material on the basis of two related hypotheses. First, the implementation of a detachment policy gives rise to ‘controversies about the market’ and to debates on its re-agencing in ‘hybrid forums’ (Callon et al, 2002).⁸ Second, the press more or less reflects the activity of these forums.

In this perspective, the exploitation of the material follows an approach of a sociology of controversies informed by the pragmatist analysis of public problems (Marres, 2007). The work of categorization is carried out at two levels. On the one hand, the problems discussed are inventoried and the pluralities of formulations featuring them are characterized. On the other hand, we search to identify the actors involved (political institutions, professional groups, activist associations, etc.) and to situate their position in the debates without relying on an *a priori* definition of their interest or positioning. Finally, the analysis requires the establishment of a detailed chronology, which is all the more important as the problem under examination is sensitive to the dynamic dimensions at work in re-agencing.

⁶ Compared to conventional boilers, condensing boilers reuse the water vapour contained in the flue gas, and condense it to recover heat, thus consuming 10% to 25% less gas for the same amount of heat produced.

⁷ The collection was carried out on the Europress database, using the words ‘*prime*’, ‘*casse*’ ‘*chaudière*’ (the French equivalent for ‘scrapping premium for boilers’) in the full text of the articles.

⁸ Callon et al (2002) use the term ‘hybrid forum’ to point to the various public spaces where the organization of market is nowadays the object of a reflexive activity, and where various actors intervene: professional economists, industrialists, consumer associations, social movements, experts in management techniques, etc.

It goes without saying that the journalists whose accounts we follow are not mere informants reporting factually and neutrally about an external reality. Like other representatives engaged in the controversy, they play a role in the process of issue framing. This feature of the empirical material is taken into account in the categorization work but in the context of the present article, I do not provide any detailed treatment of this dimension, which would require more space and additional developments. Please note finally that one of the limits of this empirical approach is that the expectations and effects of public policy are not restricted to what is circulating in public space. The article therefore provides a first exploratory view of the issues at stake, which is appropriate to the state of social science research on this subject, and which should be supplemented by additional survey elements including interviews with stakeholders in the field in order to gain access to narratives about practices and strategies that do not necessarily have public visibility.

2. Detachment in scrapping programs as a process of re-agencing markets

Seen from the angle of the detachment, a scrapping program involves a process where three categories of actors intervene: the State aiming for targeted objectives (decreasing the energy consumption or the polluting discharges in the country), a consumer potentially interested in replacing a good (an old boiler) under advantageous financial conditions, and a supplier of alternative, better quality goods (less polluting or less energy-intensive boilers). The consumer proceeds to detachment from the old boiler and to a re-attachment with the new boiler provided by the supplier, with the support of the State paying a subsidy. In this section, I propose to show how this pattern can be conceptualized in terms of market re-agencing.

‘My boiler and me’ : scrappage program as a reconfiguration of a plurality of attachments

The notion of market agencing has been proposed by Cochoy et al (2016) to account for the processes by which the different resources needed to build and transform markets dynamically emerge and combine. This approach is rooted in the perspective of ‘market agencements’ developed by Callon (2016). Contrary to the traditional view infused by economics, the market is understood here not as stable and pre-existing interface where suppliers and customers share information on prices and quantities, but rather as a complex and dynamic organizational device where supply and demand are co-constituted and progressively adjusted to each other. The emergence of attachments is one of the components of the agencing process and it requires the intervention of various technical and social resources (Cochoy et al, 2017). The attachment between a consumer and a good thus proceeds through the entanglement of a series of related entities, and detachment will require disentanglement.

How can we characterize the multiple entanglements and disentanglements at play in the case of a boiler scrappage program? As compared with the case of an orange juice (Callon et al, 2002), music (Hennion, 2010), an Apple Watch (Cochoy et al, 2017) or even a plastic bottle of water (Hawkins et al, 2015), the attachment that can be worn to a boiler looks quite enigmatic. The empirical material makes it possible to identify 5 dimensions at play.

First of all, the boiler is a constituent element of the overall heating infrastructure of the dwelling, which implies particular forms of attachment.⁹ These may concern the relationship with other components of this infrastructure, such as pipes, radiators or exhaust ducts, but also

⁹ Please note that this article deals with boilers installed in private homes. The issue of infrastructure is indeed present but it is very different from the case of district heating networks (Webb, 2014), and I approach boilers here mainly from the perspective of market commodities.

primarily with the installer, an indispensable mediator for the installation of the boiler and the maintenance of the infrastructure (Wade et al, 2016). For example, an article in the corpus entitled '*Heating: For every need, there is a solution*' recommends that a precise study be carried out, possibly with an installer, before making a decision to change the boiler : '*Make an inventory of the existing equipment. What type of radiators do you have? Will the flue conform to a new boiler model? Can the electric heating be connected to a control system? Is the ventilation correct?*'¹⁰

The second dimension is that of uses. What we do with objects largely structures our attachment to them – and the reasons why we want to detach ourselves from them. In the problematization work done in the generalist and specialised press, the question of uses is poorly addressed. The contrast with the case of the automobile, also subjected to scrappage programs, is well summarized by this professional mentioned in the press when he compares the act of purchase in both cases. He insists that the use of a car is associated with a notion of pleasure '*while with heating, we only worry when we consume too much or when the appliance breaks*'¹¹. Here again, we find a well known characteristics of the relationship to infrastructures, which is that 'it becomes visible upon breakdown' (Star, 1999). This does not mean that homeowners don't have any expectation concerning the use of their boilers, but that these expectations translate indirectly, for instance through the notion of comfort, which is a matter of concern for various professionals of the building environment (Grandclément et al, 2015; Shove et al, 2008).

The third dimension is that of related transactions. Some objects and devices in our environment generate transactions, and the way in which these transactions take place reflects the attachment we have for them. For boilers, this is the case for energy supply. From this point of view, a boiler change may undoubtedly be translated into an opportunity to save heating costs. The importance of the problematization of boiler change in terms of energy costs is obvious in the arguments of many articles comparing fuel prices, or in the titles referring to the '*soaring price of oil*', to the need to '*reduce the energy bill of the French*' or to '*limit the impact on purchasing power*'.

The fourth dimension appearing in the material is that of the boiler as a durable good: its purchase is an investment, which places the attachments to it in a long temporality. The idea that we do not buy a boiler '*on the spur of the moment*'¹² euphemistically but illustratively emphasizes the specific experience we have of a durable good. It may entail a psychological burden so that the consumer will detach more easily from it when it is amortized. In a number of cases, the boiler is linked to a bank loan concretely materialising long-term relationships with particular actors (bank, tax administration, etc.). One of the articles in the corpus emphasizes how this dimensions of investment and associated costs intervenes in the qualification of the attachment to boilers. It includes a table listing, for different heating technologies (gas and oil condensing boilers, wood log boilers, electric boilers, etc.), a whole series of figures and ratios: cost of energy in equivalent kWh, price of energy subscription,

¹⁰« Chauffage : à chaque besoin sa solution », Côté maison, 9 October 2011.

¹¹ Frédéric Plan, Delegate of the Fédération Française des Combustibles, Carburants et Chauffage (FF3C), cited in « La prime à la casse des vieilles chaudières : un four », l'Est Républicain, 3 March 2011.

¹² « Chaudières : le grand flou de la prime à la casse », Ouest France, 10 October 2011.

maintenance cost, investment cost, percentage of tax credit on acquisition, local financial aid, and total cost over 15 years.¹³

Finally, the attachment to the boiler may be problematized in political and ethical terms, in relationship with the debates over global warming. In this perspective, the environmental benefits associated with new types of boilers (condensing, wood, biomass boiler for instance) are mentioned as a reason to participate in scrappage programs. Note that for an extended period in our corpus, these aspects remain in undertone of the articles' argumentation, and they are systematically associated with or overshadowed by the financial issues at stake. An interesting example is the table just mentioned above. It includes a column showing for each type of boiler the greenhouse gas emission, qualifying thus an ecological attachment – but this number is nowhere else commented on in the article. It is only after 2017 that the environmental attachment becomes more visible, as part of new political concerns developing in the wake of the COP 21.¹⁴

Drawing on a socio-technical analysis perspective (Akrich, 1992), we can use this characterization of the consumers' attachments to boilers to grasp the agencements that may be impacted by scrappage programs. Beyond boiler manufacturers properly speaking, we may expect notably that installers, radiator manufacturers, energy suppliers, banks or activists of environmental associations may, in one way or another, become actively involved in this market change. In other words, the re-aging underlying this detachment policy may re-shape the boiler market, but also the articulations with a series of related markets.

Detaching from and re-attaching with a durable good

A second important dimension to qualify scrappage programs, evoked in the 're' of 're-aging', concerns the relationship between detachment and re-attachment they underlie. The fact that the boiler is a durable good has two important consequences. Firstly, the detachment and re-attachment dynamics at play here is similar to that involved in the 'ordinary' replacement of a durable good. Yet the replacement of durable goods constitutes in all economic sectors a well-identified segment of the demand, that is the subject of specific commercial activity undertaken by manufacturers and service providers. In the automobile sector, for instance, car manufacturers frequently propose buy back offers where customers who abandon their vehicles receive a discount on the purchase of the new one. The detachment policy of the scrappage program therefore interacts with market operations that have their own cooperative and competitive strategies and their own agenda. The public authorities intervene here on a ground that is already occupied by market players.

Secondly, the consumer is involved in these operations in a particular way. In their original conceptualization of the notion of attachment, Callon et al (2002) have proposed an analysis of the logics of detachment/re-attachment as the process of extracting the consumer from the routines of calculation involved in repetitive transactions: the consumer on the market scene will re-examine the relationship with her usual orange juice and consider detachment in favour of buying another beverage that develops distinctive attachments. Re-attachment happens in the wake of the competitive process that produces detachment. This conception, relevant for regular consumption, should be adapted for durable goods such as cars or boilers. 'Extracting the consumer from the routines' here will not mean reopening the space of choices to assess

¹³ « Comment bien choisir une chaudière à condensation », Le Progrès, Informations-Services, 11 December 2011.

¹⁴ « Des aides financières pour se chauffer écolo », La république du Centre Ouest, 23 September 2017 ; « Plan climat : Nicolas Hulot dévoile ses quatre mesures phares », 20 minutes, 18 September 2017.

competitive goods in the course of a new transaction. There is actually a competitive dynamics since, in a scrapping program as in an ordinary replacement, the consumer will compare an old and a new boiler. Yet the comparison is between a good that has already been purchased and that is now 'at home', and another good that is indeed situated on the market stage. 'Extracting the consumer from the routines' thus means changing the way she looks at an object in the familiar environment, and seeing it in light not only of present usages, but also of possible new transactions supported by a subsidy.

The dynamics of the 'good deal' and its temporality

A consequence of the previous point is that scrapping programs involve a logic of the 'good deal'. This logic is present in the programs launched by the State, but it is even more obvious in the related replacement programs supported by the industry. More than press articles, advertising addressed to homeowners suggests the importance of this dimension. There is a whole marketing and commercial logic that aims to trigger transactions that would not otherwise occur: one tries to make the homeowner feel the urgency of the boiler replacement offer, by showing him that he must not miss this opportunity, by stressing that it is a gift, that he would be crazy to refuse, etc. Here are some expressions found in our material: '*immediate offer !*', '*300 euros discount*', '*4 months of exceptional bonus*', '*your boiler can earn you a lot of money*', etc.

The re-agencing dynamics appears here as a small 'market jolt' where the 'greed for profit' is mobilised to 'extract the consumer from the routines' and lead him see his boiler as a market commodity liable to generate transactions. This gives much importance to the processes of communication and to the control of temporality in the market: the objective is to capture the consumer's attention, to guide him to re-calculating attachments and to be really in a position to meet the demand once it appears. As a whole, this recalls the importance of the 'ing' of 're-agencing' at stake in scrapping programs. This is consistent with the invitation by Cochoy et al. (2016) pay attention to the dynamic processes at stake both in the overall market design activities that constitute them and in the continuous and more local movements that feature routine transactions.

3. Five challenges for an ESC supported detachment policy

Now I would like to look at how scrapping programs intended to perform boiler detachment are operated in the ESC framework. At first sight, two main tasks are devolved to the public authorities when implementing a scrapping scheme: on the one hand they have to organize the subsidy process; on the other hand, they must lay down eligibility criteria to define which consumers can benefit from the operations and which new products can be chosen to replace the old ones, in line with the targeted policy objectives being pursued. The 'other tasks' necessary for the detachment to occur are normally handled by the forces of the economy. Particularly the power of the market as a mechanism of coordination is visible in two processes: the capacity to dissolve the links that impede economic action (the consumer's bond with the older object is weighed against the interest of the premium offered by the State and the interest in a new good) and the enactment of a transaction to purchase the new good (the market provides for the allocation of resources, and notably for the identification of a new good to substitute the former).

Here I will show that this reasoning, which seems intuitive but reflects a fairly conventional economic conception of the functioning of market-based instruments, needs to better take into account the re-agencing processes supporting the detachment policy implemented in the context of ESCs. On the one hand, the tasks that are 'devolved to the public authorities' prove to be

complex: subsidisation requires a subtle organisation of the links between the State and energy companies; the determination of the eligibility of beneficiaries and replacement products is linked to strategic choices. On the other hand, the State cannot remain passive in the ‘tasks handled by the forces of the economy’. Scrapping programs place the State in a complex relationship with suppliers, which requires the ability to coordinate and adjust to market timeframes that it does not fully master. On the consumer side, the State needs to provide support to make the functioning of the market understandable. Finally, public authorities must face an additional, tricky requirement: to make their action identifiable on the market and more generally in the political arena.

1. Organising the subsidy process: how to get energy companies to act?

A first important question arises when analyzing the implementation of scrapping program in the ESC system. How does the State, which is not here the direct provider of the subsidy, organize relations with the energy providers who will finance the operations? To address this issue, I will briefly compare the implementation of the first two programs.

Program 1 began on 2 March 2011 with a public speech by Eric Besson, Minister of Industry in the government under the presidency of Nicolas Sarkozy, announcing the operation. It was presented as an action to support consumers in the fight against rising energy bills, financed within the frame of the ESC scheme and operated by GDF Suez. GDF Suez was the main French gas supplier, holding a dominant position with more than 80% of the market share.¹⁵ While in his announcement the Minister strived to adopt a generosity stance in the support of consumers, the comments in the press broke a little the symbolism of the sovereign governance of the State on the market. The press underscored the role played by GDF Suez, and some journalists even gave the floor to its CEO, who did not hesitate to recall that it was his company that paid for it.

‘It’s paid for in full by GDF Suez, it’s not the State. Unlike for cars, this scrapping bonus is paid for by GDF Suez,’ Mestrallet said on BFM radio.¹⁶

Other journalists insisted that the effort made by GDF Suez was the outcome of a very visible double bargain. On the one hand indeed, the scrapping premium was to be duly converted into Energy Savings Certificates:

Indeed, as part of the Grenelle, GDF Suez must have saved or made its customers save 13.4 TWh by 2013. If he does not do so, the penalties are €20 per MWh not saved. This bonus for boilers consuming less energy comes at the right time: it allows GDF Suez to accumulate points [in the ESC system].¹⁷

On the other hand, the press pointed out that the government had conceded, a few days earlier, a 5% increase in the price of gas, which GDF Suez had been demanding for months. The scrapping bonus thus appeared in this context as a very modest counterpart granted by the energy company. The disputable character of this negotiation was controversial not only in

¹⁵ The company was created in 2008 by the merger of Suez and the incumbent gas supply operator ‘Gaz de France’. Despite the gradual opening to competition, it still supplied 81% of French households in 2013.

¹⁶ « GDF Suez paiera la prime à la casse des chaudières à gaz », Agence France Presse, 3 March 2011

¹⁷ « A qui profite la prime à la casse des chaudières », L’UsineNouvelle.com, 3 May 2011.

some media but also in the National Assembly, where the Minister of Industry had to face criticism from a deputy of the opposition specialised in energy issues, François Brottes: relying on the fact that the measure was to apply on the first of April, Brottes accused Eric Besson of having ‘*invented a bad April fool's joke with the announcement of the scrapping bonus for boilers*’¹⁸.

Program 2 was announced by Eric Besson on 21 April 2011, at a public event bringing together professionals of the fuel oil distribution and organized by the powerful federation of this sector, the FF3C (*Fédération Française des Combustibles, Carburants et Chauffages*). It concerned oil-fired boilers and this time it was supported by the fuel oil industry that, contrary to the gas industry, was not quasi-monopolistic. There were thousands of small distributors operating in the market. Here, the State relied on two coordinated mechanisms. On the one hand, it had the support from the professional bodies for this operation, in particular the FF3C, which ‘*called on its members, more than two thousand distributors, to join the initiative*’.¹⁹ On the other hand, it used a labelling strategy to incite market actors to participate: the fuel oil distributors who volunteered would sign a charter and they could be identified by consumers through a market label ‘*Prime à la casse des chaudières*’ (*boiler scrapping program*).

Let me now compare the re-agencing processes at stake in both operations. In program 1, the commitment to subsidize the operation resulted from a one-to-one negotiation between the Ministry of industry and a former public monopoly. In program 2, the State had to deal with a large number of market actors. Here negotiations with representatives of the profession were not sufficient and the implementation of a label in the fuel oil market was used. In both situations, the amount of the subsidy (here the 100 and 250 Euros) was notably the outcome of the balance of power between the industrialists and the State in this context. As we can imagine from these cases, there can be potentially a wide variety of strategies for the State to obtain the implementation of subsidy process, and they will depend on the structure of the related economic sectors.

2. Managing tensions in the definition of eligibility criteria: the end of the ‘good deal’ for fuel oil companies

Program 2 ended in December 2011. It was followed by other analogous operations for fuel oil boilers supported by the FF3C and carried out until the end of 2013. In March 2014, this dynamics, which had seen the market regularly stimulated since 2011, was interrupted: sales figures showed that, for all the campaigns conducted between 2011 and 2014, the results had been far below expectations. There was no new initiative of this kind until 2017. Program 3 is one of the operations that were re-launched in that period.

Nicolas Hulot, Minister of the Environment at the beginning of Emmanuel Macron’s five-year term, announced this program in September 2017. The premiums distributed were higher than in the former campaigns – they could now reach 2000 or 3000 euros – probably as a result of a learning process from the 2011-2014 phases, where the schemes had been weakly incentive. An interesting feature of this program for our investigation is that it involved more restrictive eligibility criteria. On the one hand it included a resource-tested scheme as part of the fight against ‘fuel poverty’, a topic that had emerged in the recent political debates. On the other hand, the program’s aim was not only to detach from one’s old boiler, but also to detach from the energy source and get attached to another one, considered more ecological: the scheme

¹⁸ lesechos.fr, 2 March 2011.

¹⁹ « Mise en place d’aides à la modernisation du parc des chaudières fioul domestique », Press release FF3C, 21 April 2011.

would apply only for replacing fuel oil boilers with equipment using renewable energies (biomass boiler, heat pump, solar-based heating, connection to heating networks).

For the market actors in the fuel sector, this shift marked the end of a long period during which they had tried to make the ESC policy compatible with the preservation of their business. Indeed, since the creation of the system, these actors had been trying to meet their objectives while continuing to promote fuel oil energy. In this highly fragmented sector, the FF3C had actively organised political action, negotiating with the public authorities and developing an organisation capable of deriving economic power from energy saving certificates. In 2006 for instance, it had created *Ecofioul*, an association federating 3000 French fuel oil distributors (about 80% of the profession, mainly very small businesses) facing the challenge of the implementation of the ESC. The distributors joining *Ecofioul* would transfer to this association the saving targets that the State had allocated to them in exchange for a contribution of 2,5 euros per fuel oil cubic meter sold.²⁰ The emergence of *Ecofioul* was a market re-agencing that relieved the distributors of the burden of recovering their own certificates and, with the funds collected, formed a financial pool that could finance general interest campaigns in the sector.

Program 3, which excluded oil-fired boilers from the game for the first time, heralded the end of this dynamic of accommodation, as it had prevailed in programs 1 and 2 in particular. Incidentally, commentators gave the nice nickname ‘Fioulexit premium’ to this measure. Fuel oil suppliers tried to fight against it and filled a case in the *Conseil d'Etat* to obtain its cancellation – but they failed to convince the judges and the case was rejected. This attempt illustrates typical tensions in the involvement of energy suppliers in a detachment policy that poses significant threats to their activity. It is indeed of a strategic importance for energy providers to limit the number of owners deciding to change energy when they change the appliance itself. Such a logic seems natural in view of the forms of attachment between the consumer and the boiler as a durable good: the reopening of general choices concerning heating modes at the occasion of detachment and re-attachment operations may have longstanding consequences. In the end, it is precisely because the heating equipment is one of the important parameters in the competition that runs between different types of goods on the energy markets (gas, electricity, biomass, wood, etc.) that the potential detachment of homeowner and their boilers is the subject of attention from energy suppliers.

3. Coordinating with the industry: supporting re-attachment and ‘jolting the market’ in due time

As I mentioned earlier, the detachment policy underlying scrappage programs may interact with replacement campaigns pushed by the industry. The State's ability to find the appropriate position on a commercial battlefield occupied by a multitude of protagonists who are candidates for re-attachment is in question. I will come back to program 2 to pinpoint typical tensions at stake here. While it developed, the operation was the subject of a series of interesting misunderstandings. Indeed, a few months after the first announcement, two decisions were publicized simultaneously.

On 15 September 2011, a consortium of professionals active in the fuel oil market coordinated by the FF3C launched a campaign called ‘The 90 days of fuel oil’ in which the initial premium of program 2 (100 and 250 euros) could be doubled for consumers who did the operation by the 13 December 2011. *Ecofioul*, which was in the consortium, participated in the funding of this additional premium. But on the same day, the Minister of Industry, Eric Besson, made another announcement at the ‘2011 Gas Congress’. He advertised the doubling of the scrapping

²⁰ « Les fioulistes ensemble pour économiser l'énergie », *Environnement magazine*, 1^{er} novembre 2006.

premium introduced in April ‘*thanks to the participation of boiler manufacturers who will complement the assistance offered by oil and gas distributors.*’²¹

These two simultaneous announcements quickly had problematic and unexpected impacts on the market. The increase of the premium really appeared as a good deal to many consumers and this generated a first problem: the field professionals to whom consumers turned were installers, but they were ultimately absent from the consortium that had arranged the program. As a consequence, they couldn’t properly react to this small market jolt:

In the days that followed, customer requests flooded in, especially from heating specialists. But no one seems to be aware of such a doubling, nor of its modalities. ‘Installers should have been better informed, because it is to them that customers turn, not to manufacturers,’ says Frédéric Plan, Executive Director of the Fédération Française des Combustibles, Carburants et Chauffages (FF3C). ‘As soon as the media talk about these kinds of bonuses, it’s a rush,’ says one professional. The consequences are immediate. ‘I took my check back, I’ll wait. It was an opportunity to change my boiler,’ explains Christian Damman, owner of a 15-year-old boiler. ‘But I couldn’t figure out who would provide this assistance. So I told my heating engineer that I would buy a new one when they agreed among themselves.’ Professional anger: ‘Customers call and block their orders !’ storms Samuel Mignon, a staff member of Quesnel, a company in Vannes.²²

A second problem concerned other important market actors involved in the operation, the boiler manufacturers. *Uniclimate*, the profession association that brings together the majority of them, very quickly published a press release contradicting some elements of the Minister’s statements. Two issues were notably at stake. First, if there was indeed an operation ‘doubling the premium’, it was not launched ‘at the instigation of the Ministry’, which suggested that through his announcement, the Minister was trying to unduly attribute authorship to himself. Second, not all boiler manufacturers had committed to participate. Indeed, the participation in the operation depended on agreements concluded between energy companies and manufacturers: the market re-agencing that was at work did not operate in a homogeneous way on the supply side, but according to the alliances concluded between certain energy companies and certain manufacturers. Faced with this rising grumbling from the energy professionals, the government had to communicate again and corrected the Minister’s original wording that could be confusing. This example shows the complex web of competition and cooperation between market players (energy suppliers, installers, manufacturers) that underpins replacement and scrapping operations. The challenge here is for the State to find its place in these moving agencements.

4. Making the market understandable for consumers

History shows that it is not only on the industry side that the detachment policy orchestrated within the ESC framework contained ambiguities. Problems of understanding in implementation also appeared on the consumer side. An illustration is the rather bureaucratic process designed to organise the payment of the premium as the counterpart of a transaction complying with the ESC rules. Let me describe the procedure at play in program 1: the customer wishing to change his boiler had to make a request to GDF Suez, accompanied by a proof of the age of his boiler and a quotation for the replacement made by an installer; the gas company

²¹ « Les fabricants de chaudière paieront aussi la prime à la casse », L’UsineNouvelle.com, 15 septembre 2011

²² « Chaudières : le grand flou de la prime à la casse », Ouest France, 10 October 2011

would then confirm the eligibility within a given period, after which the installer could start work; it was the installer who would, after completion of the work, issue the attestation that would be circulated to GDF Suez and then transmitted to the ESC management service to value the associated energy savings; to validate the operation the installer also had to present specific certifications guaranteeing the quality of the work; it was only at the end of this long journey that the bonus could be paid to the homeowner. This cumbersome and complex process was criticized in the press. My corpus contains several articles, written by professional journalists or taken from the readers' letter section of local newspapers, complaining about the difficulty of obtaining the bonus. A typical example depicts an ordinary conflict between a homeowner and the gas operator GDF-Suez, the latter refusing to pay the bonus after the completion of the work on the basis of a wrong certification held by the installer.²³

Another source of consumer confusion is the proliferation of ESC-related discount offers. Indeed, in the same way as energy suppliers, as we have seen with *Ecofioul* above, many commercial actors have organised structures to collect, aggregate and value certificates. This has given rise to the development of a large and complex business with many intermediaries and the circulation of diverse primes, coupons and reduction vouchers related with energy savings and ultimately convertible, under various modalities, into energy certificates. In several articles, journalists tried to explain the system to the readers, suggesting that it involved a proliferation of marketing avatars supposed to simplify operations for the final consumer but ultimately producing a certain opacity on the 'good deals' that were offered in the market:

Strangely enough, you will never hear about Energy Saving Certificates as such. These certificates take different forms. To encourage you to carry out your work, the commercial actors will offer you work cheques, an energy bonus, a discount on the invoice, a subsidised loan or even purchase vouchers. In practice, the beneficiaries delegate the recovery of ESCs on their behalf to collective structures recognised by the Ministry of the Environment. Your contact person will often be a platform: CertiNergy, Energy Economics, Geo France Finance... They are the ones who develop energy-saving programs.²⁴

We see the difficulties of understanding from the consumer's point of view. At some points of the market, the scrapping program is entangled in a very administrative system of procedures and conformity documents. At some other points, the financial proposals made by the public authorities to perform detachment is appropriated by market players who, according to their own interests, reformulate the good deals through additional marketing formula, transforming the calculations shaping consumer decisions. As a whole, the scrapping program seems to be embedded in a network of strategic alliances and secondary market structures so that re-attachment can only take place in a limited number of competitive configurations, involving various coalitions (or 'partnerships') between selected players. The coalitions in question and the related procedures may be difficult to identify by the consumers – for instance they have to check that the fuel oil distributor who will allocate the bonus has indeed partnered with a boiler manufacturer who will agree to double it. 'Who pays for what', 'who is eligible', 'how to proceed' and, in the end, 'where is the good deal'? An important role for the State should be obviously to contribute to provide answers to these questions.

²³ « L'an dernier, mon fournisseur de gaz... » La nouvelle république du Centre Ouest, 20 September 2012.

²⁴ « Economies d'énergie : des aides bien réelles pour financer vos travaux », Le particulier pratique, 1 May 2017.

5. Making public action accountable

A final area of action for the State concerns the display of its very responsibility in the detachment policy. As I have just said, homeowners probably do have the impression that ‘they make a good deal’ when they replace their boiler through a scrapping program – but in the end they may wonder to whom they are indebted for this. The ESC scheme tends to blur the real identity of the sponsor of the deal. The Minister's announcements that I have mentioned in programs 1 and 2 can be seen as a means of claiming ownership of operations that are in first order financed by private industrial players, but in which the State takes the political decision of activating the existing funding scheme. In general, it seems that the communication of industrial actors on scrapping programs tends to erase the role of the State or reduce it to that of a partner. An advertisement for one of the campaigns involving *Ecofioul* and the boiler manufacturers in 2013 displayed a nice illustration: it showed two hammers symbolising scrapping, on which were written the two 350-euro bonuses that could be accumulated, with labels attached to the hammers indicating ‘offered by *Ecofioul*’ and ‘offered by the boiler manufacturers’. The State was quite simply invisible in this communication.

Note that conversely, this symbolism of the gift can only really convince those who ignore the minting in certificates that takes place as compensation. Consumerist activists working in the domain know this well, and they are committed to relativizing the sacrifice that market players pretend to make in this communication operation, as shown in this excerpt from a publication on the UFC Que Choisir website :

The scrapping bonus scheme for oil-fired boilers introduced last winter is coming back thanks to the increase in crude oil prices and therefore in fuel oil prices. It is intended for owners of old oil boilers, installed for more than 15 years. If they replace it with a much more efficient condensing model, they receive an aid of at least €700, financed equally by the boiler manufacturer and the oil distributor. It is a priori nice but there is no need to thank them. This measure allows them to meet their obligations in terms of energy saving certificates by recovering those to which the installation of an efficient boiler entitles them. Because if they did not meet the quotas set by the regulations, they would have to pay heavy penalties (see our survey on energy saving certificates). It is therefore a win-win situation and not a gift.²⁵

This problem of visibility of the State's efforts to implement a detachment policy carries the risk of a poor valuation of its action, a risk that is all the more crucial in the field of the fight for the climate, where political expectations are high. This point reminds us that if re-agencing has consequences on the place that the State occupies in the market, it also produces political externalities strictly speaking: the debates generated in the press that I have examined or in cenacles such as the National Assembly show that the controversies that unfold on the various scenes that make up the 'hybrid forum' of the economy have very political dimensions. In the final analysis, the consumer is also a citizen who expresses his choices in the voting booth.

Conclusions

To conclude, I would like first to summarise a few observations concerning the specific conceptualisation of market detachment proposed by the re-agencing approach. This approach moves us away from an intuitive conception of detachment as simply the dissolution of a link

²⁵ <https://www.quechoisir.org/actualite-chaudiere-au-fioul-prime-a-la-casse-doublee-n9323/>, accessed on 14 April 2020.

between the two distinct entities of consumer and product – whether this link is based, according to the specific conception of economic relations that one adopts, on interests, tastes, passionate attractions, etc. First of all, the link that has to be broken in order to detach is never unequivocal, and it is a plurality of entanglements that is at issue, which are themselves the result of the attachments that built it up. It is therefore potentially a plurality of transactions that will be affected or activated by detachment. Detachment from one's boiler may lead to questioning energy supply contracts, reviewing the overall heating circuit in the dwelling, seeking the assistance of a bank to finance the investment, exploring possibilities for tax exemption, etc. Secondly, the approach in terms of re-agencing pays attention to the various re-attachment processes associated with detachment. The forms of solidarity between the two mechanisms of detachment and re-attachment, and the dynamic movements through which they are articulated, are paramount here. By considering the scrapping of boilers as detachment linked to the replacement of a durable good supported by a subsidy, we are thus led to question the scope of the actors involved, the forms of calculation mobilised and to decipher the dynamic movement of the transactions that must take place in order to achieve the result.

On this basis, the study presented here provides two specific results. On the one hand, it illustrates the problems that arise when detachment is the subject of a policy implemented by the State. As we have seen, one of the main challenges here is to define re-agencing strategies that are consistent with the policy objectives pursued, but it is also important to coordinate with private economic actors who, for their part, are constantly trying to reshape the processes of market attachments and detachment according to their own agendas. On the other hand, the article illustrates, on the particular case of boiler scrapping programs, the specific difficulties for a public policy of detachment carried out in the framework of the ESCs. The operating principle at the heart of the ESC system, giving a primordial role to energy companies to the detriment of many other actors potentially concerned by detachment (manufacturers, installers, banks, civil society activists...), imposes strong constraints on this policy. They concern particularly the organisation of the subsidy, the determination of eligibility criteria that are compatible with the field of activity of these actors, and the capacity to make visible the public action being carried out.

As a whole, there are salient contrasts in the issues of re-agencing of the three programs I examined. In Program 1, these issues relate to the State's ability to negotiate with large and powerful companies that are in dominant positions on their markets. Program 2, on the other hand, concerns a very fragmented economic fabric where the strategies of the players need to be channelled, for example with re-agencing approaches that include labels and alliances with representative institutions. In programme 3, the State's approach in its detachment endeavour comes up against the structural interests of major economic players, which points to other possible re-agencing logics: how can these players reorganise themselves internally - by building alliances allowing new synergies, developing new industrial activities or even abandoning risky activities - so that the cooperation in public policy is not to the detriment of their strategic interests? In the end, these three cases appear to be fairly typical of general forms of re-agencing energy markets that are involved in the decarbonisation of the economy.

This research is exploratory, and calls for extensions on several dimensions. Other operations subsidised in the ESC framework could be studied, for example the insulation programmes which have received significant support in different European countries. The effects of the certificate trading scheme, which has not been discussed here, would also deserve attention because the valuation of the certificates it enacts has a retroactive effect on consumer incentives. Finally and more generally, this work raises the question of how public intervention in the energy markets is likely to organise the various forms of competition that are at work among related markets: between players in the same energy sector (gas, fuel oil, electricity, etc),

between energy sectors themselves and even on transverse markets (equipment, installation services, etc.). Obviously, there is a great indeterminacy about the complex economic links that can be re-agened when engaging in a detachment policy.

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