Energy and energy-saving publics in Provence Alpes Côte d'Azur

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Abstract

Based on a survey of 2,000 persons conducted in 2009 in the PACA region (Provence Alpes Côte d'Azur), the aim of this survey is to highlight the existence of different types of public (mostly exclusive) concerned by energy issues: one of these publics is interested in a global issue (climate change) and another is concerned with electricity-supply problems in the PACA region, thus making energy a local issue.

The study shows that these two publics, although they differ from territorial and ideological standpoints, have in common that they belong to the more affluent, educated and politically-minded social strata. In particular, they are more aware than the rest of the population of energy-saving issues in the PACA region. They therefore declare a greater number of thrifty behaviours (demand-side management (DSM) actions and/or investment).

In accordance with works comparing consumer attitudes (Beck, 1986; Dozzi, Wallenborn & Lennert, 2008), there is little or no connection between electricity consumption and the fact of belonging to a concerned public. Whilst there are no direct links between individual preferences and practices, the latter being mediated by past individual choices and infrastructures, collective preferences can sustainably configure new practices. One interesting avenue of research would be to analyse how these publics appropriate proposals for public energy policies, and pricing policies in particular: price flexibility in terms of supply and demand, carbon dioxide (CO_2) emissions, places of production or consumption volume (block tariffs).

Introduction

This study examines the evolution of social norms conducive to energy-saving practices. More particularly, it looks at collective representations – both in the sense of beliefs and convictions and in terms of the diagnostics and reasoning shared by a wide public. These collective representations are indeed necessary, as they make it possible to adjust individual attitudes. They also constitute a condition for the adoption of public policies conducive to energy-saving practices – in as much as public policy communities and policy decision-makers will anticipate a certain *acceptability* of these policies (Cobb and Elder, 1972; Kingdon, 1995) –, and *in fine*, they are a first step towards individuals adopting energy-saving behaviours. Of course, such an outline is too simple to be completely realistic, but it has the advantage of providing a framework which allows us to explain what we are trying to clarify and what we will leave aside (for example, a detailed and comprehensive description of practices) (Moussaoui, 2007) or an analysis of the configurative nature of the socio-technical systems and of the offering (Shove 2003).

This paper is based on the following hypothesis: it is the discussion – in the broadest sense, in the media (Mac Comb and Shaw, 1972), in inter-knowledge circles, etc. – of environment-related challenges which will make it possible for collective norms to evolve. We therefore examine not only representations of existing energy-related constraints, but also representations of the future and the alternatives identified by different publics.

This study falls within a research tradition which makes controversy and collective survey one of the main focal points of normative production (Dewey, 1927; De Munck, 1999; Loute, 2008): the "testing" (Boltanski and Chiapello, 1999) of norms within the public space follows a critical path which runs from

adherence to the principles or values underlying the norms to discussion concerning their modes of application. We therefore follow Dewey's adage whereby it is problems which create publics. Two series of hypothesis can be developed from this starting point:

- It is probable that environmental problems such as climate change and resource depletion – and also, undoubtedly with major regional variations, the impact of production or transport – are increasingly attracting the attention and interest of the general public. We formulate the hypothesis that the salience of these problems renders the energy-saving norms more or less legitimate.
- Above and beyond discussion of environmental problems and principles, these energy-saving norms may be implemented by various types of public policy instrument (Lascoumes and Le Galès, 2004). The choice of *implementation modalities* such as bonus/malus systems which discourage high consumption, or tax incentives which encourage investment to reduce consumption can lead to greater or lesser adherence or even cause controversies, as was the case with the carbon tax or with the evolution of electricity prices.

The first part of the paper focuses on identifying the publics concerned by energy issues. Basing ourselves on the works by J. A. Krosnick on the public's attitudes to climate change (Krosnick et al., 2006) and by Stone (1989) on causal accounts, we will use a survey of 2,000 persons, carried out in the PACA region in March 2009, to highlight the existence of different types of public (for the most part exclusive) concerned by energy problems: one of these publics is interested in a global issue, that of climate change; another is concerned about the problems of electricity supply in the PACA region, thus making a local issue of energy.

The second part focuses on implementation issues. Analysis of the links between individual preferences and practice shows either that there are no direct links between pro-environmental preferences and consumption practices, or else a positive correlation between a pro-environmental attitude and high consumption linked to income level (Wallenborn et al., 2007). Consumption practices are in fact mediated by infrastructures and past individual choices, and collective preferences can lastingly configure new practices. One interesting angle is thus to analyse the way in which these publics appropriate public energy policy proposals by distinguishing between two lines of approach: the first – essentially backed by tax devices – encourages individuals to invest in order to reduce energy consumption; the second favours implementation of a bonus/malus or block tariff system which will discourage high energy consumption.

Energy publics in Provence Alpes Cotes d'Azur

PROBLEMS CREATE PUBLICS

The discussion, in the broader sense of controversy (and not of deliberation in the sense of an ordered and rational debate (Habermas, 1987), in numerous forums (media, interknowledge networks, etc.), of issues relating to energy and the environment, especially at times when public policy devices are being justified and implemented, is part of the evolution in collective norms. Like Lippmann, one might think that the "default" position of democracies is to "do without the public" (Lippmann, [1925], 2008, p. 81); at least, this is B. Latour's interpretation: "the ideal situation for the public is not to become involved in public matters! And that's fine, it's the default situation when there is no crisis. It means that the rules are in place and all is well. It's so rare, no-one's going to complain" (Latour, 2008, p. 29). However, the increasing number of controversies upsets this routine delegation of problems to experts and political representatives far too often for us not to draw certain conclusions. For J. Dewey (Dewey, 1927) and his pragmatist tradition, it is problems, the controversies caused by issues, which create publics. The emergence and diffusion of norms are therefore also the result of discursive consciousness in the sense that the justifications of a new order and of the modalities for its actual application are shared by broad publics. Although socio-technical devices constitute scripts which orientate our actions to moral ends (Latour, 2000) – and do so even more effectively given that our adherence is not explicitly solicited – it is always possible to depart from this routine programme in the form of a diverted use (Brugidou, Moussaoui, 2013). Yet for mobilised groups, it is also possible to once again raise the more collective issue of the "morality" of the device, or, in political terms, to again question its compatibility with public welfare amidst the controversies which surround implementation of this device. It is therefore often ex post, during implementation of public policy or when offerings become generalised throughout a marketplace, that the issue of explicit normative adherence can be raised and lead to the construction of broader publics. When such controversies occur, the latter can then decide whether to trust in the choices made in their name (as citizens, consumers, etc.) or to once again debate the choices involved in the regulatory or commercial devices.[1]

CLIMATE CHANGE AND ELECTRICITY SUPPLY IN THE PACA REGION

Climate change is one strong candidate for the growing awareness of broader publics which accompanies the evolution of collective norms, but there are others. In this survey, we look at people's views on climate change (global issue) and on the constraints on electricity supply (in this case, a local issue for the PACA region). In the first part of this paper we will try to identify the publics who are attentive to these issues and to measure the attention that these different publics pay to energy-saving issues.

THE PACA REGION

The survey relates to the PACA region. This is a region of especial interest to this study, not only by virtue of its electricity supply and network reliability problems (power cut in the winter of 2008 in the east-PACA zone) but also due to a planning dispute (hinterland and Var region) surrounding the EHV (Extra High Voltage) project, Boutre-Carros and numerous energy-saving awareness campaigns. These campaigns were organised not only by local communities but also by electricity suppliers

1. In France, the issue of automatic radars is an example of this phenomenon: the government's decision to no longer indicate the location of radars led to a major controversy and once again raised questions concerning the legitimacy of repressive road-safety policies. http://www.leprogres.fr/haute-loire/2011/05/31/radars-l-enlevement-des-panneaux-tres-controverse

and marketers or by the organisation in charge of the EHV network (RTE) and its balance. Between 2002 and 2006, the PACA region, in partnership with the government and EDF, implemented the "Plan Eco-énergie" programme which was designed to promote electricity demand-side management (DSM). This programme was introduced following arbitration by the Prime Minister. This decision ended a long sequence of events marked by a conflict and a public debate which had led to strong mobilisation in relation to a project for an EHV line (Boutre-Carros) to cross the Verdon region and supply and secure the network to the east of the region (Pautard 2009).

Although it focused on the financial advantages for DSM households, the communication aimed at the general public[2] also highlighted the environmental consequences. In addition to a media advertising campaign and a dedicated website, the communication also relied on face-to-face contact[3], advice given through the Espaces Info-Energie network and the diffusion of information[4] and promotion[5] tools. Furthermore, there were several actions to promote low-energy light bulbs among the general public[6]. Other awareness actions concerned "local relay actors" such as company employees, or schoolchildren. On the 1st December 2008, the ministry for the environment, energy, sustainable development and planning decided to continue with the energy-saving programme by on the one hand developing renewable energies, and on the other to build three new underground 225,000-volt lines.

Finally, during the winter of 2008 (November 2008), the east of the PACA region experienced a partial blackout which deprived 1.5 million people of electricity. The winter of 2009 was marked by partial load-shedding operations in order to avoid a blackout similar to that of 2008[7].

IDENTIFYING THE PUBLICS OF A GIVEN PROBLEM: THE ACE[8] MODEL AND CAUSAL STORIES

Krosnick et al. suggest a model to describe the cognitive processes implied by a judgement on the seriousness of a public problem. According to the "Attitude Certainty and Existence beliefs" (ACE) model, "a person's perception of the national seriousness of global warming is a multiplicative function of three proximal considerations: his or her belief about the existence of global warming, his or her attitude toward global warming, and the certainty with which this belief and this attitude are held" (Krosnick et al. 2006, p. 11). Indeed, one must at the very least believe that global warming will occur in the future before one can decide that it constitutes a major public problem. If one is to consider it to be a serious problem, one must then consider that its consequences will be negative. Finally, one must consider with certainty that this problem exists and that its consequences will not only be negative, but serious. In addition, the ACE model postulates that these three proximal causes are modulated, on the one hand by belief in an anthropogenic cause to climate change and, on the other hand, by belief in the existence of an effective solution to this problem.

We believe these latter two conditions to be directly linked to an approach via publics, in as much as they allow us to qualify climate change as a public problem – *i.e.* relating to public attention and management: they involve considering the issue of climate change as resulting from action which is human and indeed collective, according to the typology of causal stories suggested by D. Stone (1989). "Although people may sometimes want government to solve problems for which society is not responsible (…) people seem more likely to expect government to help in solving problems that were created by society" (Krosnick et *al*., 2006, p. 13). In other words, "not every condition is a problem" (Kingdon, 1995, p. 114). In causal accounts, only certain conditions are qualified as public problems requiring corrective action. In order for climate change to constitute a public problem, it must have a human cause and not a natural one. Furthermore, it requires not only individual action but also a minima collective action – which means adjusting individual actions to a common goal[9] – and/or an action involving public actors (public policy).

The ACE model highlights some of the underlying cognitive processes implied by a public judgement (in this case in the context of a survey[10]) concerning a problem which is itself public (i.e. requiring collective attention and action). But it is not the existence of an attitude or a belief, or of a combination of attitude and belief, or even of a complex cognitive process that interests us here, but simply the fact of belonging to a public, in the sense of a group concerned by a problem of which it shares a common definition. It is the existence of an interpretative community (Brugidou, 2008) adhering to a particular type of causal story about climate change which interests us. It is in fact a precise type of causal account which makes it a public problem: There are serious dysfunctions [global warming], which are related not to nature but to human activity. There are also solutions which make it possible to combat the serious consequences of such dysfunctions. We must therefore be quick to react.

CHARACTERISATION OF THE CLIMATE CHANGE AND ELECTRICITY SUPPLY PUBLICS IN THE PACA REGION

The suggested model thus gives us robust indicators with which to identify such a public. We therefore considered that the climate-change public in our survey consisted of persons who met *all of the following five conditions:*

- Know with *certainty* that climate change exists, i.e. 35 % of the persons interviewed &
- Think that its consequences are *serious*, (92 %)[11] &
- Know that its origin is *anthropogenic*, 49 % of the sample &

2. The logo is a piggy bank.

3. Public information meetings, tours around shopping centres and participation in fairs and exhibitions relating to the Plan Éco-Énergie.

4. Ecology handbook (Livret Guide des 40 Eco-Conseils) "saving energy and money at home".

5. Stickers, posters and sunscreens advertising the programme's visual identity.

6. In 2003 and 2006 in partnership with manufacturers (Philips, General Electric, Orsam), the "groupement interprofessionnel du luminaire", and the Armines research centre.

7. "Two million without power in southeast France" http://www.terradaily.com/reports/Winter_transport_chaos_grows_in_Europe_999.html.

8. Attitude Certainty and Existence beliefs (Krosnick et al., 2006).

9. For example, saving energy for the sake of the environment and not just to save money.

10. On the question of surveys as a stage for public debate, see Brugidou, 2008.

11. This refers to people who answered "yes, with certainty" or "yes, probably" to the question "in your opinion, will there be more and more natural catastrophes in the future?".

- Believe that it is *urgent* to act, 51 % &
- Think that it is possible to take *personal* action to fight climate change, 66 % of the persons interviewed.

According to these criteria, 17 % of the persons interviewed may be considered to belong to a climate-change public (CC) as defined above.

We used the same reasoning for electricity supply in the PACA region: were the interviewees aware of this problem? Did they consider the consequences to be serious? Were they aware of and concerned by one of the suggested solutions (construction of an EHV line) to supply problems in the PACA region? We therefore considered the electricity-supply public in the PACA region in our survey to be made up of persons meeting the following criteria:

- Think that the electricity supply is insufficient or only just sufficient to meet the needs of the PACA region (38 %) &
- Was directly affected by the general power cut between Toulon and Nice in the winter of 2008, or had heard about it (71 %) &
- Has heard about the project for a high-voltage line between Boutre and Carros and feels concerned by it (28 %).

According to these criteria, 14 % of the persons interviewed may be considered to belong to an electricity-supply public (ES) as defined above[12]. The definition of this public is nevertheless more problematic than that of the climate-change public. The available indicators do not make it possible to accurately determine whether or not there is an agreement concerning the type of solution proposed (construction of new lines), but only whether there is collective attention to the issue. Yet there is a controversy regarding the definition of the problems and regarding the nature of the solutions to be chosen. For some people, the electricity supply is insufficient and new lines must be built. For others, the main issue is that of preserving the Verdon countryside, and possible solutions are to bury the lines or reduce consumption. The following analyses will enable us to remove some of this ambiguity.

In total, 14 % of the persons interviewed were part of the public concerned by climate change as it was defined, 11 % were concerned by electricity supply in the PACA region, and 72 % said they were not concerned by either of the issues. 3 % of the persons interviewed belonged to both the public concerned by climate change and that concerned by electricity supply, i.e. one person in five concerned by the local issue of electricity supply and a slightly lower proportion in the other public. Logically, one therefore has more chance of being concerned by one of the issues if one is concerned by the other. However, we can consider that this overlap is relatively small and that it does not work in the same way for both issues. Whilst the fact of being concerned by climate change means that one will also be concerned by the electricity supply issue, the opposite is not true.

The criteria of the electricity-supply public were over-represented among the climate-change public: even if they did not belong to the ES public, the CC publics were more often than not aware of and concerned by Boutre Carros, convinced that the supply was insufficient (or only just sufficient), and had more often heard about or experienced the power cut. On the other hand, whilst the people belonging to the electricity-supply public certainly more frequently felt that they personally could do something to fight climate change, more of them than in the general population believed climate change to be a hypothesis rather than a certitude (53 % vs. 47 %), and that its causes were natural ones (20 % as against 15 % in the survey population).

CHARACTERISATION OF THE CC AND ES PUBLICS: PUBLICS INTERESTED IN POLITICS BUT POLITICALLY AND SOCIOLOGICALLY CONTRASTED

The publics concerned by the climate change and PACA electricity supply issues had a sociodemographic profile which differed from the rest of the population (cf. Table 1). In this respect they had a higher level of education and a higher level of income. They were also more often than not male. Regarding political views, they were more often very interested in politics. They also had in common the properties described in political sociology[13] as those of people who are the most informed and most attentive to public debate..

In addition, they possessed certain characteristics pertaining to the issues which made them a public. More often than not they lived in the east PACA region, this observation relating to the construction of the group concerned by the local question of electricity supply. Regarding their energy consumption, more often than the rest of the population they saw themselves as having low consumption.

Although belonging to one of the two concerned groups tended to be true of persons who were better-educated, wealthier and more interested in politics than the others, when compared together, the two groups also showed contrasting profiles.

The public concerned by climate change was younger and better educated than that concerned by electricity supply. The Verts[14] were over-represented in the climate-change public (22 % versus 13 % for the sample as a whole), whilst the UMP[15] was over-represented among persons concerned by electricity supply (34 % vs 27 % for the sample as a whole), and who appeared to have a strong interest in politics. Opinion on nuclear power was also contrasted, with an over-representation in the climate-change public of people who felt it was necessary to stop all plants, and, on the contrary, an over-representation among those concerned by the electricity supply of people saying new plants should be built. The public concerned by electricity supply was also above average in favour of scenarii which encouraged new construction (EHV production and lines). The climate-change public on the other hand, was in favour of scenarii which restricted energy consumption. It should also be noted that the climate-change public included more "newcomers" to the PACA region (less than 10 years) than those declaring themselves to be concerned by electricity supply.

12. I.e. persons who thought that the electricity supply was insufficient or only just sufficient to meet the needs of the PACA region, and had heard about (or who were directly affected by) the general power cut in the winter of 2008 and felt concerned by the project for a high-voltage line between Boutre and Carros.

13. For the state of the art in this area, see Mayer, 2010.

14. Ecology party which has on several occasions come to electoral and/or governmental agreements with the French socialist party.

15. Main right-wing party.

In accordance with our hypothesis, these two publics were more attentive to energy-saving issues: indeed, they were more numerous than those not concerned to think that it was "very important" that we reduce our energy consumption. Members of these publics were also more numerous to say that they often or very often[16] discussed energy-saving with friends and family (+21 or 23 points compared to those not concerned, cf. Table 1).

It is worth noting that the public concerned by climate change more frequently mentioned the environment, climate change or sustainable development as being among the greatest challenges facing France. Whilst the fact that the climate change was mentioned by the public of the same name is consistent with the analyses of Krosnick et *al.*, the energy-supply public on the other hand proved to be less attentive to these issues and to the environment and sustainable development matters in general.

Implementing demand-side management: different approaches depending on the public

In what ways are the climate-change and electricity-supply publics in the PACA region more committed to Demand Side Management (DSM)? We know that these publics pay more attention than others to these issues, but to what extent are they more disposed to act, and using what modalities? More particularly, how do these publics interpret energy-saving and "responsible" consumption? Is it a question of consuming less, of adopting restrained energy practices, or is it a case of consuming better (Zaccaï, 2009) by focusing on energy efficiency?

In France, since 1974, public policies for demand-side management have oscillated between these different definitions of consumption management: focusing in turn on policies designed to change consumption practices and lifestyles, and then, between 1984 and 1996 in particular, on energy-efficiency policies (Pautard, 2009; Brugidou and Moussaoui 2013).

According to Wallenborn (2009), the latter are based on a "rational ontology" where it is a case of "encouraging manufacturers to produce efficient products and to inform consumers that it is to their advantage to buy them, in particular via the label" (Wallenborn, 2009; p. 36). Despite their limits (not taking account of rebound effects and, more generally, of diachrony[17]), these policies nevertheless have the particularity of having certain performative effects, obliging households to become "rational" (Wallenborn, 2009; p. 36).

INVESTING TO SAVE ENERGY

To what extent are the climate-change and electricity-supply publics in the PACA region prepared to spend money on energy-saving? To answer this question, we built an indicator of investment in favour of DSM based on the following question, and observed whether the fact of belonging to one of the concerned publics was a factor which led to a high score on said indicator.

> Q: I am going to list a number of actions which make it possible to save energy. For each one, tell me whether you already do it or if you would be fully prepared to do it, to some extent prepared, not really prepared, not at all prepared.
>
> (I already do it/fully prepared to do it/to some extent prepared to do it/not really prepared/not at all prepared)
>
> 1. To pay more for a household appliance which uses less energy
> 2. To install a more efficient heating system
> 3. To use renewable energies
> 4. To install low-energy (or more low-energy) light bulbs
> 5. To improve insulation

The chosen indicator combined investments already made and those which were planned[18]. We verified its coherency with certain DSM actions (not using a remote control to turn off the television), the fact of having benefited from tax relief for DSM, the importance accorded to energy-saving, the frequency of discussions with friends and family on the matter, and the fact, where relevant, of knowing how to reduce one's own consumption. We then modelled the probability of having a high level of investment (having already invested in at least 4 of the proposed 5, i.e. 17 % of the sample) in DSM, using a dichotomous logistic regression. The model integrated sociodemographic variables, variables relating to perceptions of perceived obstacles to energy-saving, along with the fact of belonging to the publics concerned by climate change and by electricity supply in the PACA region and perception of mankind's relationship with nature.

Our conclusions are as follows (cf. Table 2). The sociodemographic characteristics which favour DSM investments tend to be household characteristics and not individual characteristics. This is not illogical, in as much as the indicator is constructed in relation to investments in the home. In accordance with the literature (Wallenborn and Dozzi, 2007; Pierre, 2008), the most important determinants remain income and the characteristics of the home and of its occupation: duration and status of occupation.

The determinants of investment in DSM do not appear to fall within an attitude system as such: all other things being equal, the conception of mankind's relationships with nature measured using the indicators suggested by Dunlap (Dunlap, 1978) is an explanatory dimension, albeit not very significant:

16. In particular, it was people concerned by electricity supply who said that they "very often" discussed energy-saving with friends and family. They differed from people concerned by climate change in that they were fewer to deem reduction in energy consumption to be "very important".

17. Human beings and preferences do not evolve.

18. This indicator distinguished between persons who stated themselves to have a very strong commitment (16 % of interviewees who said they had taken 4 or 5 of the suggested steps); persons who stated themselves to have a strong commitment (22 % who said they had taken 3 of the suggested steps); persons who stated themselves to have a moderate commitment (33 %, already engaged in two energy-saving behaviours, or in just one behaviour but declaring themselves to "fully agree" to engage in at least three of the four remaining behaviours); persons who said they had a low level of commitment (18 %, either committed to just one energy-saving behaviour and stating themselves to "fully agree" to engage in just one or two additional behaviours, or who said they did nothing to save energy but "fully agreeing" to commit to four or five behaviours) ; persons who said they had a very low level of commitment (11 %, committed to none of the five energy-saving behaviours and saying that they "fully agreed" that they would commit to less than four such behaviours).

Table 1. Characterisations of Climate Change and Electricity Supply publics.

	Public concerned mixed*	Public concerned Climate change	Public concerned Electricity supply	not concerned	Combined
(% in line)	3	14	11	73	100
Level of education (% in column)					
Less than Bac**	45	28	42	54	49
Bac+2***	28	46	30	31	33
Higher than Bac+2	27	26	28	14	18
Zone of residency					
PACA North	3	5	5	6	6
PACA East	68	38	68	38	42
PACA South	29	57	27	56	52
Household income					
Refusal / DK	8	7	4	7	7
< 1,300 euros	18	16	17	25	23
1,300–2,100 euros	15	35	25	28	28
2,100–3,300 euros	26	25	34	27	27
> 3,300€	33	18	20	13	15
Gender					
male	69	45	64	44	47
female	31	55	36	56	53
Age					
18–24 years	0	11	3	12	10
25–34 years	7	23	6	18	17
35–49 years	36	34	29	25	27
50–64 years	40	22	22	21	22
65 years and over	17	10	40	25	24
Interested in politics					
Very	30	14	23	11	13
Somewhat	45	47	48	36	39
Not very	11	24	20	30	28
Not at all	14	14	10	23	20
Political tendency					
EG-PC (far left)	3	6	4	4	4
PS (left)	16	21	19	19	19
Verts (green)	22	22	9	12	13
MODEM (centre)	15	7	9	8	8
UMPCPNT(right)	31	25	34	27	27
ED-FN (far right)	0	2	4	3	3
Other	13	18	21	26	24
Opinion on nuclear plants					
Continue to build	31	17	35	17	19
Operate existing plants	52	57	54	65	62
Stop everything	17	21	10	14	14
NA	0	5	1	4	4
Perception of one's own energy consumption					
Low consumption	44	36	43	33	34
Average consumption	48	58	52	62	60
High consumption	9	6	4	4	5
NA	0	1	0	1	1
PACA scenario					
Additional lines and prod.	24	27	39	30	30
Restricted consumption.	72	72	57	65	65
Neither	4	1	4	3	3
NA	0	0	1	2	2
Discuss energy saving with close friends/family					
Very often	15	7	13	5	6
Often	39	51	43	30	35
Rarely	37	32	35	43	41
Never	8	10	10	22	18
Reducing energy consumption is:					
Very important	88	81	75	60	65
Quite important	12	17	24	35	31
Not very/not at all important	1	2	1	5	4
Mentioned the environment, climate change, energy or sustainable development as being one of France's greatest challenges					
Yes	38	21	15	12	14
No	62	79	85	88	86

** Indicative only, due to the small sample size.*

*** Baccalauréat = approximate equivalent of A-levels (UK) or APs (USA).*

**** "+2" signifies an additional 2 years of study post-Baccalauréat.*

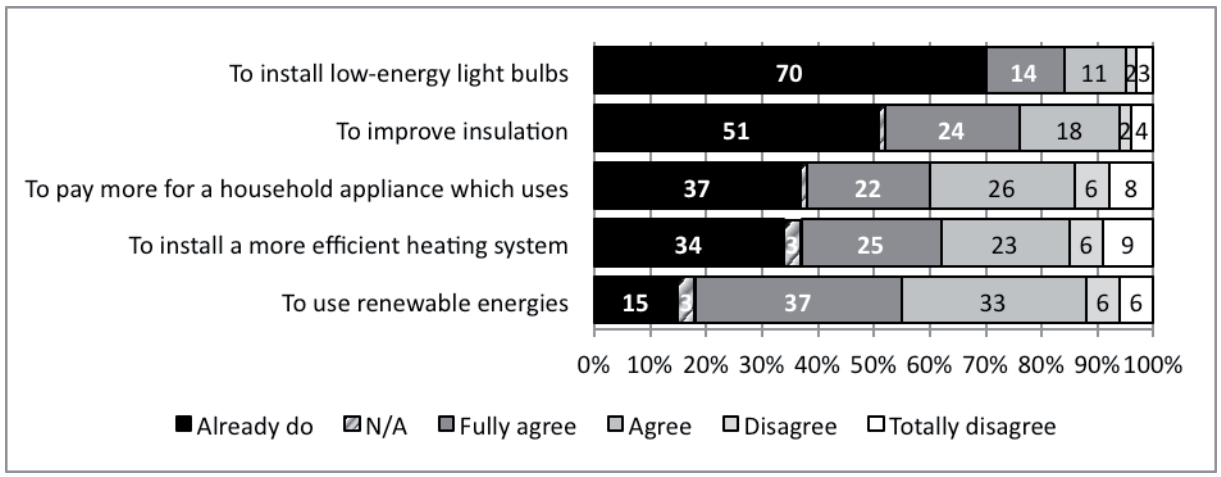

Figure 1. Investing to save energy.

compared to persons who demonstrate a "tempered catastrophism", being more "catastrophist" increases the probability of committing to DSM investments, and being "optimistic" reduces it[19]. On the other hand, a pragmatic assessment of the difficulties explains non-commitment to DSM: all other things being equal, one is more likely to become committed if one can see numerous advantages and facilities for energy-saving, compared to those who aside from the fact of thinking that it is easy/useful or difficult/pointless to save energy, above all believe that energy-saving is not a financial issue, i.e. that it does not cost more than what it saves[20].

Finally, all other things being equal, being concerned by electricity supply in the PACA region has a significant effect in favour of "major" DSM investments, whereas this is not the case for persons concerned by climate change. However, our conclusions are not quite as clear-cut as they might seem: on the one hand, all other things being equal, the fact of being concerned by climate change does indeed increase the probability of being "strongly or very strongly" committed to DSM investments. On the other hand, whilst the explanatory dimension of electricity supply certainly exists, it is not very significant and is thus relatively unstable[21].

Energy tariffs

The interviewees were offered 4 criteria for the flexibility of electricity prices. The first relating to pollution, the second relating to distance from the place of production, the third relating to supply and demand; the fourth criterion was designed to measure attachment to the equality and constancy of electricity prices, i.e. tariff equalisation and the absence of flexibility.

Q: Do you agree or disagree with the following statements:

(Fully agree/Agree/Disagree/Totally disagree)

1. It is normal for electricity to be more expensive at a time when electricity production is causing the highest level of pollution.
2. It is normal for electricity to be more expensive in regions which are far away from where it is produced.
3. It is normal for electricity to be more expensive when demand is greater than usual.
4. It is normal for the price of electricity to be the same everywhere

56 % of the persons interviewed said they fully agreed that the price should be the same everywhere and only 7 % totally disagreed. The most accepted variation criterion was a pollution criterion: 25 % of interviewees declared themselves to fully agree that the price of electricity should vary in accordance with the level of pollution generated by its production; 56 % either fully agreed or agreed with this principle. Only 39 % approved of the market criterion, that of calculating prices in accordance with supply and demand (13 % of the persons interviewed fully agreed with this principle and 22 % agreeing) as opposed to 41 % who totally disagreed. Of the three criteria proposed, that of transport, i.e. of distance from the place of production, is the one with the lowest number of favourable opinions: 52 % of the persons interviewed totally disagreed with this principle of flexibility, as against 21 % who fully agreed or agreed.

Contrary to the proposals for price flexibility, (peak pricing, spot prices, etc.) which are designed to be applied over short durations (intraday), pricing in accordance with global consumption volumes explicitly targets a reduction in the volume of consumption and thus a form of restraint.

19. The variable used is the result of the hierarchical ascendant classification performed on the following set of questions: Here is a certain number of statements relating to the relationships between human beings and the environment. Please state the extent to which you agree with each one: We are reaching the limit to the number of people that the Earth can support/When human beings interfere with nature, there are often disastrous consequences/Thanks to human ingenuity, the Earth will always be able to support life/The balance of nature is sufficient to resist the disturbances caused by industrialised countries/Human beings are meant to rule over the rest of nature/If things continue as they are, we will soon be facing a major ecological disaster.

20. The variable used is the result of the hierarchical ascendant classification performed on the following set of questions: Here is a list of opinions on energy-saving. For each one, please tell me if you agree or disagree. There is no point in saving energy/Saving energy is not one of my priorities/When I'd save energy, it's a drop in the ocean/Saving energy requires too much effort/When you save energy, you lose in comfort/Saving energy costs money/I already do my utmost to save energy/If you really save energy, it creates arguments within the family/When I save energy, I don't see the results on my bills.

21. We developed numerous variations in modelling, and during this process the effect of belonging to the electricity-supply public was not always retained. It should be noted that the variables relating to perception of the energy context, and to expectations in this regard, were also added to the model, but proved not to be significant.

Table 2. Combined factors relating to DSM investment.

	Very high *Odds ratios*
Gender	
male (ref.)	-1-
female	1.4*
Age	
18–24	-1-
25–34	ns
35–49	ns
50–64	ns
65 and over	1.5*
Number of persons in household	
1 person	0.6
2 persons	ns
3–4 persons	-1-
more than 4 persons	ns
Monthly household income:	
no reply	ns
<1,300 euros (ref.)	-1-
1,300–2,100 euros	1.5*
2,100–3,300 euros	1.7**
>3,300 euros	2.4***
Occupier status:	
owner	1.9***
tenant (ref.)	-1-
Number of years at address:	
< 5 years (ref.)	-1-
5–9 years	ns
10–20 years	ns
> 20 years	1.6**
Type of heating	
electric	1.3*
other (ref.)	-1-
Attitude towards electricity supply:	
not concerned (ref.)	-1-
concerned	1.5*
Perceived obstacles to energy-saving:	
no financial impact (ref.)	-1-
cumulated perceived advantages	1.8***
cumulated of perceived obstacles	ns
Conception of human beings-nature relationships:	
catastrophism	1.3*
tempered catastrophism (ref.)	-1-
anthropocentrism	ns
optimism	0.6*

NS: variable not selected in the model with the p<0.05 threshold.
ns: effect not significant at the p<0.1 threshold.
***, **, *, #: significant at p<0.001, p<0.01, p<0.05, p<0.1. respectively

Q: Here are some proposals concerning the price of electricity. Which one do you think to be most preferable?

1. Above a certain quantity of electricity, consumers pay a lower price, so as to retain the loyalty of good customers.
2. Above a certain quantity of electricity, consumers pay a higher price, so as to encourage energy-saving.
3. Neither of the above.

Is the fact of belonging to the two concerned publics a significant factor of adherence or opposition to the principle of block tariffs? We modelled adherence to this principle of pricing in line with consumption via a logistic regression by proceeding, as before, in several stages: firstly by identifying the sociodemographic factors, the attitudes and opinions (concerning the current and future prices of electricity, perceived obstacles, stated practices and motivation to save energy, etc.) which explain this adherence, and then by integrating all of these explanatory dimensions into a global model.

From a sociodemographic standpoint, and all other things being equal, it is the level of education, and to some extent income, which have the most significant positive effects. Again, all things being equal, belonging to a household of more than

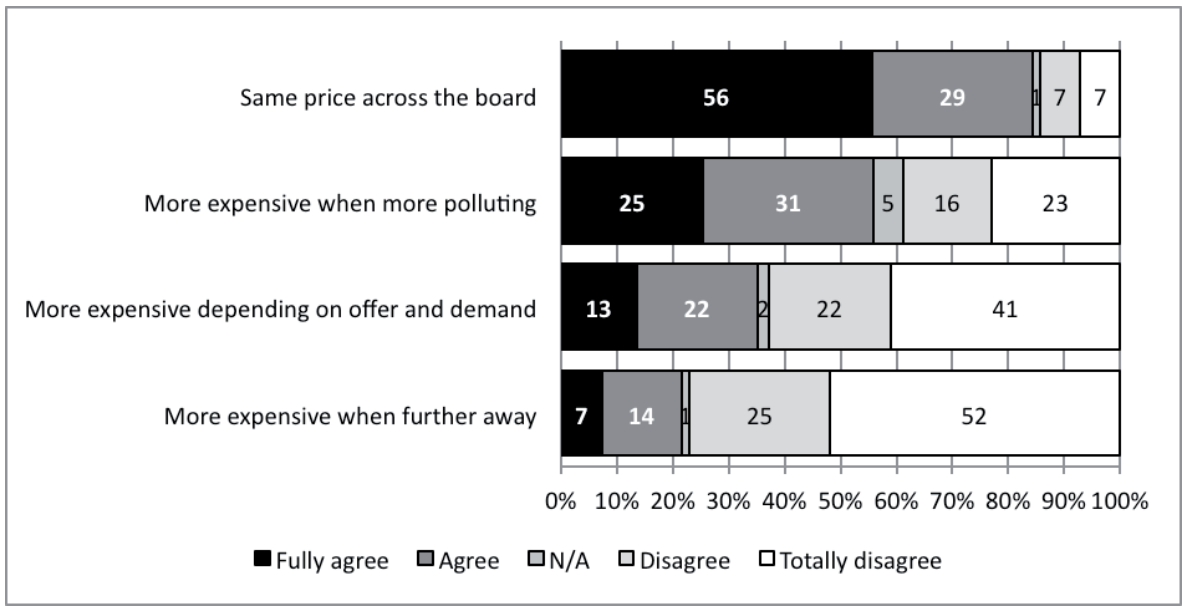

Figure 2. Flexibility of electricity prices.

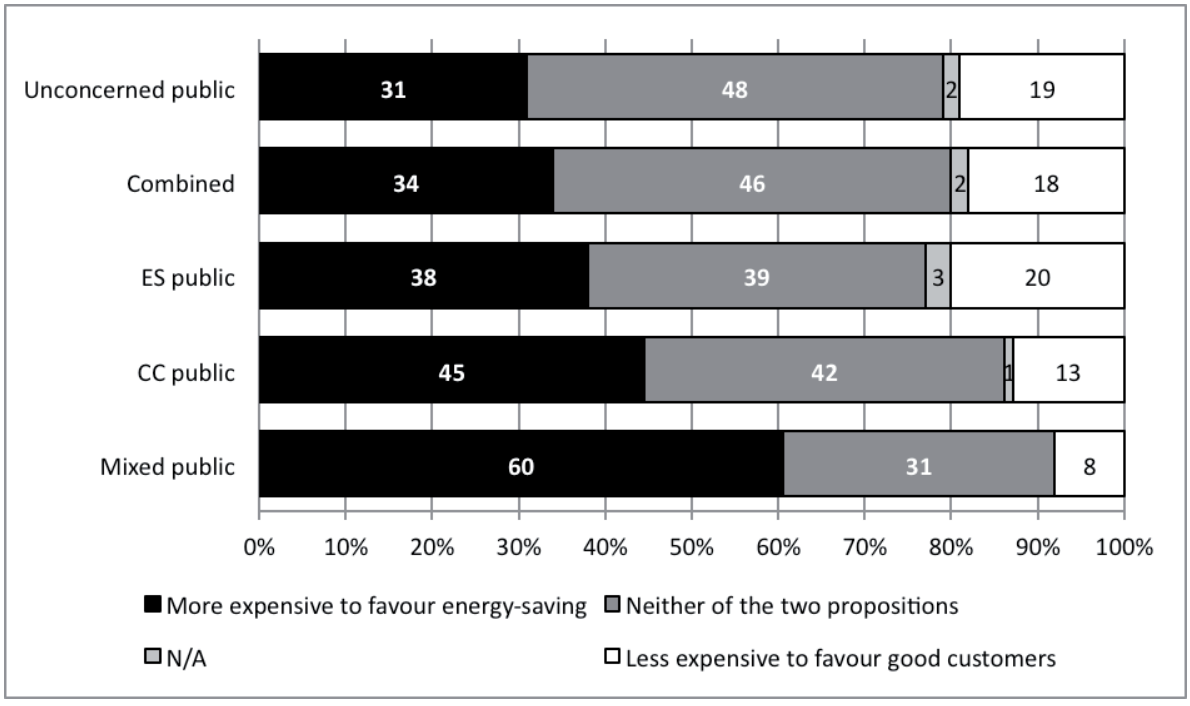

Figure 3. Block tariffs.

4 persons is also a factor of adherence. It should be noted that the model includes no criterion relating to housing conditions.

Regarding the perception of energy-saving, all other things being equal, the probability of adhering to the principle of tariffs increasing as consumption rises is greater among those who say that if they had to save energy they would do it for reasons of collective responsibility (as opposed to those who would do it in order to protect the environment). Believing oneself to have low consumption compared to people who define themselves as average consumers is also (all other things being equal) a factor of adherence.

On the other hand, all other things being equal, one is more likely to be opposed to block tariffs if one perceives DSM as a series of obstacles (compared to those who above all feel that DSM is of no financial significance), if one believes that DSM is essentially a governmental local community issue rather than an individual one, if one considers that one would know exactly how to save energy if it became necessary, or if one feels that one would not know what to do (compared to those who believe they would know what to do).

It should be noted that all other things being equal, the indicator for investment in DSM is not a significant aspect regarding adherence to block tariffs.

Table 3. Factors relating to adherence to a system of pricing based on volume of consumption.

	Odds ratios
Level of education:	
Bac or less (ref.)	-1-
Bac+2	1.7***
higher than bac+2	1.4*
Number of persons in household	
1 person	ns
2 persons	ns
3–4 persons (ref.)	-1-
more than 4 persons	1.4*
Monthly household income:	
no reply	0.6*
<1,300 euros (ref.)	-1-
1,300–2,100 euros	ns
2,100–3,300 euros	1.4**
>3,300 euros	1.8***
Subjective perception of one's own consumption	
low consumption	1.4**
average consumption (ref.)	-1-
high consumption	ns
Principal motivation for saving energy	
it's a question of education	ns
for financial reasons	ns
through a sense of collective responsibility	1.5**
to protect the environment (ref.)	-1-
to avoid waste	ns
other	0.3*
Energy-saving, a problem for:	
people (ref.)	-1-
businesses	ns
towns and regions	0.5**
government	0.6***
international	ns
Would know how to save energy if needed	
yes, absolutely	0.7**
yes, more or less (ref.)	-1-
no	0.6***
Perceived obstacles to energy-saving:	
no financial impact (ref.)	-1-
cumulated perceived advantages	ns
cumulated perceived obstacles	0.7***
Variation in price of petrol over next 10 years	
very big increase	1.8***
an increase (ref.)	-1-
other	ns
Variation in price of electricity over next 10 years	
very big increase	0.7**
an increase (ref.)	-1-
remain stable	ns
decrease	1.6*
Attitude towards climate change:	
not concerned (ref.)	-1-
concerned	1.4**
Conception of human beings-nature relationships:	
catastrophism	0.7**
tempered catastrophism (ref.)	-1-
anthropocentrism	0.6**
optimism	0.5***

NS: variable not selected in the model with the p<0.05 threshold.
ns: effect not significant at the p<0.1 threshold.
***, **, *, #: significant at p<0.001, p<0.01, p<0.05, p<0.1 respectively

Regarding prices, all other things being equal, anticipating major increases in petrol prices is a factor of adherence to a pricing system based on consumption volume, whilst anticipation of rises in electricity prices is a factor of rejection.

Finally, all other things being equal, all of the mankind-nature conceptions are factors of rejection of this pricing system, compared to moderate catastrophism. All other things being equal, the fact of belonging to the climate-change public is a factor of adherence.

Conclusions

The proposal to define publics which have homogeneous public concerns, be they global or local, would appear to throw light on energy issues. People concerned by climate change (global issue) or by electricity supply (local issue) do indeed pay more attention to energy-saving matters.

They also seem to be prepared to take action to reduce their energy consumption. However, the preferred modalities vary, depending on the public in question: people concerned by climate change prefer to have energy tariffs which penalise high consumption, whereas those concerned by electricity supply appear to be prepared to make personal investments in order to save energy.

Behind the choice of modalities, it is possible to discern different conceptions of energy-saving, one favouring reduced consumption, the other preferring to optimise consumption through devices which improve energy efficiency. Two arguments reinforce this interpretation: profiles which differ in terms of the political attitudes and values of these publics would seem to make a case for such an interpretation, as do the nature of the issues which lead to the creation of said publics. Having no other solutions, people who belonged to the electricity supply public seemed to agree to reduce their consumption, but, if they had been given the choice, some of them would have opted for a scenario with equipment giving off CO_2 or which was harmful to the environment, in order to be able to continue consumption. At least, this is what can be inferred from the responses to a question offering scenarii for the PACA region which favoured either infrastructures or energy-saving (cf. Table 1). At the same time, several indicators suggest that this public has a better understanding of energy and electricity matters than the climate-change public[22].

The hypotheses formulated in the introduction therefore need to be adjusted:

- The importance attached to issues such as climate change or electricity supply does indeed lead to greater "attention" (defined in terms of importance or of practices declared) being paid to energy-saving. But it is uncertain whether these different publics agree on the values which legitimise energy-saving – indeed, the opposite is probably true.
- The preferred modes of action do indeed show that the climate-change public would seem to prefer thrift (changing practices in order to consume less); the electricity-supply public, however, prefers energy efficiency (more effective equipment so as not to have to change practices).

22. They more frequently discuss these issues with family and friends, anticipating increases in electricity prices, etc.

Whilst it demonstrates how certain publics prefer certain types of solution, the approach offered in this paper nevertheless fails to provide a detailed analysis of the possible controversies that may be caused by the implementation of various public policies.

This work has revealed several avenues of research. On the one hand it would be useful to examine in greater depth the question of defining publics. We feel that the notion of causal account – as proposed by D. Stone – is a concept which would allow us to complete the approaches developed in political psychology. Whilst the latter focus on the individual arrangements of the members of a given public, they fail to highlight the shared definitions of the issues which construct a public as an "interpretive community". On the other hand, we believe it necessary to refine the definition of the public concerned by electricity supply and more particularly to confirm the type of solution that the members of this public wish to see implemented. More qualitative approaches (via group meetings or open questions) would make it possible to clarify the arguments and the types of justification put forward by the members of these different publics.

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