

## **The power of muttered discourse: resisting thermal retrofit regulations; blocking national climate goals**

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### **Abstract:**

Discourse analysis attempts to explain policy successes and failures principally in terms of the socially constructed realities produced by policy actors and their antagonists in competitive discourse struggles. However, some recent theorists maintain this explains only human machinations and power plays, and fails to take account of the material and socio-material realities that can influence policy and block policy implementation. This paper examines these two approaches in the light of a major research project on German federal policy on thermal renovation of existing homes and its effects on the built environment. It argues that the socio-material approach can bypass a more subtle set of ‘muttered’ discursive activity in which a great deal of power is exercised by very determined actors who are barely visible. Relating this to a recent study on UK climate change policy, it suggests that specific, powerful, but barely visible human actors are the actual cause of slow progress on climate change, while materiality and socio-materiality play only a subsidiary role.

**Key words:** policy discourse; sociotechnical systems; thermal retrofit policy; environmental policy failure

### **1. Introduction: a theoretical dilemma**

Policy discourse theory has established itself over the past two decades as a viable approach to policy analysis. Its advocates distinguish it from other approaches within the Lasswellian tradition of policy analysis by their insistence that the primary data of policy research is the worlds policy actors construct in the discourse they produce while promoting, defending, describing, and arguing for a policy. This discourse is not seen as a verbal representation of social or material things that exert their own influence on policy development, but as the reality itself that drives and determines policy. Hence investigating this discourse is seen as the route to understanding and explaining how and why a particular construction of a problem and its solution comes to dominate a policy field. The discourse produced by policy actors is the primary data that informs the investigation.

The justifications for this approach have been discussed at length and in detail elsewhere (e.g. Fairclough, 1992; Fischer, 2003; Fischer and Forester, 1993; Hajer, 1995; Howarth, 2000; Laclau and Mouffe, 1985; Torfing, 1999; 2005).

This paper is concerned with a peculiarity of policy discourse theory in relation to environmental policies. These policies are intended to have real effects on physical, material features of the environment: for example, to improve water quality; enhance biodiversity; protect species; or reduce CO<sub>2</sub> emissions.

An important methodological question arises, therefore, when an environmental policy appears to be failing to achieve its aims. Should we look for the reasons for failure among the

human actors who drive (or resist) the policy, or should we do a physical science analysis to check whether the policy is properly designed to match up with the way the relevant aspects of the environment actually are?

Policy discourse theory is well-equipped to handle the first approach. However there is dissatisfaction among some policy analysts that it stops short of providing a full explanation of policy success or failure, since it does not engage well with the physical, material things the policy is aiming to influence (Bulkeley, 2000; Lovell, 2007; Jones, 2005).

One way out of this impasse is to drop the discourse-materiality distinction altogether and conceive of a policy sphere and its objects together as an integrated set of ‘sociotechnical systems’ (e.g. Bijker et al, 1987) or an ‘actor-network’ (e.g. Latour, 2006) in which both human and non-human entities are ‘acting’ – i.e. making things happen - yet both are simultaneously acted upon by the sum total causes and effects of the networks of which they are a part. Here it is not a question of people acting intentionally through discourse and its practical consequences, nor of physical, material things behaving consequentially according to blind natural laws, but of a hybrid ensemble of people and things acting as a unit. For example, we would not see deforestation just in terms of people deciding to cut down trees, nor of log-pole beetles multiplying and devouring forests. Instead, we would look to larger sociotechnical systems that, it is maintained, cause demand for farmland and highways, or that cause the changes in local biodiversity that lead to a weakening of trees’ resistance to micro-predators.

The difference between these two broad approaches is not merely theoretical. It has important implications for *responsibility*. Discourse approaches put the responsibility squarely on the human actors. For these approaches it is people who produce discourse about the environment and who act out this discourse in policy development and implementation; it is people who thwart policies by producing and acting out counter-discourses; it is people who make the decisions that lead to environmental degradation in the first place.

With the hybrid theorising of socio-technical systems and actor-networks, however, responsibility is far more diffuse. Instead of spotlighting specific actors perpetrating deliberate, knowing courses of destruction or injustice, these theories see acting as coming from complex human-nonhuman hybrids composed of machines, people and infrastructures. A hybrid such as this can hardly be held morally responsible for its actions. Nor can it be addressed directly with the language of indignation. And to shift its course requires interventions far more sophisticated than the power of human speech or technical intervention.

Of course, a savvy discourse analyst – particularly in the Foucauldian mould - would respond that these hybrids are simply discursive productions of theorists, and that the really interesting question is: what kind of power are they attempting to exert by constructing the world in that way? Whom does it benefit if responsibility for pollution is diffused outward from particular humans to socio-technical systems?

We will return to this intriguing question later. Meanwhile we can identify a third group of theorists, who propose a mixture of both discursive and hybrid approaches to explain why some very good environmental policies are not working (Bulkeley, 2000; Lovell, et al, 2009). For these theorists, discourse analysis gives only part of the picture. It may explain why a particular policy has come to dominate the halls of power and be enshrined in laws,

regulations and institutions, but, they argue, it cannot always explain why the policy fails to achieve its goals of environmental protection. Sociotechnical systems and actor-networks provide this part of the explanation: the policy is influenced by, or up against resistances from, vast, complex, entrenched systems that cannot be changed by command and control from government. Further, policy actors are themselves co-opted by this sociotechnical milieu, so the discourse they produce is compatible with it and therefore impotent to change it.

This paper explores these two approaches. It asks whether we need socio-technical theorising to explain environmental policy failure, or whether discourse analysis can do the job fully. It does this in the context of one aspect of a major empirical study of German federal policy on thermal renovation of existing homes. While this policy has brought some impressive results, it has failed significantly to achieve its aims in relation to small, privately owned homes. These homes, of one to six dwellings, make up 75% of the German residential building stock and produce over 80% of the CO<sub>2</sub> emissions from home heating, yet thermal refits among them are very rare.

The paper looks at this issue in terms of policy discourse analysis, then in terms of socio-technical systems, to see whether the latter adds to an understanding of what is causing what in this particular policy realm. It then brings these findings to bear on a recent study by Lovell et al (2009) on climate change policy and its effects in the UK. The authors of that study maintain that sociotechnical systems theory is a necessary add-on, to explain why the UK's impressive GHG emission reduction policy, backed up by apparently unopposed climate protection discourse, is not leading to significant GHG emission reductions.

## 2. Key discourse in German federal policy on thermal refits

The technical aspects of German federal policy on thermal refits are enshrined in the building energy saving regulations (*Energetische Einsparverordnung*), the current version of which came into force on 1 October 2009. This is abbreviated to 'EnEV' (pronounced 'eneff' in spoken discourse) or 'EnEV 2009'. The EnEV gives the legal heat retention standards to which both new-builds, and refits of existing buildings, have to conform. If 10% or more of any feature of the building envelope (e.g. 10% of a wall or roof) of an existing building is being repaired or replaced, that whole feature (i.e. the whole wall or roof) has to be refitted to new-build thermal standards. If the entire building envelope is being refitted, the standards are permitted to be 40% less stringent than those for a new build.

This requirement was first introduced in a previous version of the EnEV, in 2002. Under that regime the thermal standards demanded were 40% lower than in EnEV 2009, and the 10% restriction was more lax, at 20%.

A key feature of the EnEV is the claim, in its text, that thermal refits to the standards it requires are '*wirtschaftlich*' (translated here as 'economically viable') – i.e. the costs of the thermal refits pay back, through fuel savings, within the lifetime of the refit measures. This claim is supported by an officially solicited expert report produced by building physicists (Kah, et al., 2008; see also Kah and Feist, 2005) from the *Passivaus Institut* (Passive House Institute, [www.passiv.de](http://www.passiv.de)), in preparation for the writing of EnEV 2009.

The aim of the policy is given within the text of the EnEV, namely to reduce buildings' heat energy consumption so as to meet Germany's climate protection goals through the reduction

of GHG emissions. Further aspects of the policy are given in government statements and ministerial ordinances. Most important, the policy aims to reduce GHG emissions from home heating by 80% by the year 2050, through the implementation of the EnEV (BR, 2008: A; BR 2009: 1).

The study on which this paper is based was trans-disciplinary. One part was an applied science study of the way EnEV requirements engage with actual, existing residential buildings – i.e. what happens when people try to renovate these buildings to EnEV standards. In particular, the claim that EnEV-standard refits are economically viable was tested with case studies of refitted homes, plus analysis of datasets of case studies conducted by other researchers.

The other part of the study was an analysis of the relevant discourse produced by both the promoters and the consumers of the EnEV. The ‘promoters’ referred to here are key and representative policy actors who influence, support, defend and promote the policy enshrined in the EnEV. These people were identified through document research. Semi-structured interviews were conducted with 28 of them, in German, and recorded, transcribed and analysed. These people included: federal, state and municipal politicians and bureaucrats; experts whose reports and input are used in the EnEV regime; and practitioners associated closely with this regime (see Appendix 1). The federal-state-municipal spread was covered because document research showed that discursive input to the EnEV regime crosses these institutional boundaries.

The ‘consumers’ are small home owners; managers of large housing estates; representatives of associations of landlords; and a small number of architects. Among small home owners, only 12 formal, semi-structured interviews were conducted, but informal discussions were held with over 40 others.

The major results of this study are published elsewhere (Galvin, 2010a; Galvin, 2011). This paper focuses on the question as to how well the policy engages with small existing homes. As these produce 80% of the GHGs from home heating, the policy can achieve its goals only if it engages effectively with these buildings and brings about significant on-going refitting of this sector. Hence this is a good testing ground for the theoretical issues pursued in this paper.

It is abundantly clear that the EnEV’s effectiveness is weakest at this point. Investigations by the German Energy Agency (*Deutsche Energieagentur* – DENA) show that refits in this sector are running at about one-tenth the rate that would be required, to achieve the policy aim of 80% GHG reductions by 2050 (personal communication<sup>1</sup>; cf. Friederich et al, 2008). The EnEV regime has been in place since 2002, technical know-how on thermal renovation is highly advanced in Germany, and the thermal refit industry has been well-developed for decades. Therefore the paucity of thermal refitting in this sector begs an explanation.

It seems reasonable to focus on one particular aspect of discourse, namely that of the economic viability of refitting these homes to EnEV standards. The EnEV’s claim that these refits are economically viable is the point at which it attempts to engage with the materiality of actual homes. It stakes its success on the truth of this claim. Hence we will examine the discourse of economic viability and seek to find the extent to which a discourse-based investigation explains why the policy is failing.

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<sup>1</sup> The source requested anonymity.

### 3. The discourse of economic viability

The EnEV's claim of economic viability is amply supported in policy discourse. There are variations in what is understood by 'economically viable', but all policy actor interviewees, except a few practitioners and one federal opposition politician, defended EnEV's claim that refits to the standards it demands are economically viable.

Most policy actors explained that the term really means that a refit pays for itself if you only count the 'additional thermal costs' (*energetische Mehrkosten*) when you do the accounting. Thermally refitting a wall, for example, involves many 'anyway costs' (*sowieso-kosten*) such as erecting a scaffold, stripping off old render, applying new render, etc. These things in themselves do not add to the house's thermal quality, so the cost of doing them cannot be included in the accounting for determining economic viability. You only count the cost of the insulation blocks and of fixing them to the wall. As one economist put it:

And therefore we distinguish between these full costs and these anyway costs. And only the additional thermal costs go into the calculation of economic viability. This is naturally logical and correct, because the homeowner would have had to pay the other costs anyway. It's the underlying basis of this axiom. And it's also completely correct and completely OK. (Interviewee\_21)

The building physicist who wrote the expert report on economic viability for the original, 2002 version of the EnEV, Wolfgang Feist, maintains that this was how it was meant to be conceived. The only refits envisaged by his technical input were those where a house was being renovated anyway, for comprehensive general maintenance. In these cases, scaffolding and render would have to be paid for anyway, so only the increase in costs due to insulation should be considered (Feist, 2009) in the calculation of economic viability. The same is the case for the expert report leading to EnEV 2009, in which Feist was the leading player<sup>2</sup> (Kah et al., 2008). Ironically, the economics of the EnEV were designed only for cases where houses were being thermally renovated for reasons other than keeping warm while cutting fuel costs.

This does raise a problem, however, since the aim of 80% GHG reductions by 2050 will only be met if around 2.5% of homes are fully renovated each year. Hence some policy actor interviewees maintained that almost all homes older than about 30 years are in urgent need of full renovation for cyclical maintenance reasons: walls, roofs, windows, eaves, boilers, basement ceilings, etc. One building physicist declared, for example, looking out the window and pointing:

You only have to look, and you see many buildings that are due for a refit anyway. When you look here you see windows that are draughty, windows that are no longer well sealed. (Interviewee\_23)

This separation of costs is significant for the economic viability discourse because the 'anyway costs' often amount to about 4 times the 'additional thermal' costs. Hence a homeowner must calculate economic viability based on only a fraction of what she actually spends on thermal renovation.

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<sup>2</sup> Kah is a building physicist with the Passivhaus Institut, of which Feist is the founder and Director.

Other policy actors were more vague about how one does the accounting. Some asserted that refits are ‘always’ economically viable, even when done to stricter standards than the EnEV. In response to a comment that some people do not accept this is always economically viable, an influential municipal politician declared, ‘I can’t comprehend that. I believe the EnEV is always economically viable’ (Interviewee\_12). She went on to say this held even close to passive house standard, which consumes less than a quarter the energy of buildings refitted to EnEV 2009 standard.

When asked if they had done calculations on any actual case studies to check their economic viability, all politician and bureaucrat interviewees replied that they had not. One federal parliamentary researcher responded, ‘No I haven’t. For me it’s pure assumption’ (Interviewee\_3).

Hence there is a strong discourse of economic viability that goes far beyond the meaning of the term as envisaged by its technical founders.

At the other end of the spectrum were those who affirmed the economic viability of EnEV 2002, but expressed doubts about EnEV 2009, which represents a 30% tightening of standards. For example, a professor of building physics, who also directs an environmental think tank, questioned the way economic viability had been calculated in the expert report for EnEV 2009. ‘It was a trick,’ he said. The authors had only considered the theoretical extra cost of refitting, to EnEV 2009 standard, a house that had proven economically viable to renovate to EnEV 2002 standard (Interviewee\_19). There was no allowance for non-linear boundaries being reached, such as the roof overhang not being wide enough to accommodate an extra layer of external wall insulation.

Despite these variations, these actors together can be seen as making up what Hajer (1995: 66-72; 2005) calls a ‘discourse coalition’. This is a loose ensemble of actors with a range of backgrounds and interests, who combine their persuasive forces around a piece of discourse in order to achieve a policy goal. Their other discursive productions may be quite different from each other’s and even at odds with them, and they might be expressing a range of meanings in the identical discourse they utter. But by connecting up with each other around this discourse, they seek to achieve policy goals. Here the common discourse boils down to: ‘*Das, was die EnEV verlangt, ist wirtschaftlich*’ – ‘What the EnEV demands is economically viable.’ And the policy goal of those who produce this discourse is the support and furtherance of the EnEV regime.

The psychological theory behind this notion of people linking up around identical discourse of variant meaning is drawn from social constructionist philosophy of psychology, particularly in the works of Harré (1983; 1993), Harré and Gillett (1994), Shotter (1993) and Gergen (1994).

That this is a ‘coalition’ can be seen in the way these people connect to each other. Some of these connections are institutional, some are informal, and some lie between the two. They include identifiable links between federal, state and municipal politicians and bureaucrats, environmental think-tanks, faculties of building physics (*Bauphysik*), practitioners whose refits are seen as exemplary, and insulation manufacturers, in particular BASF, the largest of these. The purveyors of the ‘economic viability’ discourse are well networked and have good

access to the policymaking apparatus at many of its most receptive points. It is an informal coalition but a strong and effective one for influencing policy.

#### **4. Counter-discourse: resistance to the EnEV**

Despite the dominance of the discourse of economic viability, there is also a set of counter-discourses that question, oppose or sidestep it. Can the failure of the EnEV in respect of small, privately owned houses be explained in terms of this discourse of resistance?

As with the dominant discourse, the counter-discourse is varied and covers a wide range of meaning. To begin with, many homeowner interviewees rejected outright the notion that an EnEV-standard refit on their home would be economically viable. A typical response, from a homeowner in Brandenburg (a retired engineer), was:

To insulate under the roof tiles I'd have to rebuild the roof to fit the legal minimum 21cm of insulation. That would be painful. I'd never get the money back.' (Interviewee\_40)

A homeowner in southern Bavaria (retired manager) spoke of the calculations she had done when considering a thermal refit:

For me to get any benefit it would have to pay for itself in 15 years. When you add up the costs, and think of even a doubling in the price of gas, it would take over 30 years to pay back. (Interviewee\_35)

She also pointed out that money invested in a thermal refit could not be used for other projects that might bring a much greater return.

Similar views were expressed by three interviewees who had, in fact, done comprehensive thermal refits on their homes. They maintained they had never expected to gain or break even financially, but had done the thermal refits for ethical, environmental reasons. Two of the three argued vehemently against the economic viability claim, maintaining it was so obviously wrong it would put people off doing refits (Interviewees\_34&37).

Other interviewees, who had seriously considered doing refits but decided against it, responded that they had never thought much about whether the job would pay back, but were simply put off by the up-front costs. When prompted, some said they thought the notion of economic viability rather strange, as they could not imagine how such a large outlay would pay back through fuel savings.

The idea of counting only the 'additional thermal costs' was greeted with scorn by some homeowners. One, a political party member whose party is in government in his municipality and state, and also in the federal coalition government, angrily responded, 'What do these party leaders know about how life is for the ordinary citizen? Have they never had to pay bills?' (Interviewee\_42).

The resistance to the EnEV was quite overt in some instances. Three interviewees and a number of discussion partners had knowingly refitted their homes well below EnEV standards, at a level they themselves found to be economically viable. For example, six months after our interview, the Brandenburg homeowner mentioned above did insulate under his roof tiles, but with a layer only 6cm thick rather than the legal minimum of 21cm, so it

was not necessary to rebuild the roof. He reported being ‘very satisfied’ with the result (personal communication).

This mixture of responses could be described as ‘muttered discourse’. Among these people there is no active campaign or overt promulgation of the discourse that EnEV standards are not economically viable, but two important things are happening. Firstly, people are producing this discourse readily when prompted. It is the discourse of choice when the issue arises. Secondly, many of these people are acting out the discourse, either by not refitting their homes, or by refitting to sub-EnEV standards. These people have a great deal of power, because all they have to do to thwart the goals of the EnEV is *refrain* from doing a refit to EnEV standards. This refraining is a discursive act, in that it is meaningful and takes its meaning from the discursive context in which it arises – i.e. the question of how to respond to a cold climate, high fuel bills and a law that denies people the right to do a minimum amount of cheap, low-level but economically efficient thermal upgrading. These people do not comprise a discourse coalition; the discourse is muttered quietly rather than proclaimed publicly; yet it is genuinely discursive and very powerful.

There some further strands of counter-discourse. The National Association of Landlords (*GdW: Gemeinschaft deutscher Wohnunternehmen*), with headquarters in Berlin, has recently engaged policymakers in critical discussion as to the limits of economic viability of thermal refitting of multi-dwelling buildings according to EnEV standards (Vogler, 2009; Interviewee\_27). State landlord associations have also begun to raise these issues. A group of federal MPs within the centre-right CDU/CSU alliance began a short-lived campaign in summer 2009, while the alliance was in opposition, to have thermal refit standards slackened by around 30% rather than tightened by 30% when EnEV 2009 came into force (Pfeiffer and Nüßlein, 2009; Interviewees\_2&3). A similar move – apparently also short-lived - was made by other CDU/CSU federal MPs a year after the alliance became the government (Stern, 2010).

Many architects are also playing a role in resistance. Three such interviewees pointed out a number of technical difficulties in refitting old houses which, they said, made the job far too expensive to ever pay back. Further, Section 25 of the EnEV contains an exemption clause for ‘special circumstances’ (*besonderer Umstand*) where refitting to its standards would lead to ‘disproportionate difficulty’ (*unangemessener Aufwand*) or ‘inequitable hardship’ (*unbillige Härte*). As one architect explained: ‘In practice German clients can rely on their architects, who will always try to use one of those important exemptions’ (personal correspondence).

Plasterers, too, are now becoming somewhat active in resistance. An in-house publication of the *Bundesverband Farbe Gestaltung Bautenschutz* (German Federal Association for Colour Design and Preservation of Structures: [www.farbe.de](http://www.farbe.de)), labelled ‘Exclusively for Guild Members,’ gives specific, detailed advice on how to make best use of the exemptions clause in the EnEV (BFGB, 2010: 3).

Again, however, there is no evidence of an active, interconnected counter-discourse coalition. The discourse is ‘muttered’ and barely visible. Its success comes from the fact that the people producing it can resist the EnEV standards by doing nothing, by quietly refitting below EnEV standards, or by using the EnEV’s own Section 25 to thwart its intentions.

## 5. Discourse, counter-discourse and the realities of existing homes

It would seem, then, that an analysis of the discourse and counter-discourse of economic viability provides a satisfactory explanation as to why the EnEV is not achieving its aims with respect to small, privately owned homes. The question does arise, however, as to *why* homeowners and their proxies are producing the counter-discourse. Is it that they have not done their sums properly, or are their calculations a closer reflection of the physical, material reality than those of the policymakers and their expert advisors?

The study lying behind this paper included an applied science analysis of the technical issues involved in refitting German houses to EnEV standards and the costs of this in the current economic climate. The initial part of this was peer-reviewed and published (Galvin, 2010), and findings from later, ongoing research are included in the main report of the study (Galvin, 2011). In brief, this investigation found that it is very difficult to refit any existing German home economically viably to EnEV 2009 standards, even if only the ‘additional thermal costs’ are included in the accounting. Indeed, not one actual case of a small home (one-to-six dwellings) refit to EnEV standards was found that would qualify as economically viable even by this criterion, and no policy actor was able to produce figures for any case that qualified. It seems safe to conclude, then, that the economic viability discourse is a much poorer reflection of the physical, material reality than the counter-discourse.

In one sense, we could say that this explains why the EnEV is not succeeding in respect of small homes. Its economic discourse does not fit the way the homes are. However in another sense this does not explain anything, as it is *people* who refit houses: houses do not refit themselves. People do or do not refit houses, to this or that standard, because of how they discursively configure the practice of refitting in their particular situation. Whatever the economics or physics, people are the responsible agents. We can say that *people* are blocking the implementation of the EnEV by their own autonomous, discursively formed decisions, which they have made for the reasons they are expressing. This is not to praise or blame them, it is simply to state that people are doing everything here.

But even if readers do not accept this – even if one demands that the nature of the physical, material houses be included in the explanation - *there is no need for a ‘sociotechnical’ or ‘actor-network’ factor to be brought in* to complete the explanation. *All* the explanation is exhausted by what people do and (if you like) what the laws of physics do. As philosopher of science Rom Harré eloquently argues, there are *only* two types of efficient cause<sup>3</sup>: people acting, and the mechanisms of nature playing out (Harré, 2009). The notions of a sociotechnical system or an actor-network might be useful analytical devices to order our thinking in some contexts, but they do not *explain* anything. Only individual people act, and they do so for their own reasons, which only they can reveal to us. Only the mechanisms of nature make things move, heat up, shrivel, expand, bang and crash.

One might object that surely the *costs* of thermal renovation are best explained in terms of complex, interlocking actor-networks or socio-technical systems. But even here it is *people* who decide how much to charge for their goods and services. They choose to charge x euros for job y because, *they say*, the laws of physics make material z rare or difficult to produce. It is always people acting and nature playing out its laws. And the people who act do so as

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<sup>3</sup> The term ‘efficient cause’ here means the primary source of the change that takes place.

individuals, responsibly, all along the chain. If you want to find out why insulation materials are expensive, ask the director of BASF and her proxies, who set the price.

## 6. Re-thinking UK climate change discourse

If there is no need for a sociotechnical or actor-network factor in the explanation of the failure of German federal policy on thermal refits, can this be generalised to other environmental policy regimes? Lovell et al (2009) maintain that it cannot in the case of UK policy discourse on energy and climate change. They maintain that discourse theory can only explain why the UK has apparently strong, unchallenged pro-climate protection policy. It cannot explain, they argue, why this policy is so ineffective in bringing about change.

Drawing on Hajer's (1995: 52ff) terminology, these authors identify four main, distinct 'storylines' among UK policy actors, that converge to support the UK Climate Change Bill and the UK's strong international stance on climate protection. These storylines focus on: the need to decarbonise energy supply, e.g. by promoting renewables; the need to reduce energy demand, e.g. by increasing energy efficiency; the value of such measures in enhancing market efficiency; and the need to promote international co-operation in tackling climate change. The authors note that each storyline is not identified with a separate grouping of advocates, but there is a many-to-many relationship between advocates and storylines. Hence both the storylines, and the groups and individuals advocating them, reinforce each other harmoniously to produce a 'hegemonic' discourse (cf. Fischer, 2003: 78-79; Hajer, 1995: 59; Laclau and Mouffe, 1985: 47ff) that has captured the UK's policymaking apparatus.

Nevertheless, they point out, the policy is quite ineffective, since the enacted measures do not seem to be bringing about the desired GHG emission reductions. Significantly, they argue, there is no evidence of counter-discourse working against the implementation of the policy. Hence the explanation for its failure must be found in non-discursive factors. These factors, they claim, are the large sociotechnical systems of energy supply and distribution that the policy does not properly engage with.

This is a brilliantly insightful paper, which climate protection movements could learn much from. Its central argument is that the UK's pro-climate discourse is so influenced by Britain's carbon-based energy infrastructure that it fails to formulate an adequate solution to the problem of GHG emissions. This infrastructure includes 'power stations, distribution systems, buildings, and meters' (Lovell et al: 94). Not only does this infrastructure shape 'the range of possible options for policy implementation'. It also exerts 'significant influence on policy' by structuring 'how problems are conceived and addressed', i.e. it strongly influences what policy discourse can be produced (ibid: 94). The result is that 'powerful interests embedded within regimes devote resources to presenting significant problems as solvable within the existing regime' (ibid: 102, following Hughes, 1983; Kemp, 1994; Smith et al, 2005; Tarr, 1999).

For example, increasing energy efficiency in industry may appear to be a route to GHG emission reduction, but it suits industry to produce more goods for less energy input, and therefore less cost, and thereby to increase its profits, without that necessarily leading to reductions in GHG emissions. A classic example is fuel efficiencies in the transport networks of Europe's post-Fordist industry. Ruzzinetti and Basosi (2008) showed that this leads to increased, rather than reduced, fuel consumption. So when climate activists utter the energy efficiency discourse, they are effectively supporting the existing sociotechnical regime and

failing to engage with the real causes of climate change. This is why, Lovell et al (2009) argue, there is no significant conflict between discourse coalitions, since the dominant storylines (outlined above) are compatible with the interests that keep these sociotechnical systems in place. Hence the solutions to climate change are configured in terms that fail to challenge the phenomena that are causing climate change.

What their study misses, however, is that there are *other* human actors, whose discourse and practices play a more overt role in keeping these GHG-emitting systems going. These people are, indeed, producing discourse, but it is scarcely audible discourse - ‘muttered’, we might say - and it is anything but benign with respect to climate protection.

To locate and tune in to this discourse we have to ask the boringly simplistic question as to what is the *efficient cause* of the UK’s contribution to climate change. Quite simply, it is that fossil fuels are being burnt, and for this they must be extracted or imported. No matter what we achieve in energy efficiency, renewables, or changes of personal lifestyle, we can only reduce the UK’s contribution to climate change if we reduce the extraction and import of fossil fuels (assuming that all that is extracted or imported will be burnt). Setting aside, for the moment, concerns as to what kind of social disruption might be caused by a steady, relentless supply-side reduction in fossil fuel extraction and imports, it is self-evident that such reduction would need to happen for Britain’s climate goals to be achieved.

We can then ask: who is uttering the discourse that commands fossil fuels to be extracted within, and imported into, the UK? The foreman on the oil rig? The manager of the relevant branch of the oil company? Its board of directors? The government minister who permits (or fails to prevent) a certain tonnage of oil being imported per year? Surely all such people are producing this discourse and acting it out.

Hence it is not the action of a sociotechnical system that keeps Britain’s GHG emissions high. It is the discursively configured (i.e. intentional) practice of fossil fuel extraction and importation.

Lovel et al (2009) are correct to imply that the reason this is not challenged by mainstream climate discourse is that mainstream activists think their own proposals will cause fossil fuel use to die out of its own accord. But this does not mean a real, existing sociotechnical system is causing anything to happen. It simply means these activists discursively construct their world in a certain way, which seems to them not to conflict with a lack of controls on fossil fuel extraction and importation. In other words, for research purposes, *their* discourse about energy infrastructure or sociotechnical systems is much more important than that of this or that researcher.

Further, there is another strand of discourse in the UK climate protection scene, which the authors of this study seem to have overlooked. This is a counter-discourse to the dominant strands they highlight, and it is clearly in conflict with these strands. It articulates roughly the point made above, that to achieve Britain’s GHG emission targets we have to impose direct controls on fossil fuel extraction and importation. This discourse was recently produced, for example, in George Monbiot’s column in *The Guardian* (Monbiot, 2010). Among Monbiot’s points was that continued oil exploration runs counter to UK climate goals because burning only 60% of known reserves would lead to global average temperature rise above the agreed 2 degrees. In his words:

Preventing runaway climate change means getting out of fossil fuels. It means renouncing two fifths of existing reserves. It also means a global moratorium on prospecting, not just in deep water, but everywhere. If we can't use it, we should stop looking for it. (Monbiot, 2010)

A similar discourse is repeatedly produced by Greenpeace, in the context of their occupations of oil drilling and exploration sites and vessels. These have included the British-claimed Atlantic island of Rockall in June 1997, and a Chevron vessel near the Shetland Islands in August and September 2010. These acts are richly laced with discourse that is broadcast into the public sphere.

Hence, on each side of mainstream climate protection discourse there is a strand of discourse that is in sharp conflict with that on the other side. The Monbiot/Greenpeace discourse is in direct opposition to that of the fossil fuel companies. This conflict of discourses is not occupying centre stage in policy actor and activist communities, but its content lies at the heart of a policy struggle that would have to be played out, to make UK climate policy effective in achieving its goals. Why has it appeared to these authors that discourse analysis does not provide the full explanation? Because they have not analysed some of the most significant discourse.

## 7. Conclusions

This paper has tested the notion that policy discourse analysis can provide a full explanation of what causes environmental policy to take shape, and why it is or is not successful. It has done this via relevant aspects of a major empirical study of German federal policy on thermal refits of existing homes. Its methodology takes the subjective worlds constructed in the discourse of policy actors as the hard data of policy analysis. Policy is always written and verbal, and discourses produced and reproduced by various individuals and groups compete for the allegiance of those who are given the right to write the policy. This paper has argued that further discourse, and discursively formed practices, determine whether and how the policy is implemented. People can block policy implementation or they can facilitate it.

The only exception is where a policy misconceives the way the physical, material world works, i.e. where it is not compatible with the mechanisms of nature. However, both these types of cause-and-effect are fairly straightforward to identify. We can see what people are doing and listen to the reasons they give for their actions, and we can see what the mechanisms of nature are doing. There was no need, in the German case study, to invoke the notion of a human-nonhuman hybrid, such as a socio-technical system, that acts in some quasi-autonomous way to weaken the policy content or to thwart policy implementation.

Setting this alongside the analysis of UK climate policy by Lovell et al. (2009), the argument presented here is that the claim that sociotechnical systems have causative power to weaken policy implementation is problematic. Of course, as an analytic device it does help the authors see that the pro-climate protection storylines are actually compatible with the causes of climate change, and therefore fail to produce effective policy. In doing so, however, it draws attention away from other discourses and their associated practices, that actively pursue ends that cause the UK's contribution to climate change. By shifting the focus away from discourse to somewhat amorphous sociotechnical systems, the approach enables these actors to stay hidden. Their discourse remains muttered and inaudible, and is not brought into the light and forced to debate with opposing discourses.

In environmental policy analysis it is essential to locate and identify what is causing what. We need to find precisely what people are doing and what the mechanisms of nature are doing. These may be as simple as turning on oil rig valves (in the case of people) and allowing a certain rate of heat transfer across a wall (in the case of natural mechanisms). People and the mechanisms of nature *do* things. They act as efficient causes. Sociotechnical systems do not.

Finally, Sociotechnical systems do not exist as pre-formed entities. They are the social constructions of researchers. There is not one, certain view of a system such as ‘the UK’s electricity supply-and-user network’. A discourse analysis would ask a believer in sociotechnical systems why they configure a particular piece of reality that way; what are the power relations being played out in saying it is this or that type and shape and configuration of thing. If we want to explain why things happen, in the end we have to focus on that which has causative power. Otherwise we run the risk of allowing the efficient causes of environmental degradation to remain hidden behind the cloak of our own discursive constructions.

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### Appendix 1 List of Policy Actor Interviewees

| Type                | Sub-type   | Interviewee No. | Institution  | Position  |
|---------------------|--|-----------------|--|---|
| Politician          | Federal  | 1               | Green Party  | Federal MP & Energy Spokesperson                            |
| Politician          | Federal  | 2               | CSU (Christian Social Union – political party)                               | Federal MP & Energy co-spokesperson                         |
| Politician staff    | Federal  | 3               | CDU (Christian Democratic Union – political party)                           | Energy Researcher for MP Pfeiffer                           |
| Bureaucrat          | Federal  | 4               | DENA (German Energy Agency)  | Director, Energy Efficient Buildings Section                |
| Bureaucrat          | Federal  | 5               | BMVBS (Federal Ministry for Housing)   | Policy researcher, building energy efficiency               |
| Bureaucrat          | Federal  | 6               | BMVBS  | Administrator, KfW incentives                               |
| Bureaucrat          | Federal  | 7               | BBR (Federal Ministry for Building and Planning)                             | Director of BBR   |
| Bureaucrat-Engineer | State (NRW)  | 8               | North-Rhine-Westphalia, Cologne office                                       | Administrator, NRW building renovation programme in Cologne |
| Bureaucrat-Engineer | State (NRW)  | 9               | North-Rhine-Westphalia, Düsseldorf office                                    | Administrator, NRW statewide building renovation programme  |
| Bureaucrat-Engineer | State (Hamburg City-State)                         | 10              | Hamburg City-state   | Administrator, Hamburg thermal renovation programme         |
| Bureaucrat-Engineer | State (Hamburg City-State)                         | 11              | Hamburg City-state   | Administrator, Hamburg thermal renovation programme         |
| Politician          | Municipal (Munich)                                 | 12              | Green Party  | Energy spokesperson   |
| Politician          | Municipal (Munich)                                 | 13              | SPD  | Energy spokesperson   |
| Politician          | Municipal (Augsburg)                               | 14              | CSU  | Energy spokesperson   |
| Politician staff    | Municipal (Munich)                                 | 15              | Green Party  | Energy researcher for Municipal Green caucus.               |
| Bureaucrat-Engineer | Municipal (Munich)                                 | 16              | Munich City  | Thermal renovation costing and promotion head.              |
| Bureaucrat-Engineer | Municipal (Munich)                                 | 17              | Munich City  | City liaison officer for Bauzentrum (see below)             |
| Bureaucrat-Engineer | Municipal (Munich)                                 | 18              | Munich Bauzentrum (Building advice centre)                                   | (withheld to preserve anonymity)                            |
| Expert              | University Building Physicist & eco-institute head | 19              | Munich Technical University; Fraunhofer Inst. For Building Physics Stuttgart | Head of Faculty; Director of Institute                      |
| Expert              | Eco-institute researcher: economist                | 20              | Institut Wohnen und Umwelt (IWU) Darmstadt                                   | Researcher and writer                                       |
| Expert              | Eco-institute researcher: engineer                 | 21              | Institut Wohnen und Umwelt (IWU) Darmstadt                                   | Researcher and writer                                       |
| Expert              | Eco-institute                                      | 22              | Institut Wohnen und  | Researcher and writer                                       |

|              |  |           |  |                       |
|--------------|--|-----------|--|-----------------------|
|              | researcher:<br>sociologist                     |           | Umwelt (IWU) Darmstadt   |                       |
| Expert       | Eco-institute<br>researcher:<br>Bldg physicist | <b>23</b> | Passivhaus Institut<br>Darmstadt                                 | Researcher and writer |
| Expert       | Eco-institute<br>researcher:<br>engineer       | <b>24</b> | Institut für Energy und<br>Umweltforschung (Ifeu),<br>Heidelberg | Researcher and writer |
| Practitioner | Technical<br>manager                           | <b>25</b> | LUWOG (housing<br>provider for BASF),<br>Ludwigshafen            | Technical manager     |
| Practitioner | Technical<br>manager                           | <b>26</b> | Erbbauverein housing co-<br>op, Cologne                          | Technical manager     |
| Researcher   | National<br>research                           | <b>27</b> | GdW (national assn of<br>housing providers)                      | Chief researcher      |
| Researcher   | Architect                                      | <b>28</b> | Technical University<br>(name withheld)                          | Researcher            |