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LOCAL ENERGY CONSERVATION INITIATIVES IN THE U.K.: THEIR NATURE AND ACHIEVEMENTS

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1. INTRODUCTION

Various local energy conservation initiatives have emerged in the UK in recent years attempting to address a perceived deficiency in national energy conservation policies. These initiatives are intended to intervene in the area between existing macro and micro approaches, that is, somewhere between central government's predominant reliance on the market mechanism to realise a potential £7 billion reduction on the nation's fuel expenditure, and the responses of individual consumers to market signals. These meso level energy conservation initiatives, operating at the spatial scale of cities or below, have been relatively neglected on the part of the energy policy research community as a whole. However, though individually small in scale, in aggregate and with effective replication, their impact could be very substantial indeed.

Four specific policy-related research needs can be identified:

(1) wider awareness of the varied nature and complexion of local energy conservation initiatives;

(2) systematic assessment of their achievements in terms of their contribution, on the one hand, to national energy conservation policy and, on the other, to improvements in the local energy economy;

(3) dissemination of their experiences so that new initiatives can build on strengths and avoid unnecessary deficiencies;

(4) fuller appreciation of the relationship between energy and wider social and economic considerations; the initiatives encompass, inter alia, aspects of health and welfare, job creation, and infrastructural and environmental improvement.

In this paper, stock is taken of five local energy conservation initiatives: Heatwise Glasgow (HCW), Newcastle City Council's Priority

Ranked Assessment Programme (PRA), Lewisham Energy Plan (LEP), Hackney Cold War (HCW), and Cardiff - The Energy Action City campaign (CEA) [1]. Brief descriptions of each initiative are given (section 3), and a systematic comparative evaluation of their nature and achievements (section 4), drawing on the framework which is introduced below. Conclusions as to the possible greater effectiveness and wider applicability of local energy conservation initiatives complete this paper.

2. A COMPARATIVE FRAMEWORK

To achieve its intended purpose, any framework which is to be used as the basis for a systematic comparison of local energy conservation initiatives must reflect the multi-dimensional character of energy, entailing social, economic, environmental, political and strategic aspects, at different spatial and sectoral levels. Although the prime interest of this paper is in local conservation initiatives, the framework introduced was designed to be applicable also to other sorts of energy policy initiative and other scales. Despite prolonged recognition of and interest in the multi-dimensionality of energy questions, an entirely suitable framework was not found in the literature [2].

The framework to be used has three main components: the first to identify the orientation of the initiatives (their substantive characteristics such as their scale, targeted fuels, sectors, and so on); the second to describe their institutional structure (their social, political and organisational dynamics); and the third to examine their underlying objectives and rationales. These components are described below (see also Table 1).

2.1 ORIENTATION

The six categories of this component describe primary features of each initiative.

FOCUS: this indicates whether the initiative is focussed on energy supply or energy demand [3].

FUEL: this identifies whether specific fuels, or all fuels, are of interest. (Concerns have been expressed over specific energy sources, for example, on the grounds of exhaustion, risk or pollution [4].)

SCALE: this specifies the geo-political orientation of an initiative, acknowledging that the implications of energy use can in principle range from the global to the individual scale [5].

SECTOR: this follows the conventional sectoral disaggregation used in official U.K. energy statistics [6].

CONSUMPTION TARGET: this refers to the areas of energy consumption targeted through an initiative's activities and approach.

APPROACH: this sets out a range of methods adopted by the individual initiatives in the pursuit of their objectives.

Disaggregations of each aspect are given in Table 1; further levels of disaggregation are possible [7].

2.2 INSTITUTIONAL CONTEXT

This component takes stock of the range of participants, the financial arrangements, and the degree of community involvement for different initiatives.

PARTICIPANTS: the various actors participating in the development and instigation of energy initiatives can come (in various permutations) from representatives of central and local government, industry, commerce, fuel utilities, national organisations, community groups, individuals, trade unions, academic establishments, and others.

FINANCING: the amount and source of finance are important in determining the degrees of freedom within which an initiative can operate. Other considerations are the degree of an initiative's independence from its sources of funding, and the flexibility with which funding can be used.

COMMUNITY INVOLVEMENT: this category identifies the degree of community involvement within an initiative's decision taking process in terms of three possible levels:

(i) Passive, where the community is informed of measures, changes, and progress and is expected to respond accordingly. Feedback is not encouraged and there is no guarantee that representations will be acted upon; essentially, the experts know best.

(ii) Consultative, where there is dialogue between those undertaking the initiatives and those being affected. Options may be presented for the communtiy to choose between. While an element of negotiation is implied, authority ultimately lies elsewhere. Decisions may still be imposed regardless of the community's response.

(iii) Participative, where there is a sharing of power between those in authority and the local community - decisions will reflect a consensus between parties [8].

Such elements are not exclusive to energy: they are relevant to a consideration of the nature and objectives of many other kinds of initiative also.

2.3 CONCEPTUALISATION OF ENERGY

Energy use is valued on many accounts - heat, light, power, leisure, security, activity, convenience, and so on. As a result, 'energy' can be given various interpretations, with varying political, economic, social and environmental implications; society's well being does not necessarily depend simply upon the quantity of energy it consumes.

Stern and Aronson [9] identified four conceptualisations of energy issues:

Commodity - energy as a subset of objects within the economy that can be bought or sold subject to the prevailing conditions of the market mechanism. It is this conceptualisation which underlies present UK energy policy.

Social necessity - warmth as a fundamental prerequisite for human life and therefore energy as something that should not be rationed solely on the principle of ability to pay. Despite its potential, UK energy policy has seldom been utilised in the pursuit of related social objectives [10].

Ecological resource - energy use representing the depletion of finite fuel

resources, with consequent need for more vigorous conservations for future generations. Energy use also involving risks to the global ecosphere, possibly to the extent of threating humanity's survival.

Strategic material - energy as an element affecting the security of the nation: dependence on foreign supplies may threaten its economy, its independence, and its security. Pursuing certain options may be considered to represent an insurance policy against such eventualities [11].

To this list a further conceptualisation can be added: energy as a theoretical entity, governed by the laws of thermodynamics. For formulating public policy, this conceptualisation may be the least useful, but it does have implications for the other conceptualisations [12].

Some of the differences in perspective, emphasis and implications between these conceptualisations are brought out more explicitly in Table 2. They are differences which may assume paradigmatic proportions, with energy debates often being approached only from within individual conceptualisations, and 'boundary crossing' generating as much acrimony as it does understanding or dialectical progress.

The distinctions between perspectives are reflected and illustrated in the contrasts between so-called 'technocentrist' and 'ecocentrist' world views [13,14]. The dominant 'technocentrist' (and 'cornucopian') world views perceive energy as a set of commodities to be bought and sold subject to price [15]: particular energy resources are to be utilised if they are more cost effective than others; pollution abatement is to be undertaken if the benefits are deemed to be greater than the costs; the appropriate level of energy conservation (or efficiency) is to be determined by individual consumers responding to appropriate pricing signals [16]; intertemporal and intergenerational considerations are to be taken into account by long run marginal costing [17] and application of the appropriate discount rate; technological development will avert potential future energy supply shortages.

The hegemony of a technocentric or commodity approach to energy issues is challenged by 'ecocentrist' world views expressing increasing concern for perceived imbalances within society which arise as a consequence of a purely 'commodity' view. Challenges have sought not only to move the debate from commodity to 'social' and 'ecological' perspectives, but in so doing, have seen it necessary to raise fundamental questions about the legitimacy and accountability of the fuel industries (and by implication about the way society and the economy should be run).

In general, perceptions of the role and modes of suitable development of local energy strategies will vary according to which of the above (or possibly some further alternative) perspective on energy is adopted.

3. FIVE LOCAL ENERGY CONSERVATION INITIATIVES

Aspects of five local energy conservation initiatives are described below. Their similarities and contrasts will be evaluated more systematically in a subsequent section of this paper.

3.1 Heatwise Glasgow

Heatwise Glasgow (HWG) was established in 1983, through the joint efforts of Scottish Neighbourhood Energy Action and Glasgow District Council, with three explicit objectives:

(i) to tackle fuel poverty by providing an insulation, draught-proofing and advice service to low income consumers;

(ii) to create employment, both through providing immediate job prospects, and improving long term opportunities through training and skill courses;

(iii) to involve the community in the workings of the local projects.

All three objectives are given equal weight so that, for example, a project will not be established in an area, notwithstanding deprivation or need, if there is no local participation.

HWG operates as a local energy project agency, establishing projects on a one-year basis to provide a free, door-to-door draught- proofing, loft insulation and energy advice service to all council tenants within its operating areas. It has various sources of finance for different aspects of its activity: the Manpower Service Commission's (MSC's) Community Programme to cover the bulk of its labour costs; Department of Health and Social Security (DHSS) single payments for much of the draught-proofing materials used; Glasgow District Council (GDC) for the salaries of core personnel and for materials; the Department of Energy (DEn) for seedcorn and project start-up grants; the Department of the Environment (DOE) for loft insulation grants; the European Economic Community (EEC) for training courses. The result has been a scale of operation and financial support that sets HWG apart from other local energy projects. From employing 3 people in 1983, HWG had grown to employing 450 people in 1987, with its budget increasing from about £50,000 to more than £4 million over the same period.

Up to April 1987, HWG had established 23 projects throughout the city, generally in designated Areas of Priority Treatment [18]. These projects have been responsible for draught-proofing over 24,000 of the potential 49,000 dwellings within HWG's operating areas, and installed loft insulation in over 3300 dwellings [19]. Figures estimating the impact of HWG's advice service on tenant income [20], are not completely reliable, as the monitoring of advice work has proved to be problematic. While five of the 23 projects have reached the end of their planned life and completed their area, a further 13 were already planned, many for areas adjacent to existing projects (see Fig. 1).

HWG has recognised that "the <u>partial</u> insulation package provided ... will

not succeed in providing both adequate comfort standards and signficant reductions in fuel bills" (emphasis added)[21]. For the estimated 14,000 council tenants living in conditions considered to be 'Below Tolerable Standards' [22] through dampness caused by "a combination of factors including poor insulation standards, inadequate heating systems, difficult to heat dwellings and fuel poverty" [23], 'partial insulation' may be but a small consolation. However, given a widening gap between GDC's housing investment requirements and its capital borrowing consent [24], HWG's structure, and GDC's financial support, were designed to maximize the use of available grants rather than provide a complete solution. Because of regulations, these grants would otherwise be denied or inaccessible to GDC. Even with no canvassing, HWG has a waiting list of tenants' associations wanting to initiate projects. Importantly, HWG has established its credibility by delivering the promised insulation service, partial though it may be. Tenants' associations, by becoming involved with HWG, can effect some improvements to their local environment. Further, the local economy has benefitted: from the additional welfare benefit entitlements identified through HWG's advice service; from creating jobs; and from the 46% of employees during 1986-87 that have gained full-time employment elsewhere after the expiration of their one-year HWG contract. The successes of HWG have mobilised political support within GDC, not only for adopting a more comprehensive approach to energy issues, but for undertaking initiatives in other areas considered to be 'socially useful employment'. The experience of HWG has been seen as a model for such endeavours in Glasgow.

3.2 Newcastle City Council's Priority Ranked Assessment Programme.

Newcastle City Council has been at the forefront of local authorities involved with energy initiatives, particularly in its awareness of the wider implications of energy use for the community. A variety of exemplary

initiatives have been supported, including its Energy Advice Unit (the first of its kind in the UK, and a precursor to the establishment of Neighbourhood Energy Action [25]) and 'Keeping Newcastle Warm', one of the first local energy projects. This involvement has encompassed a variety of concerns - improving the local economy, creating employment, protecting its investment in its dwelling stock, tackling condensation problems and fuel poverty, and investing in local infrastructure.

Since 1979 the council has been systematically upgrading the thermal characteristics of its own dwelling stock under a Priority Ranked Assessment programme (PRA). This has involved the use of a quasi-technical, quasi-subjective aggregation of scores out of 10 for three factors: condensation and mould growth, heating system adequacy, and running costs. In principle, those estates with the highest scores would receive top priority in any particular year's investment programme, although the council's 44 multi-storey tower blocks were excluded from the programme, regardless of their ranking, until 1982/83. The ranking list was published and circulated amongst advice agencies and tenants' associations in the city.

The PRA was initiated to improve the conditions within an estimated 20,000 dwellings (approximately 40% of the council's total stock) suffering from condensation and mould growth. A comprehensive heating and insulation package was devised through the collaboration of the council's Architects, Engineers and Housing Departments. The resultant package, including, as appropriate, new heating systems, roof and wall insulation, secondary glazing, draught-proofing and ventilation measures, combined technical solutions with consultation, advice, and monitoring activities. Meetings were held between tenants and representatives of the council to discuss proposed measures; tenants retained the right to be excluded from the

programme; tenants were visited so that system controls and use could be explained; and follow up visits were arranged where monitoring indicates abnormal consumption. While the package was neither revolutionary nor innovative in terms of measures installed, it was exceptional in its comprehensive approach. Between 1979 and 1987, heating and insulation has been upgraded in over 14,000 dwellings across the city (see Fig. 2).

Finance has been a central feature in shaping the PRA programme. Although initiated as a 10 year rolling programme, and backed by a policy commitment to allocate 20% of the annual capital housing budget to enable the programme to proceed on a planned basis, the PRA almost immediately began to fall behind schedule (see Table 3). The general impact of centrally determined reductions in the council's capital allocation, and the DOE-imposed five month national moratorium on all capital expenditure on housing from October 1980, resulted in the PRA's original time scale slipping to 40 years by 1981/82. Internal reaffirmation of the 20% policy commitment in 1982/83 rekindled the PRA's momentum. However, the continuing fiscal stringency facing the council has resulted in modifications to the PRA: the schedule of works began to be phased over two financial years [26] and the use of leasing finance to pay for heating systems [27].

A detailed analysis of fuel consumption and expenditure patterns before and after the heating and insulation improvements were undertaken on one all-electric estate makes striking reading:

- a 24% decrease in total expenditure on electricity, although consumption increased by 9%.
- a reduction in the mean weekly expenditure on electricity;
- a reduction in those tenants making inadequate use of the installed system, from 49% to 9% of all tenants;
- a general satisfaction amongst tenants with both the heating system

running costs and the level of thermal comfort [28].

In addition, the likelihood of tenants resorting to inappropriate heating systems (e.g. paraffin and LPG), with their attendant problems of condensation and explosion, was reduced through the extension of the heating system to all rooms in their dwellings.

During consultation exercises conducted before the introduction of the heating and insulation improvements on the above estate, the tenants campaigned vociferously, on the one hand, against the installation of another electric heating system, and on the other, in favour of a district heating system. Despite the council commitment to tenant consultation within the PRA, the tenants' wishes were overruled eventually, on the grounds of capital cost; a district heating system was costed as approximately three times more expensive than a replacement electric heating system. The success of the package of measures actually undertaken on this estate has been used both by the council to persuade reluctant tenants on other estates, and by the Electricity Council to convince other local authorities that electric heating can form part of an acceptable package to tenants [29].

3.3 Lewisham Energy Plan

The Greater London Council's (GLC's) Popular Planning Unit provided finance in 1983 for two workers to prepare a community energy plan for the London Borough of Lewisham (see Figure 3). 'Popular planning' was seen within the GLC as

> "planning from below - planning that is based on people coming together in their workplace and community organisations to formulate their own demands and wishes for the future . . . campaigns for better heating on council estates . . . are the first stages . . . The second stage is the formulation of alternatives and the fight to put them into practice" [30].

The two workers were intended to facilitate this process. The initial one year funding was subsequently renewed up to April 1986, the point at which

the GLC itself was abolished.

The focus of the Lewisham Energy Plan (LEP) was on the public sector housing stock, which constitutes approximately 60% of all dwellings in Lewisham. Work undertaken included classification and modelling exercises in order to identify the distribution and frequency of house types within the Borough, surveys of the range of problems and hardships faced by tenants, and estimates of the potential for improvements and their costs. Activity was not restricted solely to investigating demand characteristics: alternative methods of meeting local demand, particularly by means of CHP, were also examined.

Progress in implementing any proposals arising from LEP's activities was always dependent on Lewisham Borough Council (an agency which was not involved in funding the LEP) accepting and adopting their recommendations. The LEP was not in a position - legally, politically or financially - to implement any proposals directly. Consequently, its efforts were targeted on establishing its credibility with various departments within the Borough Council (e.g. - Housing, Social Services, Planning, Architects, and the Chief Executive's Office), and with elected members: briefing documents were prepared, meetings held, and training programmes for housing managers initiated. While the LEP considered these exercises to have been successful, actual achievements on the ground were less evident; sympathy expressed was not necessarily matched by practical action.

Between November 1984 and April 1986, the LEP shifted its approach, switching its emphasis away from the local authority, and towards local tenants associations. To this end, special courses and training sessions were held, with the LEP providing advice, technical support and other back-up as necessary. Energy audits and reports were prepared to enable

tenants and tenants' associations to present their cases to the DHSS for increased welfare benefit entitlements, and to the Borough Council for heating and insulation improvement packages.

The tangible outcome of the LEP was primarily in terms of the welfare benefit work undertaken: the identification of local estates as 'hard to heat' or 'exceptionally difficult to heat', and the resultant entitlements to supplementary benefit. Various plans of action (e.g. quantifying heating related problems and proposing solutions that would bring heating costs in line with tenants income) were prepared for particular estates, for areas in the borough, and on the feasibility of CHP. Less tangible was the work with tenants groups and the formulation and acceptance of the Tenant's Heating Charter [31]. Increasing awareness and mobilisation of support, whether amongst tenants, tenants associations, council officers or elected members, does not necessarily mean action will, or can be taken, if the necessary resources are not available. Neither LEP nor the tenants and tenants associations had the resources necessary to tackle the problems.

The switch in emphasis, from Borough wide issues to individual consumers and estates, and the subsequent preoccupation with their problems, represented a reduction in the original aspirations of the LEP. While LEP found no shortage of work [32], the focus became concerned with dealing with the symptoms of the problems rather than addressing the underlying causes, e.g. dealing with fuel debt and disconnection cases rather than inefficient thermal fabric, and inappropriate or inadequate heating systems. This switch in emphasis reflected the reality of LEP's funding and existence. Without the political ability to force the Council to act upon its proposals, and denied financial resources to undertake the improvements itself, the LEP's proposals were dependent on the acceptance

and action of others.

3.4 Hackney Cold War

The London Energy and Employment Network (LEEN) was established in 1983 under the Greater London Enterprise Board to promote a rational energy policy for London and to stimulate resultant employment opportunities. In pursuing these objectives, the emphasis within LEEN was to initiate a range of practical projects in six specific areas, two of which were the establishment of community-based energy projects and the development of energy conservation areas [33].

In 1984, as a result of arranging for draught-proofing and follow up surveys on an estate in the London Borough of Hackney (see Figure 3), LEEN began to work with the Borough Council to launch the Hackney Cold War (HCW) as a means of generating momentum to overcome fuel-related problems in the area. Hackney, with a population of approximately 180,000, is generally reckoned to be one of London's most deprived areas. In 1985, Hackney's housing conditions ranked worst amongst English housing authorities, with 21% of the 76,500 dwellings in the borough considered unfit for human habilitation, and a further 32% in need of renovation [34].

The HCW was launched in July 1984 at a conference chaired, importantly in retrospect, by the then Deputy Leader of the Council, and attended by representatives of the council, various local organizations and tenants groups, and the fuel boards (amongst others). The conference concluded by convening a Steering Group to pursue and monitor progress on an action programme put forward by conference participants. An early achievement of the Steering Group was the publication of a Right to Warmth Charter and its subsequent adoption as Council policy. Although the Steering Group was

not a formally constituted committee of the council, the involvement of the then-Deputy Leader did provide it with some political influence. The Charter became the focus of the Steering Group's activities (see Table 4).

The instigation of viable and effective projects, the provision of advice and information, and the arrangement of finance, were considered by the Steering Group to be fundamental to the HCW's success. In Table 4 the statements of the Right to Warmth Charter are set against the initiatives embarked upon. Among the tangible outcomes of the HCW have been

- the development of a computerised data-base of Hackney's housing stock and energy use model to enable priorities to be indicated for both particular sections of the housing stock and particular measures;
- the Hackney Heating Advice Project which was responsible in 1985-6 for an additional £350,000 being brought into the local economy through the identification of previously unclaimed Supplementary Benefit entitlements, particularly heating additions;
- the Tenants Heating and Insulation Service, which arranged for the financing of heating and insulation improvements in 160 dwellings, with a further 1200 dwellings scheduled for 1987;
- the 'Cold Line' emergency service has been inundated with calls during its operation, to the point of being unable to deal with all the demands for its services;
- the arrangement of training programmes for housing managers on condensation problems.

Initially, LEEN's role within the HCW was to facilitate developments, inject enthusiasm, and provide advice and support as necessary. Although LEEN continued to manage the heating advice project for the Council, LEEN's role became less central with the appointment of a part-time energy coordinator within the authority [35]. Despite this appointment, the success embodied within the individual initiatives has not yet pervaded the general structure and practices of the council. Momentum has waned as a few key enthusiastic individuals have left the authority [36]. In arriving at this stage, the HCW has reached something of a crossroads: to date, supporting the various projects had been easy because they have not required undue expenditure commitments; while the HCW could continue in an

ad hoc manner, to follow through the implications of developing a more integrated strategy (e.g. prioritising heating and insulation improvements in its dwelling stock) would involve large expenditure commitments. The choice has yet to be made within the authority.

3.5 Cardiff - The Energy Action City

In May 1985, the Secretary of State for Energy launched 'Cardiff - The Energy Action City' (CEA), the first U.K. city to be so designated [37]. Cardiff, with a population of approximately 300,000 within a clearly defined area, was considered by the EEO as an appropriate site because of its mix of industrial, public and domestic sectors: no one sector or industry dominated the local economy. After discussions with the local Regional Energy Efficiency Office (REEO) and the EEO, a joint South Glamorgan C.C. and Cardiff D.C. proposal to establish two energy conservation areas within the city was extended to include the whole city.

The CEA initiative was launched as an intensive one-year campaign to promote energy awareness within the city [38]. Although CEA was promoted in terms of saving £10 million of the city's estimated £100 million total annual expenditure on fuel [39] [40], the organisers considered this figure to be more of a publicity gimmick to generate support and to focus attention, than a hard target. Organisations and individuals were encouraged to set their own objectives, which would in turn contribute to the overall objective of achieving a more efficient use of energy.

Although the EEO was involved both through its regional office and through its financing of three specific items - an aerial infra-red thermal survey, a marketing campaign, and monitoring CEA's impact [41] - it was also concerned that the initiative should be seen to be a local endeavour.

A Steering Group of individuals representing various local interests was established, just before the May 1985 announcement, to organise and co-ordinate the programme of events. The EEO viewed CEA as a demonstration project that would be replicated in other areas of the U.K. Relying on special funding to buy success, rather than taking advantage of existing financial incentives and information services, was not considered the appropriate way to encourage replication. In this context, the marketing campaign assumed a significant importance; engendering momentum was considered a pre-requisite to raising private sponsorship to fund events.

A feature of the CEA campaign was the combination within the same initiative of events targeted on the industrial, commercial, and public administration, as well as the domestic sectors. Advice and information, both general and specialist, was available from advice centres, exhibitions, seminars, the press and television. Small groups of business interests with similar concerns were brought together in 'energy action circles'. Cardiff hosted several ministerial visits and various EEO sponsored activities. In addition to events intended for a city-wide audience, the city was divided into 14 areas, with specific activities targeted on each, usually to coincide with local events. A specially converted bus on which information, advice, and an energy audit service were available toured the city and the local events on a pre arranged schedule. The range of events was described in a government publication as "the most intensive programme of public education (about energy efficiency) ever seen" [42]. Cited achievement's included:

- the establishment of seven local draught-proofing projects between July 1985 and March 1987, responsible for employing 256 people under the Community Programme, and installing draught-proofing materials in 6500 dwellings during that period.
- over 2000 business persons attending the various energy efficiency meetings and seminars.
- an increase in the number of applications for loft insulation grants

(see Figure 4.5).

- over 4000 householders visiting the campaign advice centre.
- an awareness survey carried out in May 1986 indicating that 20 to 50 per cent more people were planning to install draught excluders or loft, tank or cavity wall insulation.
- various individual companies reporting large savings in their fuel bills.

Superficially at least, the CEA concept would appear to have been successful. However, despite the monitoring programme, the EEO has appeared to prefer to disseminate more generalised lessons of the initiative [43] rather than the detailed results regarding its impact on energy usage or expenditure or the success of particular features. For example, the raising of sponsorship was not as successful as had been hoped [44]. A distinction between awareness and action is illustrated in Figure 4 by the gap between the number of applications for loft insulation grants and the smaller number of actual payments. The quality of performance is not necessarily reflected by the quantity pesented in an indicator [45].

4. SYSTEMATIC COMPARISON AND EVALUATION

The five case studies exhibit a variety of strategies and approaches with, for example, the measures undertaken varying from draught-proofing or loft insulation, to comprehensive insulation and heating packages, and on occasion, alternative methods of meeting energy demand being identified. The similarities and differences can be summarised more comprehensively with reference to individual elements from the framework in section 2.

4.1 Orientation

The diverse natures, approaches, and activities of the individual case studies is somewhat masked at the aggregate level defined in the framework (Table 5). In these terms the five case studies have ten common

characteristics. Three of these (their focus on energy demand, their operation at the local scale, and their adoption of interventionist methods) arise through the selective concerns of the present authors. The other seven are all to do with attempting to target energy consumed in space and water heating across all fuel types by providing advice and information to the domestic consumer. Beyond this common ground, the concerns of all but one of the different initiatives (CEA) display a limited orientation [46].

A concern with energy supply was present within the activities of LEP and HCW, through their advocacy of CHP. Both boroughs have large estates served by district heating schemes which could be incorporated within a wider London development [47]. To date, this concern has been more exploratory than developmental, i.e. assessing the feasibility, costs and local opinion rather than implementing such a scheme.

While all the initiatives were operating on a dual scale, targeting the individual consumer as well as the local community, the emphasis varied. Whereas individual consumers were the primary target of CEA, they were ancillary to the main activities of PRA, LEP, and HWG. The HCW has included the provision of a variety of individual services across the borough in addition to targeting specific estates. A further distinction can be drawn: the emphasis within the HCW, LEP and HWG [48] involvement with individual consumers has been essentially welfare benefit related, in contrast to the more technical emphasis of CEA and PRA, e.g. the use of heating controls.

Amongst the five initiatives, the domestic sector dominates. Only CEA included activities targeted on the public administration, industrial and commercial sectors. No initiative included the transport sector amongst

its concerns; indeed CEA specifically excluded the transport as the level of resources available was considered insufficient to undertake an effective programme of events.

The various consumption targets appear sectorally related: space and water heating account for over 60% of final fuel use in the domestic sector and predominate amongst the concern of the initiatives examined. Within industry, commerce, and public administration, space and water heating can be less significant when compared with the demands for lighting, motive power, and process heat. These areas of consumption only featured amongst the initiative with concerns other than the domestic sector, i.e. CEA.

As to the methods adopted by the initiatives to pursue their objectives: all provide information and advice: none use regulatory or pricing instruments. (Pricing is beyond the scope of a locally organised initiative in the U.K., while the powers to enact local regulations are circumscribed in law [49]). Between these two extremes:

- only CEA has employed a marketing strategy. HWG, unlike other draught-proofing projects, does not have to market its services because of the manner in which it operates.
- approaches to education differed between each of the three initiatives in which they figured: supplying education materials to schools and developing curriculum (CEA); running seminars, workshops, and conferences (CEA and LEP); providing training courses for local authority housing and social services personnel (LEP and HCW); and teaching communication skills to tenant groups (LEP).
- the incentives used, beyond the free provision of their services to eligible households, have generally been no more than the promotion of existing grants and special payments. An award was offered in CEA for the most effective "Energy Action Circle" and Newcastle does offer two

weeks free of rent as compensation for the disruption involved in the PRA, which could also act as an inducement to accpet the improvement package.

While all the initiatives invoke an element of intervention, the approaches adopted embodied fundamental differences. The HWG, HCW, and PRA initiatives actually undertook the structural improvements on individual estates, although the extent of the work and nature of the financing varied between them. By comparison, CEA attempted to intervene in the operation of the market mechanism by addressing information deficiencies through increasing people's awareness of available grants and services. The LEP differed from both the above in its adoption of an advocacy approach, intervening with the local authority, the DHSS and the courts on behalf of tenants, and through attempting to impart the necessary skills for tenants groups to take actions on their own behalf.

4.2 Institutional Context

The political dimensions included strategies to encourage community participation and involvement (LEP and HWG), campaigning to get energy on the local political agenda (HCW), and teaching lobbying and negotiating skills (LEP). The purpose behind such activities was not only for the local community to articulate demands, but for access to be gained to resources (particularly financial) to implement energy strategies.

4.2.1 Participants

As can be seen in Table 6 the five initiatives involved varying arrays of participants. All five included local authority participation, something considered essential by a growing literature on the topic of local energy strategies [50]. This participation, however, occurred for differing

reasons: both HWG and LEP, although independent of local government structure, were established, in part, through local authority activities and operated with their support, utilising local government finance. Both the county and district council were involved in initiating, organising and promoting CEA, and were represented on its Steering Group. The PRA and HCW were essentially local authority dominated initiatives, but whereas HCW involved a variety of external agencies in formulating its approach, the PRA was very much local authority directed.

In contrast to local government involvement, central government participation was limited. It was directly involved only in CEA, through the participation of the REEO and through the financing of several activities. With HCW and HWG, central government participated indirectly through the vetting of projects submitted for funding under the Inner City Partnership programme and the MSC Community Programme, respectively [51].

Community groups were another common feature amongst the five initiatives though, like local authorities, the centrality of their participation differed. Both HWG and LEP attempted to achieve their objectives by working through community groups. HWG's individual projects were established at the request of local groups, who would be represented on the individual project committees from which one representative was elected to HWG's Board of Directors. Underlying LEP's establishment was the enhancement of community group participation in local affairs. With the PRA, local tenants' groups were consulted over the details of the proposed work schedule. Community groups were invited to the conference which launched the HCW and formulated its initial action plan, and they have participated on its Steering Committee since. By contrast, although community groups were canvassed to support and promote the CEA campaign, no community or voluntary sector representatives were on the Steering

Group. For the PRA and CEA, the participation of community groups was generally incidental to developing and implementing the strategy.

Fuel boards participation has occurred with several of the initiatives, including involvement in the design and evaluation of the PRA improvement packages, attending meetings of the HCW steering committee, and the sponsoring of some of CEA's activities. Despite these activities the fuel boards' involvement has been generally passive i.e. responding to local initiatives rather than instigating them.

There is a dichotomy between strategies promoting the reduction of energy consumption, expenditure or the rate of disconnection, and the interests of the fuel boards: for example,

> "the marketing plans of the [London Electricity Board] are not based upon what the customers require of the board . . . but rather on what the board wants of its customers - which is they should buy more electricity" [52].

Stressing the benefits of the NEEB's participation in the PRA [53] has become part of the electricity supply industry's strategy to retain its share of the home heating market [54].

Consultants have been employed both by HCW and by CEA to provide particular expertises. With HCW, LEEN organised the original conference and acted as a catalyst for many of the resulting activities, including providing the momentum for the Steering Committee. Other consultants were bought in for specific tasks: e.g. modelling the local housing stock and arranging financial packages to pay for the improvement works. With CEA, consultants were employed to market and to monitor the impact of the campaign.

Other interests were also involved: for example, individuals and academics

participated in the HCW and CEA steering committees; representatives of industry and commerce shaped and provided marketing credibility for CEA and trade unions, indirectly, through the obligatory consultation process prior to the commencement of any MSC Community Programme scheme (HCW). Although each of these interests has contributed to individual initiatives, their participation generally has been of a marginal nature within the institutional context.

4.2.2 Finance

The financal arrangements of the various initiatives are summarised in Table 7 according to three features - their source, their independence and the flexibility of their funds. Flexibility and independence are very much a function of the sources of the finance, and these may be relatively free of restraints. Alternatively, certain grants, payments and programmes are specific in their use and eligibility criteria. For example, the Homes Insulation Scheme only provides money for loft insulation (HWG and CEA), the DHSS Single Payments only for draught-proofing (HWG, HCW and CEA) and the MSC's Community Programme only for labour costs (HWG and CEA). Although four of the five initiatives were funded primarily through the public sector, unless local authority capital and revenue are aggregated into one overall local authority category, then no one source is common across the various initiatives (see Table 7).

The local authority led initiatives (PRA and HCW) were quasi-independent: local authorities were free to determine their own expenditure priorities. Such discretion allowed LEP and HWG, although operating independently both of central and of local government, to receive funding from their respective local authorities. Yet, while local authorities have legal powers to raise and spend money, these powers are sanctioned by Parliament

and are not beyond circumspection [55] or alteration. The ability of local authorities to take advantage of external financing and leasing agreements (promoted by the EEO (1986) [56] and used by both HCW and PRA) has been curtailed by legislative changes that came into effect from April 1, 1987 [57].

Private sector financing may be considered to bestow a greater degree of flexibility upon an initiative than can be acquired through public sector funding. A degree of independence was acquired by CEA through its utilisation of private sponsorship and its organisation of self-financing activities. The extent of independence was related to the success of the marketing activities which, ironically, was paid for via public sector support from the EEO.

A hypothesis that the vulnerability of local initiatives may be inversely related to the diversity of funding - the factor underlying the EEO support for CEA - would appear to have some validity. The LEP only continued on a limited basis, after the abolition of the GLC (its only funding source) because of contingency funding from the borough council [58]. By contrast, anxieties concerning the future of many local draught-proofing projects, beyond the abolition of the DHSS single payments, was not shared necessarily by HWG because of their broad funding base [59]. The vulnerability hypothesis also has some validity amongst mainstream local authority programmes. Newcastle's PRA would have been reduced if it had not utilised leasing finance because of cutbacks in its H.I.P. since 1979 and rate capping since 1986/7. An important aspect of both CEA and HCW was to gain access to funds other than mainstream public sector finance to support activities if they were to succeed.

4.2.3 Community Involvement

Community groups were identified amongst the participants in the various initiatives (see Section 4.2.1). Here, their relationship with the decision-making process can be more specifically differentiated: as passive receivers of information; as consulted bodies; or as full participants. All of the initiatives incorporated some element of information provision and of consultation (for example through publications, meetings, the media and contacts, and through local steering committees and meetings respectively). None of the initiatives actually imposed themselves on the community regardless of opinion: individual consumers and tenants retained the right to ignore or opt out of the process [60].

Participation, allowing local communities to determine priorities and allocate resources, was much less in evidence. Within the range of initiatives reviewed, CEA and LEP represent the two extremes, embodying a fundamental difference with regard to the role of the local community. Although locally organized and run, CEA represented a 'top-down' approach to formulating local energy initiatives. Beyond the locally comprised steering committee, the community's input was limited. Its role was to respond, as individual energy consumers, to the message being promoted and, in doing so, to take action considered to be in the individual's interest. This response was to occur within the existing institutional structures and hierarchies dominated by central government's market-orientated energy efficiency strategy. By contrast, LEP adopted more of a 'bottom-up' approach by focusing on a collectivist notion of the local community, to enable it to articulate its demands, to identify options, and to initiate action to meet those demands. By focussing on communication and political skills, the emphasis was on encouraging local groups to challenge, if not pre-empt, the existing institutional process.

The other three initiatives fall between these two extremes. Community involvement has achieved results, for example:

- with HWG, the creation of local employment and improved job prospects, enhanced tenant morale, as well as the installation of loft installation, draught-proofing and advice on heating and welfare benefits;
- with PRA, the installation of comprehensive heating and insulation packages;
- with HCW, the commencement of a heating and insulation investment programme and enhanced welfare benefit and energy advice services.

However, this involvement does not occur on the basis of an equal partnership. A project will not necessarily be initiated (or renewed in one instance) if HWG deems the community's involvement to be inappropriate. Vociferous tenant campaigns against the installation of replacement electric heating systems have been overruled within the PRA on the grounds of the additional capital cost. Ultimately, the allocation of financial resources and the determination of priorities remain beyond the control of the local community.

4.3 Conceptualisations of Energy

The different initiatives encompass a variety of underlying objectives, as summarised in Table 8. Four of the initiatives fall essentially within the social welfare conceptualisation of energy as outlined in Section 2.3: each have instigated measures to tackle aspects of fuel poverty, whether the target is low income consumers generally (HWG, LEP, HCW), welfare benefits (HWG, LEP, HCW), condensation and mould growth (PRA, LEP), fuel debts and disconnection (HCW, LEP), hypothermia (HCW, HWG) or appropriate heating systems (PRA, HCW, LEP).

In contrast, CEA adopts a more commodity-orientated conceptualisation,

that is, energy conservation activities are advocated only as far as they are cost effective. These distinctions are intended to be indicative, rather than definitive, as elements within the initiatives transcend these externally imposed boundaries. For example, under CEA, draught-proofing projects were established to provide a service for low income consumers; the PRA incorporated a financial awareness in the design of the heating and insulation package; all the initiatives were concerned that consumers made effective use of purchased fuel and their heating systems. However, the implications of this distinction extends into the other political, economic and environmental dimensions manifested.

The social-welfare-commodity distinction is important in terms of the legitimacy attached to different objectives and approaches in local energy strategies. Energy must get on the local political agenda if the social implications of use, supply and policy are to be seriously addressed. In turn, energy provides an opportunity around which strategists to pursue other political objectives can be organised, such as improving the 'quality of life', creating employment, decentralising power, investing in infrastructure, and gaining greater local accountability. It is not that the commodity approach eschews a social conscience, but rather that the fundamental reliance on the market mechanism to achieve such objectives, not political action, tends to separate energy from politics. This constrast is exemplified in the differing emphases on community involvement, between encouraging collective campaigning to articulate and pursue goals, and the expression of concern through expenditure: power to the people versus power to the consumer.

Again, with the economic dimension, the two conceptualisations give rise to differing emphases with regard to two particular (interrelated) issues: enhancing the local economy; and the nature of intervention. With CEA the

focus of concern was that of reducing fuel expenditure: the purchase of insulation and energy efficient equipment, the shift of domestic expenditure to other areas, and the increased competitiveness of industry would combine to increase demand for local goods and services, to the benefit of the local economy and local employment. This contrasts with the concern amongst HWG, HCW, LEP, and PRA, namely that in many cases fuel expenditure would have to increase if a warm healthy dwelling was to be acheived, whether the root of the problem lay in the low level of income, the presence of expensive to operate heating systems, or poorly insulated dwellings. Identifying entitlements to welfare benefit payments would bring additional income into an area. The result of these two different views is reflected in the nature of intervention: from attempting to affect the operation of the market mechanism by addressing information deficiencies so that consumers will take action in their economic self-interest, to actually undertaking the improvements and identifying welfare benefit entitlements.

If the environmental dimension is constituted as a remote entity - for example in terms of reducing the need for power stations, reducing the use of non-renewable resources, reducing pollution, or preserving the physical or built environment - then none of the reviewed initiatives can be said to incorporate such a dimension other than in a marginal manner:

> "If you save 10% of an energy bill and repeat it over and over again, you could end up with the output of a power station" [61].

None of the initiatives examined here is specifically concerned with absolute reductions in energy consumption. Concerns for a more competitive local economy (CEA) or obtaining adequate warmth at an affordable cost (LEP, HWG, HCW and PRA) may result in actual increases in consumption. It is also possible to construe some of the measures as being anti-environmental, for not attempting to shift consumption away

from the use of non-renewable resources, or for not helping to enhance the case for increasing the number of nuclear power stations by assisting the reduction of peak loading on the electricity demand by making use of electric storage radiators. However, the 'environment' constitutes more than our physical or built environment. Attempts to construct a broader based environmental perspective have been undertaken elsewhere [62].

5. LIMITATIONS OF THE ANALYSIS

The absence of consistent quantitative indicators comparable across all the initiatives makes it difficult to extend comparative analysis of their achievements much further. There are, for example (i) discrepancies in terms of the comprehensiveness of services being offered, between dwellings receiving either draught proofing and/or loft insulation (as with HWG and CEA) and those benefiting from a more comprehensive package including heating and insulation measures (as with HCW and PRA); (ii) discrepancies in terms of those benefiting from the services on offer, whether it is all dwellings on particular estates (as with HWG, PRA and HCW) or only those on low income (CEA); (iii) differences in the ability of the initiatives to implement proposals notwithstanding their cost-effectiveness or benefits (for example contrasting PRA with LEP). (iv) an absence of rigorous external monitoring of the individual initiatives; although some initiatives were self-monitored, as well as submitting returns, there are consistency problems. None of the initiatives evaluated their performance or acheivements in terms of reductions in energy consumption or savings in non-renewable resources. (v) difficulties in measuring more qualitative aspects of the initiatives: CEA, HCW, HWG, and LEP have all increased local political awareness of energy matters, and the PRA arose from an existing political awareness. With CEA, HCW and HWG, the results can be seen partly in the tangible support that they have received from their respective local authority,

including increased financial allocations and the delegation of staff to undertake action. LEP's ties with the local authority have been less direct - action has been undertaken within the borough but the amount that can be attributed to LEP is uncertain.

Finally, the absence of reliable data on the situation prior to the commencement of an initiative prevents comparative 'before and after' analysis. Although CEA and PRA had data of sorts on the local expenditure on energy, and on the number of dwellings suffering from condensation and mould growth, respectively, their reliability cannot be guaranteed. The absence of a yardstick indicating how well the various initiatives should have performed is a further source of reservationt. It is worth noting in passing that the information compiled on HWG has contributed to a study of Community Programme draught-proofing projects performance in an attempt to derive productivity indicators [63].

6. CONCLUSION

The five case studies exhibit wide ranging ways in which local energy conservation initiatives can effectively intervene in the area between macro level approaches (central government policies and market signals) and micro level responses (individual consumer action). Their achievements stand as tangible evidence of areas of need which neither macro nor micro approaches have had the capacity to engage with. It can be re-emphasised here that none of the initiatives reported here was concerned solely with energy conservation, energy efficiency, or fuel consumption reduction. In each case, the concern for energy overlapped with other issues, such as tackling fuel poverty, creating employment, and enhancing the local economy. Sometimes energy acted as a catalyst,

enabling other issues to be pursued simultaneously which might otherwise not be being tackled. On other occasions the overlap between energy and other issues raised the political priority of energy issues. In pointing to scope for their greater effectiveness, the following conclusions can be drawn.

1. Notwithstanding differences in ideology and intended approach, some initiatives are more successful in obtaining the necessary funding than others. There may be a 'Lack of awareness' element that has hitherto prevented initiatives getting hold of as much resources as they might, and here individual initiatives might be able to learn from others.

2. The five initiatives reviewed in this paper represent a high proportion of the total number of local energy conservation initiatives in the UK; there is scope for replication elsewhere. Many cities have no initiatives at all, while others have very limited schemes (for example, draught stripping alone). None proclaims to be exclusive; their intrinsic differences allow for their experiences to be adapted to meet local physcal, social and environmenal circumstances.

3. Local authority support would seem to be a necessary ingredient for success, and the five initiatives reviewed showed various forms this could take. Financial stringencies facing local authorities should not be seen as an excuse for failing to embark on initiatives. The rewards of more pro-active stances exploiting the overlap between energy and other local and social objectives have been amply demonstrated.

4. The conjunction between energy and services, social welfare, and infrastructure bears witness to the importance of related initiatives in issues such as the alleviation of fuel poverty and hardship, the

improvement of employment prospects, the regeneration of the local economy, the protection of investment in the building stock, and the enhancement of local accountability and social equity. These are crucial concerns, which should be more fully addressed in the future. Energy issues are not merely matters of thermal efficiency, energy consumption, or even reduction in fuel consumption per se. As the evidence of Westgate Hill reveals - increased fuel consumption after the installation of a comprehensive heating and insulation package - we should be wary in a society where many have limited access to resources of focusing too fixedly on energy campaigns targeted solely on absolute reductions in consumption levels.

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REFERENCES

1. In late 1985, these five initiatives constituted the majority of the local energy conservation initiatives in the U.K. that went beyond simply being a local energy project. Replication of several approaches, the Hackney Cold War and the Energy Action City concept, in particular, have meant that since this time they have been joined by other such initiatives.

2. Two such frameworks have been B. Joerges and M. Olsen (1983) "The Process of Consumer Energy Conservation: A Conceprual Framework for Programme Analysis", CECP Technical Report Vol.1 Part 1, Internationales Institut fur Umwelt and Gesellschaft, Berlin and A. Woodward (1985) "Municipal Responses to the Energy Challenge: Community Innovation in Six Countries" in E. Monnier et al (1986) "Consumer Behaviour and Energy Policy",Praegar, New York. While both have been drawn upon in the development of this research programme, they have been found to be deficient for the purposes of this research. Jorges and Olsen predicated their work on the belief that "the goal of energy conservation is to reduce energy consumption from non-renewable resources " (op.cit. p7) - as will be seen this is not necessarily the underlying concern of the initiatives studied. Woodward only developed a partial framework focussing on the specific processes and actors involved in instigating change at the local level, rather than examining the wider implications of local energy strategies. Both attempts have suffered from the degree of generalisation required to enable international comparisons to be performed.

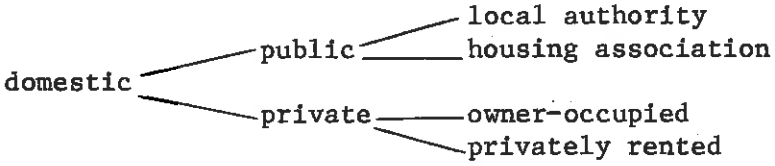
3. While both energy supply and energy demand are interrelated there is a tendency to treat them as independent variables. Energy policy in the U.K. has been criticised as being overly concerned with the supply side at the expense of foregoing cost effective investments in energy conservation, (e.g. Select Committee on Energy (1981) "The Government's Statement on the New Nuclear Power Programme", Session 1980-81, HC 114-i, HMSO, London; Select Committee on Energy (1982) "Energy Conservation In Buildings", Session 1981-82, HC401, HMSO, London; and Select Committee on Energy (1985) "The Energy Efficiency Office", Session 1984-85, HC87, HMSO, London). The emphasis within this research project has been on conservation initiatives, however the 'Coal Field Communities Campaign' with its aim to engender practical support for communities dependent on coal would represent an initiative orientated towards energy supply.

4. See e.g. F. Nectoux (1986) "Shut Them Down", Greenpeace, London which argues for the phasing out of U.K. nuclear power within four years.

5. At the International scale, both the 'Economic summit' of seven western industrialised nations and the EEC have issued proclamations to reduce energy consumption, particularly oil. Nationally, the U.K. has operated various conservation programmes, including the Public Sector Programme and the Homes Insulation Scheme, while the electricity and gas industries are organised on a regional basis. At the community scale, the EEO supports local energy projects which provide assistance to those on low incomes and pensioners.

6. Department of Energy (1986) Digest of U.K. Energy Statistics 1985, HMSO, London.

7. The domestic sector, for example, could be further disaggregated into public and private sectors, which in turn can be divided into local authority and housing association dwellings, and owner-occupied and privatly rented dwellings respectively.



8. It has been noted further that participation may also be differentiated according to mobilisation (concentration of power in a single direction) and decentralisation (dispersal of power in different directions). (J. Gyford 1985 "The Politics of Local Socialism", G Allen London.)

9. P. Stern and E. Aronson (1984) "Energy Use: The Human Dimension", W.H. Freeman, New York

10. J. Bradshaw and T. Harris (1983) "Energy and Social Policy", Routledge & Kegan Paul, London. Also, A Dilnot and J Helm (1987) "Energy Policy, Merit Goods and Social Security. Fiscal Studies, 8, 29-48.

11. Expanding the nuclear component of the electricity supply industry in the U.K. has been presented to the public as a strategy to reduce the over reliance, and thus the system vulnerability, of the industry to labour disruptions in the coal industry; D. Simpson and J. Walker (1987) 'Extending Cost Benefit Analysis for Energy Investment Choices', "Energy Policy", Vol. 15, No. 3., pp217-227.

12. P. Chapman and Roberts (1982) "Metals and Energy Resources", Butterworths, London

13. T. O'Riordan (1982) "Environmentalism", 2nd edition, Pion, London and S. Cotgrove (1982) "Catastrophe or Cornucopia", Wiley, Chichester

14. F.Sandbach (1980) "Environment, Ideology and Policy", Basil Blackwell, London

15. N. Lawson (1982) "A Statement on Energy Policy", Energy Paper No.51, HMSO, London

16. A. Scott(1985) "Economic Efficiency in Energy Use", in R. Belgrave and M. Cornell (1985) "Energy Self-Sufficiency for the U.K.?", Gower, London

17. D. Newbury (1985) makes the case for short run marginal costing in "Pricing Policy" in R. Belgrave and M Cornell op. cit. 16

18. Areas of Priority Treatment are areas designated by Strathclyde Regional Council, using indicators derived from the 1981 Census Data, as suffering from the characteristics of multiple deprivation.

19. Much of HWG's operating area consists of tenement blocks and multi-storey high rises, thus there are many fewer lofts to insulate compared to the number of dwellings to draught-proof.

20. In HWG's Annual Report 1985-86, for example, it states that "claims on behalf of tenants for heating additions alone have totalled £100,000 a year" HWG (1986) "Annual Report 1985-86", Heatwise

Glasgow, Glasgow, p8.

21. Heatwise Glasgow (1986) Coming in From the Cold, submission to the Glasgow Energy Inquiry, Heatwise Glasgow, Glasgow.

22. As defined by Section 11 of the Housing (Scotland) Act 1974, HMSO, London

23. R. Grieve et al (1986) Inquiry into Housing in Glasgow, Glasgow District Council, Glasgow, p. 23.

24. R. Grieve et al, op. cit. 23, estimated Glasgow's public sector capital requirements to be £200 million per annum over the next 10 years. In 1986/7 Glasgow District Council's actual capital housing allocation was £65 million.

25. Neighbourhood Energy Action (1985) "Coming in from the Cold", Neighbourhood Energy Action, Newcastle

26. Although over a two year period the total number of dwellings improved would be the same as previous arrangements, the number of tenants benefitting from some improvement in any one year would be greater than before.

27. The capital cost of the heating system is paid by a third party, and leased to the local authority for a specified number of years, usually 5 to 10, after which ownership reverts to the local authority. Such a procedure allows the local authority to pay for the heating systems through their current expenditure account and thus avoid the DOE imposed limits on capital expenditure.

28. B. Sheldrick (1987) Hard-to-Heat Estates: Evaluating the Benefits of Heating and Insulation Improvements, Energy Policy, Vol 15, No.2, pp.145-157.

29. Electricity Council (1986) The DEN3 Solution, Electricity Council, London.

30. GLC (1984) Jobs for Change Newsletter, quoted in J Gyford (1985) op. cit. 8, p87.

31. Federation of Lewisham Tenants and Residents Association published the Heating Charter in their newsletter, The Tenant, Oct. 1985, p1.

32. The case load was so great the LEP prepared a proposal for Lewisham Borough Council to employ 6 people specifically to deal with such work. A revised strategy to employ two people had not been acted upon as of Aug. 1987.

33. London Energy and Employment Network (1985) "Development Plan 1985-86", LEEN, London.

34. House of Commons (1985) "Hansard Debates", 20/11/85, Vol.87, Col.232wa, HMSO, London

35. Although council approval was given in 1985 to establish a full-time energy co-ordinator post within the authority, the council has not yet (at the time of writing) attempted to fill it.

36. The direct involvement of the Deputy Leader ended with him becoming the 'Leader of the Council', assuming the additional responsibilities of the higher office.

37. The uniqueness of Cardiff was in the application of such a designation across the whole city, rather than just focussing on specific districts within it.

38. A conscious decision of the CEA campaign was to keep the use of the word "energy" to a minimum, preferring to use terms considered less esoteric, such as "fuel bills" and "heating".

39. The £100 million figure excludes fuels consumed in transport.

40. See e.g. South Wales Echo "Cardiff Leads Fight on Fuel Bills", 23 September 1987, p1; Energy Management (1986) "Cardiff Campaign Boost Energy Awareness" Focus, No 8, Energy Efficiency Office, London, pp27-31

41. Funding the cost of monitoring has been the standard practice for energy efficiency demonstration projects, while the costs of an aerial survey and a marketing campaign are being offered by the EEO to local authorities following the CEA approach.

42. Energy Management (1986) "Cardiff Campaign Boosts Energy Awareness", Focus, No 8, EEO, London, p 27.

43. Energy Efficiency Office (1986) "Local Energy Action", EEO, London

44. This is possibly attributable to CEA overlapping with 1986 as 'Energy Efficiency Year' and the EEO's related national Monergy campaign, with sponsors preferring to opt for a national rather than local audience.

45. S.M. Macgill and B. Sheldrick 'Monergy: Qualifying Imperfect Indicators of Need and of Performance', forthcoming in "Government and Policy"

46. In focussing only on the Priority Ranked Assessment programme Newcastle City Council may be compared unfavourably with the other initiatives as the council has been the catalyst and facilitator, if not the instigator, of a wide array of energy conservation initiatives targeted on other sectors and types of consumption, utilising a variety of methods, with individual, regional and national, as well as local, implications (see B. Sheldrick (1986) Local Authority Involvement with Energy Conservation in the U.K., unpublished PhD dissertation, University of Leeds.

47. Greater London Council (1984) "The Greater London Development Plan: As proposed to be altered", GLC, London; R. Edwards (1986) "Still Out In the Cold", Charter for Energy Efficiency, London.

48. HWG offers both a welfare benefit and heating advice service on an individual basis. However the overwhelming demand from individual clients has been for welfare benefit advice only.

49. The transport sector, where such regulations could be implemented and have an impact, is excluded here as none of these particular initiatives have targeted that sector.

50. S. Hodgkinson (1986) "Policies for Warmth: Guidelines for Local Authorities", London Energy and Employment Network, London;
PLANCO (1986) "Local Authorities and Energy Planning", Centre for Local Economic Strategies, Manchester;
Energy Efficiency Office (1986) "Local Energy Action", EEO, London.

51. This indirect involvement is not confined to local energy initiatives but would occur for any project submitted under these two programmes.

52. A. Henney (1987) "Privatise Electricity", Centre for Policy Studies, No 83, London.

53. North East Electricity Board (1986) "Solving Problems in High Rise Flats", North Tyne District, NEEB, Newcastle.
Electricity Council (1986) "The DEN3 Solution", Electricity Council, London.

54. B. Sheldrick (1985), "Hard to Heat Estates: Policy and Practice", WP DHSS/267/BS.10/85, Social Policy Research Unit, University of York, York.

55. Central government determines the capital expenditure limits for each local authority and, for specified authorities, can prescribe limits on the revenue raised for expenditure on their current accounts - both Hackney and Newcastle councils have been rate capped.

56. Energy Efficiency Office (1985) "Guidelines for Local Authority Shared Savings on Energy Performance", EEO, London;
C. Wolmar (1987) "Council Big Spenders Bend Rule For Homes", London Daily News 18/3/87 p 10.

57. This law only affected financial agreements entered into after 1.4.87 allowing for authorities to arrange long term agreements before this date (see C. Wolmar (1987) op.cit.57). Hackney council has entered into a financial agreement to enable it to install central heating in 10,000 council dwellings between 1987 and 1992.

58. Such funding was extended by London Borough of Lewisham to all GLC funded intiatives for a three month period after April 1986: LEP has since ceased to operate.

59. DHSS Single Payments accounted for only 37% of HWG's material costs and 8% of its total costs in 1985/86 (HWG 1986, op. cit.20), and an estimated 31% and 13% respectively in 1986/87.

60. Newcastle City Council operates a 'bypass programme' to upgrade the heating and insulation characteristics of dwellings where tenants originally chose not to be included in the scheme but later changed their mind.

61. South Wales Echo (1985) "City Leads Campaign on Energy", 21/10/87, Cardiff Energy City Supplement, p1

62. World Commission on Environment and Development (1987) "Our Common Future", Oxford University Press, Oxford; J. Weston (1986) Red and Green", Pluto Press, London

63. J. Bradshaw, S. Hutton, L. Warren and B. Sheldrick (1986) Assessing the productivity of local energy conservation projects, WP 307, Social Policy Research Unit, University of York.

TABLE 1 THE CHECKLIST

ORIENTATION

FOCUS
supply
demand

FUEL
all
coal
gas
oil
electricity
nuclear
renewables

SCALE
international
national
regional
local
individual

CONSUMPTION TARGET
space heating
water heating
lighting
motive power
transport
process heat

APPROACH
information
advice
education
marketing
incentives
intervention
regulation
pricing

INSTITUTIONAL CONTEXT

PARTICIPANTS
local government
central government
community groups
utilities
consultants
academia
trade unions
industry
individuals

FINANCING
source
independence
flexibility

COMMUNITY INVOLVEMENT
passive
consultation
participation

ENERGY CONCEPTUALISATION

COMMODITY

SOCIAL NECESSITY

ECOLOGICAL RESOURCE

STRATEGIC MATERIAL

THEORETICAL ENTITY

Table 2 Conceptualisations of 'energy'

	DISCIPLINARY PERSPECTIVE	CONCERNS	UNITS AND MEASUREMENTS	ADVOCATES
THEORETICAL	physics chemistry	entropy laws of thermodynamics energy theory of value	joules watts	physicists chemists
COMMODITY	economics	paybacks cost effectiveness internal rates of return	GDP £	Department of Energy Treasury
SOCIAL NECESSITY	social policy politics	fuel poverty	disconnections thermal comfort equity	Neighbourhood Energy Action National Right to Fuel Campaign
ECOLOGICAL RESOURCE	environmental sciences human ecology	global survival pollution resource exhaustion	depletion rates	Friends of the Earth Greenpeace
STRATEGIC MATERIAL	geo-politics peace studies	self-sufficiency national security sovereignty	ownership	defence strategists

TABLE 3

Newcastle City Council's Heating and Insulation Programme: 1979 - 1988

YEAR	NUMBER OF UNITS	COST (£,000's)
1979/80	700	840
1980/81	500	606
1981/82	800	628
1983/84	1,600	1,800
1984/85	2,500	3,000
1985/86	2,400	4,400
1986/87	3,800	7,188
1987/88	2,400 (p)	4,836 (p)

(p) provisional

The original intention was to improve over a ten year period the estimated 20,000 dwellings suffering from condensation and mould growth, i.e., about 2,000 units per year.

(Table compiled from information provided by Newcastle City Council's Housing Action Team.)

TABLE 4: THE HACKNEY RIGHT TO WARMTH CHARTER

STATEMENT	INITIATIVES	PARTICIPANTS	FUNDING SOURCE	PROGRESS
1. To initiate an immediate programme of measures which will help people keep warm in winter.	Coldline	Pensioners Link Housing Dept.	Inner City Partnership (I.C.P.)	operated from 1984 to 1987
	Draught-proofing	Housing Dept. Direct Labour Organisation	Housing Investment Programme (H.I.P.)	undertaken but not on systematic basis
2. To initiate with other interested parties a campaign to make people aware of such benefits that exist and to provide proper information on those benefits.	Heating Advice Project	London Energy & Employment Network (LEEN) Housing Dept. Social Services	I.C.P.	operated since 1985
3. To participate, in full consultation with tenants and other groups in a campaign to establish a proper fuel benefit based on the real cost of keeping warm.	Cost of Warmth Index study	National Right to Fuel Campaign	Charitable Trusts	nothing particular in Hackney
4. That surveys of Council property take proper note of their ability to keep warm and make recommendations accordingly.	energy audits	Tenants Energy Advice Service	I.C.P.	3 estates surveyed
	install micro-computers in local housing offices	Housing Dept.	H.I.P.	not installed
5. That new build and rehabilitation schemes take full account of the long term running costs of heating systems and that consultation takes place with tenants and other groups.	computer aided design	Architects Dept.	I.C.P.	computers bought but not in use
	develop a heat standard	Architects Dept.	-	not developed
6. To investigate fully alternative and supplementary forms of insulation and heating to reduce the cost of keeping warm and to act promptly on those investigations.	Heatplanner model	Earth Resources Research	I.C.P.	model data-base being compiled
	investigate CHP/DH	joint study with other London Boroughs		ongoing but has lost impetus since GLC abolished
	active solar	Housing Dept. Architects Dept.	H.I.P.	Lea View estate but would have happened anyway
	passive solar	Housing Dept. Architects Dept.		not progressed
7. To make all staff aware of their energy conservation responsibilities and to provide training where necessary.	training courses	Housing Dept. LEEN	I.C.P.	courses on awareness for housing staff & on condensation
8. To pressurise statutory undertakers such as London Electricity Board and North Thames Gas not to disconnect supply from those in debt.	discussions with fuel boards	fuel boards Social Services Dept. Housing Dept.	-	discussion but no change on existing Code of Practice
9. To discuss ways in which statutory undertakers can participate in insulation and efficiency measures in the borough.	discussions with fuel boards	fuel boards Housing Dept. Architects Dept.	-	although various packages developed by fuel boards none have been installed in Hackney.
10. To support initiatives which can bring additional public or private sector investment to bear on the problems of poor insulation and inefficient heating.	Tenants Heating & Insulation Service	Earth Resources Research LEEN Hackney Borough Council	I.C.P.	1986- 128 dwellings improved; 1987-1200 dwellings scheduled
	Hackney & Abbey National Joint Initiative	Hackney Borough Council Abbey National Building Society	-	ongoing discussions

TABLE 5: ORIENTATION OF VARIOUS ENERGY CONSERVATION INITIATIVES

		HWG	PRA	HCW	LEP	LEA
FOCUS	supply			x	x	
	demand	x	x	x	x	x
FUEL	all	x	x	x	x	x
	coal					
	gas					
	oil					
	electricity					
	nuclear					
	renewables					
SCALE	international					
	natioanl					
	regional					
	local	x	x	x	x	x
	individual	x	x	x	x	x
SECTOR	domestic	x	x	x	x	x
	industry					x
	commerce					x
	public administration					x
	transport					x
CONSUMPTION TARGET						
	space heating	x	x	x	x	x
	water heating	x	x	x	x	x
	lighting					x
	motive power					x
	transport					
	process heat					x
	CHP/DH					
APPROACH	information	x	x	x	x	x
	advice	x	x	x	x	x
	education			x	x	x
	marketing					x
	incentives	x	x	x		x
	intervention	x	x	x	x	x
	regulation					
	pricing					

TABLE 6 INSTITUTIONAL CONTEXT OF LOCAL ENERGY CONSERVATION INITIATIVES

	HWG	PRA	HCW	LEP	CEA
PARTICIPANTS					
local government	x	x	x	x	x
central government	x		x		x
community groups	x	x	x	x	x
utilities		x	x		x
consultants			x		x
academia	x		x		x
trade unions	x				
industry					x
individuals			x		x
FINANCING					
source	diverse	HIP	diverse	GLC	diverse
independence	No	quasi	quasi	No	varied
flexibility	Some	Yes	Some	No	Varied
COMMUNITY INVOLVEMENT					
passive	x	x	x	x	x
consultation	x	x	x	x	x
participation	x				

TABLE 7 SOURCES OF FINANCE

	HWG	PRA	HCW	LEP	CEA
Local authority: revenue	x		x	x	x
Local authority: capital	x	x	x		
Inner City Partnership			x		
MSC Community Programme	x				x
Homes Insulation Scheme	x		x		x
DHSS Single Payments	x				x
EEC	x				
DEn	x				x
Housing Association	x				
Third Party Financing (leasing)		x	x		
Sponsorship					x
Marketing					x

TABLE 8 OBJECTIVES IDENTIFIED BY THE VARIOUS ENERGY CONSERVATION INITIATIVES

OBJECTIVES	HWG	PRA	HCW	LEP	CEA
tackle fuel poverty	x	x	x	x	
enhance local economy			x		x
protect investment in dwelling stock		x			
design a community energy plan				x	
improve employment prospects	x				x
reduce fuel expenditure					x
increase energy efficiency					x
involve community participation	x			x	

Figure 1 Operating areas of Heatwise Glasgow

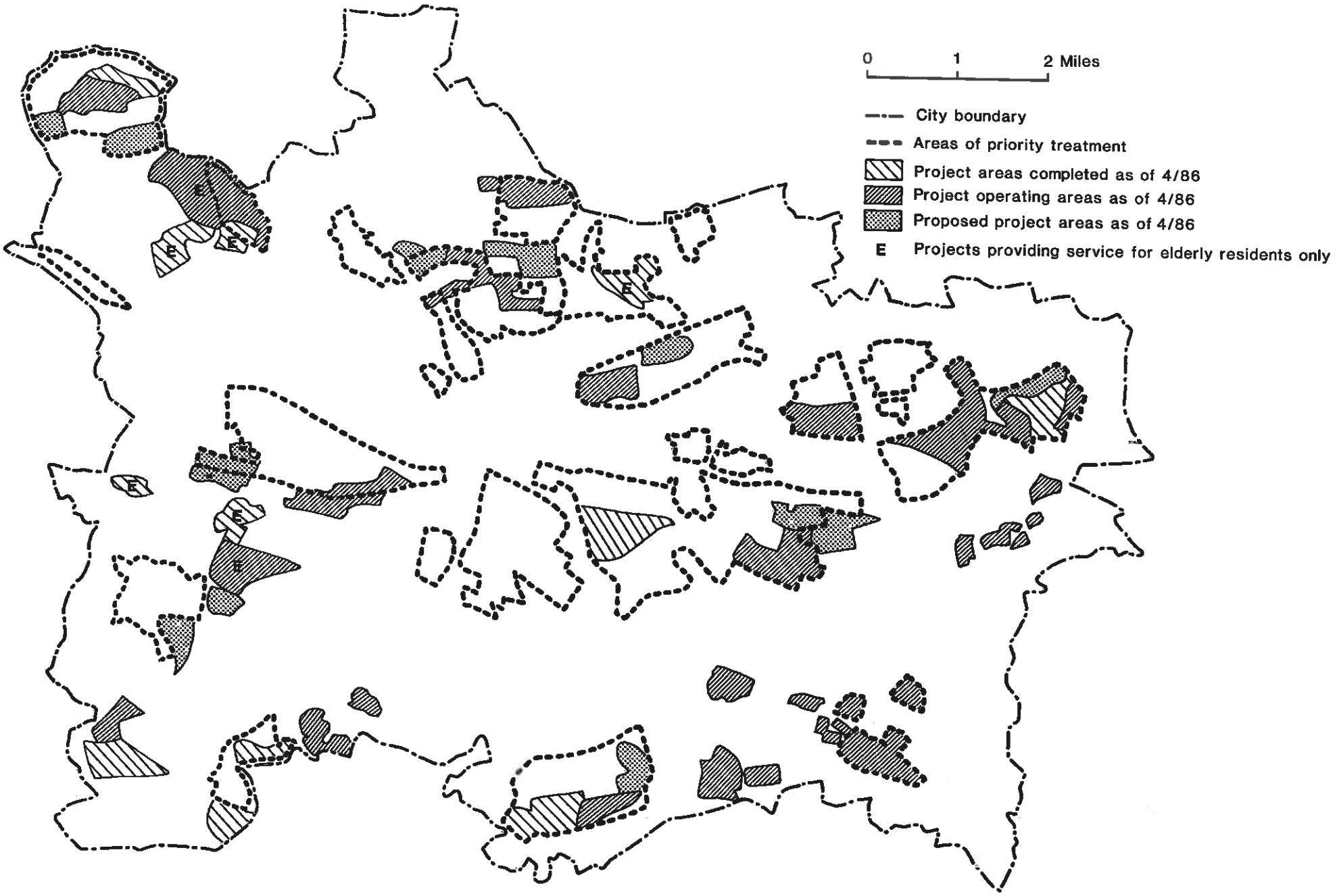


Figure 2 Areas covered by Newcastle's insulation and heating programme

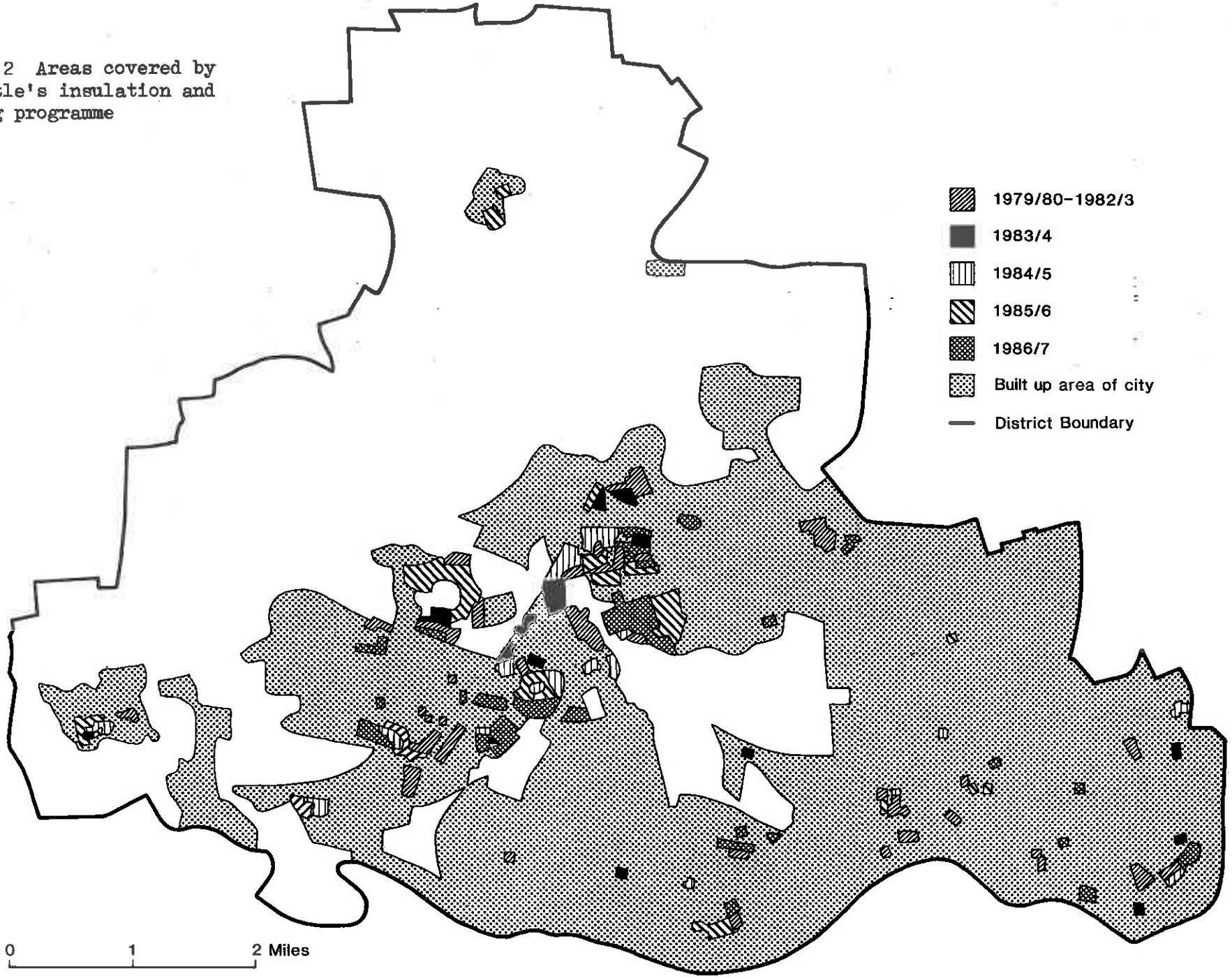


Figure 3 Greater London and the London Boroughs of Lewisham and Hackney

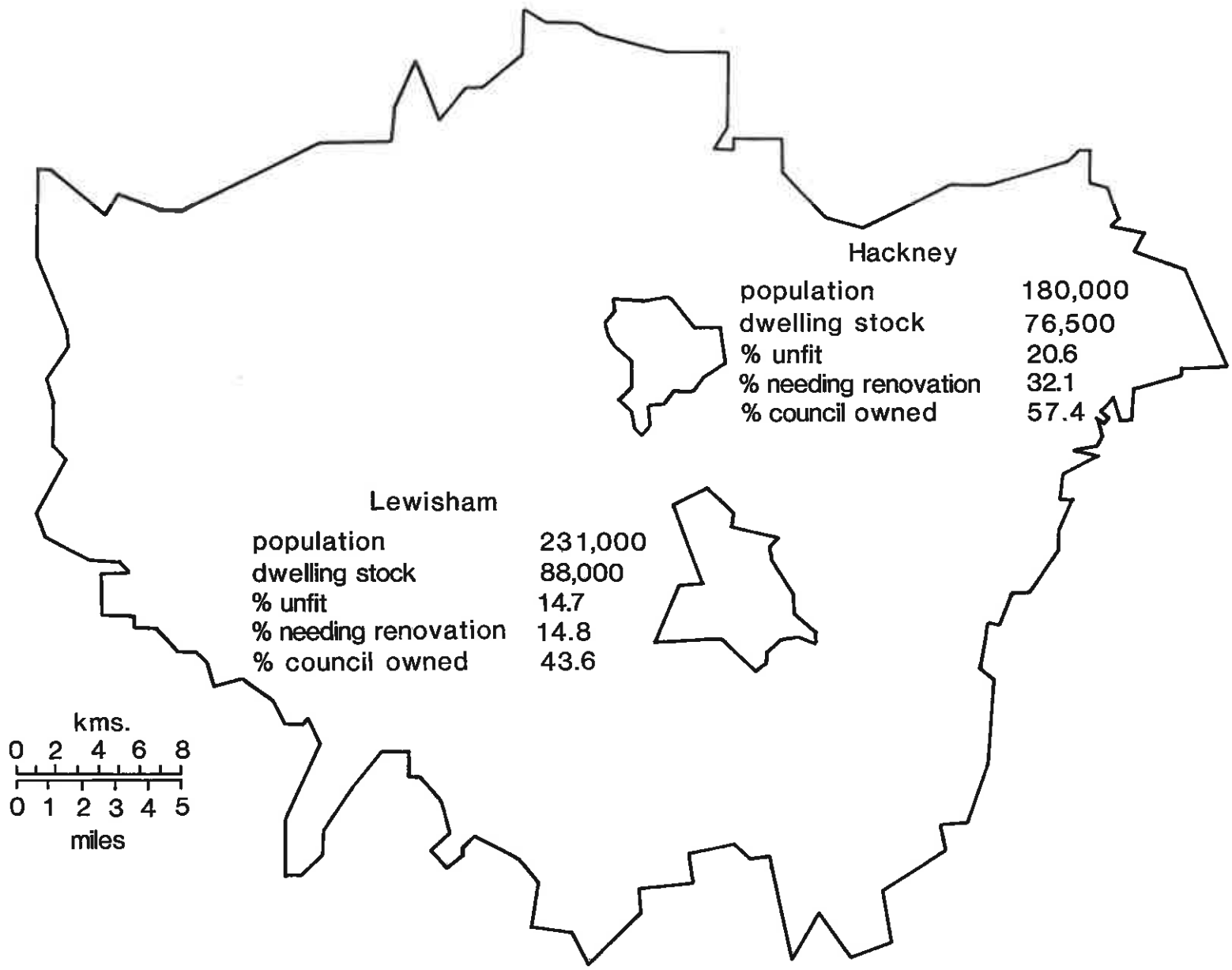


Fig 4a Applications and payments under the Home Insulation Scheme in Cardiff: Monthly - 1978 to 1987

	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1978-87
Total applications	2822	2508	2770	3470	3806	4030	3252	5316	3883	31657
Total payments	875	2438	2173	3184	2400	2377	2452	3103	2626	21628

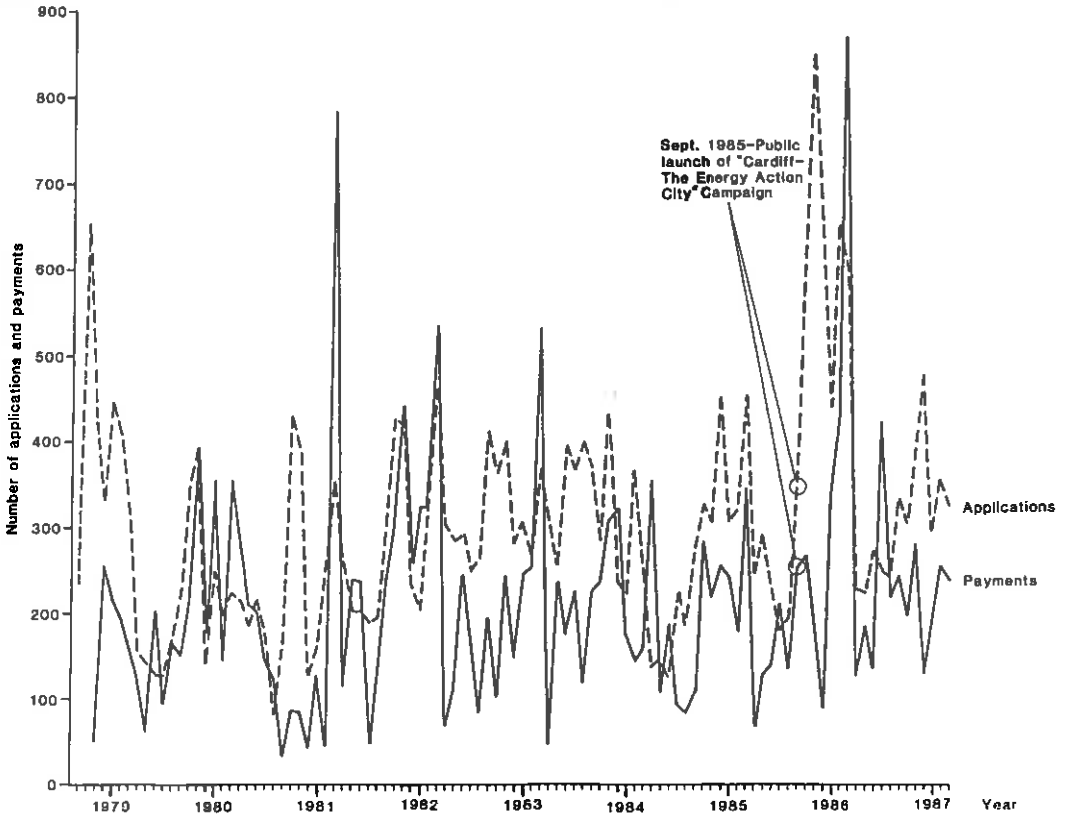


Fig 4b Applications and payments under the Home Insulation Scheme in Cardiff : Twelve Monthly Time Series 1978 to 1987