THE ENERGY DESIGN ADVICE SCHEME - ENLARGING THE ROLE OF THE PROFESSION

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The Energy Design Advice Scheme – EDAS – was established by the Department of Trade and Industry to encourage the application and exploitation of R&D results in building design, especially at the early stages. Eligible building projects brought to EDAS receive an initial one-day consultancy paid for by the Scheme. This is provided by one of the Scheme's four Regional Centres, and sets out cost effective technical options based on current best practice. Where appropriate, more detailed advice is provided by consultants registered with the Centres; these latter detailed consultations may attract a partial subsidy from the Scheme.

Each Regional Centre acts as a local focus, providing a library of technical information and maintaining a register of consultants, about half of whom are building services engineers. They have acquired the expertise and experience necessary to assess the environmental performance of alternative options. EDAS has created a market in which they contribute strategic energy design advice at the feasibility and sketch plan stages of building projects, the the impacts of which include reduced running costs for buildings and improved occupant comfort. This paper reports on the nature and size of this market, and discusses the changes necessary for the Scheme to continue as a service in the private sector.

INTRODUCTION

Since the launching of the Department of Trade and Industry's Energy Design Advice Scheme (EDAS) in 1992, and the subsequent opening of four Regional Centres, EDAS has successfully established itself as an advice scheme. Its aims are to improve the energy and environmental performance of the building stock by making low energy building design expertise more accessible. One-day *initial consultations* are available to building procurers and their design teams paid for by the Scheme, subject to some simple eligibility criteria. In appropriate cases more detailed advice through *further consultations* may be obtained from consultants registered with the Scheme. The background to the Scheme, and its progress in giving advice to designers, have been reported regularly to the professions and beyond, both nationally and internationally[1-5].

ACHIEVEMENTS

By the end of 1995 EDAS had carried out over 1000 initial consultations. From among these, more than 250 had developed into further consultations. The most frequent customers were architects, local authorities and building services engineers, but many other public and private sector organisations have also consulted EDAS including housing associations and developers (table 1).

Customer type	**Initial consultations**	**Further consultations**
Architects	327	42
Local Authority	146	51
Building Services Engineer	129	51
Other	429	119
TOTAL	1022	263

Table 1 The main customer types

Building projects commissioned by a wide range of clients - from both the public and private sectors - have been the subject of advice (table 2).

Building procurer	Initial consultations	Further consultations
Commercial owner occupier	223	58
Local Authority	200	49
Public organisation	146	51
Developer	88	22
Housing association	81	16
Other	284	67
TOTAL	1022	263

Table 2 The main building procurers

Housing and offices are the most numerous building types to be brought to EDAS, but many other building types are also represented, including schools, higher education, health care, sports and leisure, factories and warehouses, hotels, libraries, museums, and galleries. The value of these building project ranges from less than £250,000 to over £5m. A surprisingly large number of customers (85) with projects under £250,000 have paid to receive detailed advice through further consultations (table 3).

Value of building project	Initial consultations	Further consultations
less that £250,000	261	85
£250,000 to £1m	268	75
£1m to £5m	277	59
over £5m	130	31

Table 3 The value of building projects, where known

The Scheme has attracted over 400 new build projects and over 300 refurbishments, with the remainder made up largely of remedial works to buildings in use (table 4).

Type of project	Initial consultations	Further consultations
new build	420	90
refurbishment	344	110
other (remedial works, etc)	258	63
TOTAL	1022	263

Table 4 Type of project

The Scheme is successfully targeting consultations at the early stages of advice when strategic decisions – which have the greatest impact on energy consumption – are made (table 5).

Stage of design process	Initial consultations	Further consultations
Inception and feasibility	467	121
Sketch Scheme	279	50
Production drawings	90	20
Site operations	16	5
Building in use	96	55
Other or not known	89	12
TOTAL	1022	263

Table 5 Stage of the design process

A wide spread of advice has been given in consultations. The six main areas are:

- fabric measures
- heating and hot water systems
- ventilation
- fenestration
- controls
- artificial lighting.

Estimates are prepared by each of the regional centres (and/or their registered consultants) of the possible annual energy savings over and above current norms that are *identified* during each consultation. By the end of 1995, the total identified savings were running at £6.0m per year for initial consultations plus £3.2m for further

consultations, totalling £9.2m per year. However, it is only to be expected that not all the advice is accepted by the recipient, nor is all of it acted upon. Feedback questionnaires are sent to all the Scheme's customers, and ask them about the extent to which they implement the advice they receive. The identified savings are modified to take account of the extent of *implementation*. This reduces potential annual savings to £3.1m for initial consultations and £2.3m for further consultations. The total potential annual savings arising from the Scheme are therefore estimated, currently, at £5.3m. This averages over £5000 per consultation, although the potential savings in individual consultations vary widely depending on the nature and scale of the project.

Beyond the savings identified within each consultation, it is believed that the advice received by the Scheme's customers is incorporated by them in future designs. This is more difficult to quantify, but it could double the effective benefit.

The feedback questionnaires also ask customers about their level of satisfaction with the service they receive and, with very few exceptions, the Scheme is highly rated by those who use it.

THE FUTURE OF THE SCHEME

Through a concerted information and publicity campaign, EDAS has generated a demand from building clients for energy advice. It meets this demand through its Centres, each of which acts as a regional focus and centre of expertise and information. Each Centre also maintains a register of consultants who have developed capabilities and skills, and acquired appropriate tools and techniques, to provide strategic building design advice. Approximately half of these consultants are building services engineers. They are becoming increasingly capable of assessing the expected building performance of alternative options, and therefore of contributing to the design of buildings at the feasibility and sketch plan stages.

At the commencement of EDAS, target numbers of consultations were established for each of the centres, depending on their regional coverage. These, as well as targets for energy savings, have been largely met. It was anticipated that, having had pump-priming government funding, EDAS would demonstrate to its customers the benefits of energy efficient design and lead them to value such advice; in turn this would encourage them continue to seek such advice when the pump-priming funding decreased and then finally ceased.

In order to test this assumption, a market assessment was carried out to establish how the Scheme might continue beyond the period of DTI funding, which will end in February 1998. The assessment was undertaken by interviewing representatives of each of the regional centres, a selection of nine of their registered consultants, and a sample of 26 customers. These three groups were considered to be the best informed about the market for energy design advice, and best placed to provide a realistic assessment of the Scheme's likely future.

The views of the Regional Centres

The Regional Centres believe there is a continuing need for EDAS, to provide co-ordinated dissemination of government funded information offering project-specific advice from single points of contact. They believe the free initial consultations are vital to promote energy efficiency to those customers who are uncommitted to it, and in a way which does not threaten professional self-esteem. They are not yet fully confident that the market is mature enough for customers to pay for advice at market rates. They have begun to explore their future options, but are concerned that commercial sponsorship would result in a loss of independence. Neither,on the whole, do they wish to become commercial consultancies carrying out further consultations at market rates in order to provide some level of free consultancy. This would modify their present aim of promoting government funded energy information and they would be competing with consultants who are at present on their registers and carry out further consultations on their behalf. Centres which have thought these issues through recognise that the Scheme needs to be funded in a way that enables them to retain their independence.

The views of the Registered Consultants

Building services engineers often complain of being commissioned too late in the design process when they can, at best, only ameliorate the worst features of a design to make it habitable. EDAS has demonstrated the potential benefits of early consultation with engineers. It has presented them with the opportunity to extend their

engineering skills at the early stages of design and thereby it has helped to create a market in which they play an enlarged strategic role in building design.

As a result of the setting up of the Scheme several engineering consultancies have acquired tools and skills to offer strategic energy design advice. They are using these tools largely to deliver energy efficiency through climate-sensitive design. They are seeking to encourage buildings which use natural ventilation instead of mechanical, limit peak temperatures using thermal mass, and/or exploit daylight while avoiding the risks of glare and overheating. These and other measures help to lower capital and running costs by reducing the need for mechanical plant and services and, in some projects, lead to improved occupant comfort.

The Scheme currently has 219 consultants registered across the four regional centres. A breakdown by profession is shown in table 6, from which it can be seen that almost half are engineers.

Type of organisation	**Number registered**
Architects	25
Engineering consultancies	102
Computer modelling consultancies	8
Energy and environmental consultants	52
Quantity surveying and project management consultants	13
Research and development organisations	9
Other	10
TOTAL	219

Table 6 Type of consultants registered with EDAS

Registered Consultants report that some of their clients are willing to pay the full commercial cost of obtaining advice. Some are positive about maintaining an association with recognised 'centres of excellence', which they consider may assist them in networking with new contacts.

The views of customers

Customers who have had an *initial consultation* believe that EDAS continues to serve a useful function, particularly because its government backing implies independent and unbiased advice, untainted by commercial considerations. Customers say they still need energy design advice on new projects, and their awareness of alternative sources of advice is low. The advice they receive from EDAS is seen as irreplaceable - not just because it is independent and authoritative, but because it is also project specific and provides in-depth answers unavailable elsewhere. Several say without EDAS there would be no-one to turn to. Customers who have had a *further consultation* also agree that EDAS continues to play a useful function

CONCLUSIONS

In funding EDAS, the DTI recognised that the capability to offer strategic energy design advice was not then owned by many design practices. EDAS was funded to provide initial consultations at Regional Centres and disseminate government funded research results. A further consultation subsidy was made available to help establish organisations capable of offering in-depth energy design advice. EDAS successfully stimulated the market for design advice, and has provided it to over 1000 projects since 1992. A number of engineers (and others) have responded to the opportunity presented to them by acquiring new tools and knowledge, and some consultancies have been established specialising in strategic energy design advice.

Although there is a continuing demand for energy advice and some customers report they are willing to pay for it, the market for these services is not yet fully developed. However, some better-established consultancies have an existing customer base for energy advice on which to rely independently of EDAS. Those consultancies which have built on the opportunity – presented by the pump-priming funding for EDAS – to invest in new tools and knowledge-bases to enlarge their role and provide strategic design advice at the inception and feasibility stages of projects, will have to market their services vigorously if they are to continue to grow and prosper.

As for the Centres, major transitions will be necessary. Centres are already beginning to consider alternative frameworks. Changes will need to be carried out in such a way as to retain what customers perceive as the major advantages of EDAS, that it:

- dispenses authoritative in-depth project-specific advice based on the co-ordinated dissemination of government funded energy research
- is independent of commercial interests and is therefore impartial.

Government funding implies government backing, and is a primary reason why customers use the scheme. Future arrangements will have to build on this and other substantial advantages of the present scheme. These have helped to ensure its success in attracting customers who have benefitted from energy efficient buildings, and in turn have helped the UK to meet its global commitments to reduce carbon dioxide emissions.

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