



Project  
Promotion of efficient heat pumps for heating  
( ProHeatPump)

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**Short report and proposal of policy interventions**



Work Package 4  
Policy context and measures

**Intelligent Energy**  **Europe**

Author: Stewart Russel

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## Introduction

### 1.1 Aims and scope

- 1.1.1 It is intended that these recommendations be discussed at policy roundtables in 2009 in the UK, in interviews, and in other forums, so that they can be refined in the light of feedback.
- 1.1.2 We have drawn on a variety of sources and inspiration for the discussion here and the recommendations:
- our analysis of the UK GSHP industry, market and governance;
  - our interviews with GSHP and related personnel;
  - the experience of other countries, especially as analysed by PHP partners;
  - issues that national and European organisations have already discussed and recommendations they have made.
- 1.1.3 We have tried wherever possible
- to justify the measures;
  - to target the recommended interventions to particular organisations and make them appropriate to their roles;
  - to provide realistic measures and not to suggest actions we do not think are likely to be implemented or tasks that are unreasonable to achieve;
  - in choosing among alternative measures, to take into account general arguments about their relative efficacy and their acceptability to different parties.
- 1.1.4 We shall attempt further as we receive responses to these recommendations
- to make the measures more specific and precise;
  - to identify requirements of these interventions;
  - to suggest a timeframe on which the measures should be pursued;
  - to suggest means or criteria for judging the success of the actions;
  - to anticipate problems that may be encountered, such as resistance from particular interests or inadequate information;
  - to identify interactions and dependences between recommended measures – for example, if a particular degree of success from one action is necessary for another, or if legislation is required to permit a specific action;
  - to identify national actions that require or would benefit from European intervention.
- 1.1.5 Some measures address changes on more general policy or practice that would benefit GSHPs. Here we are in effect adding the support of GSHP interests to more general calls for action on, say, housing energy performance. However, for these recommendations we also try to identify what action needs to be taken by HP interests to contribute to that wider effort.

- 1.1.6 The discussion attempts to acknowledge where there are differences of view on problems and alternative solutions, so that either specific measures can be justified against other options, or, where we are unable to resolve a debate, the question of which measure is most suitable can be left open. In some cases the recommendations are contingent on unpredictable events, and take the form: if these conditions occur, then this course of action is suggested.
- 1.1.7 This report recognises that many of the groups to which these recommendations are targeted are already putting much effort into encouraging the uptake of GSHPs, and have recognised many of the points we make here about the problems and their resolution. Nothing in this report is intended to imply that their efforts have been inadequate or misguided. It is hoped, however, that the perspective we have taken on the GSHP scene in the UK and Scotland, and the requirements we have identified, can provide some new impetus towards this goal.

## **2 Industry development and structure**

### **2.1 Industry structure and business models**

- 2.1.1 The structure and operation of the UK GSHP industry has been described in detail elsewhere. Its key features are:
- the availability of GSHP units from a wide range of UK and international manufacturers;
  - installation companies specialising in HPs – but increasingly offering choices or combinations of HPs and renewable technologies like solar water heating – and covering large areas of the UK, but only a few general HVAC and building services companies adding GSHPs to their repertoire;
  - two active industry associations, one representing mostly manufacturers and the other mostly installers.
- 2.1.2 Industry insiders and commentators still disagree about the likely and desirable course of development of the installation side of the industry as it expands. Some argue GSHPs will and should remain the domain of specialist installers, because of the complexity of the design and installation process. Others argue that the many local HVAC firms need to add GSHPs to their repertoire so that householders and businesses are offered a GSHP as a standard option wherever appropriate, rather than having to be aware of the existence of the option and having to seek out a specialist installer. There are lessons to be learned from the industry structures in countries with more developed HP markets. A strategy for the growth of the industry must acknowledge these different paths and the different ways of supporting their development, not least because the training requirements that they imply are clearly different [2.3], and because there are consequences too for the way that systems should be packaged and offered, and designs simplified [2.3.2].
- 2.1.3 We suggest that neither should be seen as the course to encourage exclusively, and that both developments are desirable. It is the latter, however, that promises the longer-term entrenchment of GSHPs and that requires the most active

encouragement and support, particularly by raising awareness of GSHPs among heating engineers, and by removing obstacles to their entry into the market.

- 2.1.4 It is clear that one of the key deterrents to would-be users is that when they make contact with the industry they are often not offered a complete service covering design, installation, sub-contracting, etc. and are faced effectively with having to manage the project, coordinate different parties and find out for themselves the range of requirements and pitfalls entailed in the installation. While the industry often claims to provide such a 'one-stop shop' at least anecdotal evidence indicates that this is not always the case. (A related deterrent, in part a consequence of this – that enquirers find it difficult to assess the total cost of the installation and are afraid of hidden and unexpected extra costs – is dealt with elsewhere.)

## **2.2 Relations between manufacturers and installers**

- 2.2.1 A variety of relations has developed between manufacturers and installers: installers may offer a single manufacturer's units or several; manufacturers may make their units freely available through distributors, or may attempt to restrict them to a list of approved installers, particularly those for which they have provided dedicated training. We see no need for intervention in these arrangements and their future development, unless a case emerges in which regulators discern anti-competitive practice of some sort.

## **2.3 Training and accreditation of installers**

- 2.3.1 There is clearly a need for a system for the training for installers that can manage a much greater throughput while assuring quality; and for an accreditation system that is integrated with it.

- 2.3.2 There are a number of unresolved basic issues, and differing views about the right course of action:

- how best to fit both a basic introduction to HPs and more specialised training into or onto the training and formal qualification structures of a number of occupations, and how to distribute and articulate the elements of training and accreditation among these levels;
- similarly how HP qualifications should relate to the accreditation schemes in other industries;
- who should provide training;
- what the programme should comprise;
- what level of training is appropriate.

Views on the last issue depend on different visions of the future of the system design process as the industry expands: whether the process remains highly complex and specialised, or can be simplified through codification of rules and calculation procedures – particularly for optimal sizing and groundloop layout – to give installers a limited number of configurations that perform adequately.

- 2.3.3 Among the difficulties that the industry faces is that

- it is building a system largely from scratch;

- there are still no readily available schemes and syllabuses that can be adopted without much modification;
- that careful structuring is needed, for example to balance the length and complexity of courses with their attractiveness;
- that small companies and individuals seeking to offer a choice of heating or microgeneration technologies are deterred by the need for multiple expensive qualifications.

2.3.4 We acknowledge that the GSHPA has been working productively on these and other issues through a Training Sub-committee and seeking to influence the schemes and regulations appropriately on behalf of the industry. It has been able to provide training developers with useful guidance.

2.3.5 Training is currently being provided by a range of interests:

- by manufacturers, understandably largely confined to their own products;
- by technical colleges, sometime supported by or in cooperation with specific manufacturers;
- by major installers for their own staff or on a commercial basis;
- informally to tradespeople by individual builders, architects and others.

2.3.6 Installers are currently either encouraged or required to get accreditation under a number of schemes:

- GSHPA Basic Installer Criteria;
- LCBP (formerly Clear Skies) and/or SCHRI
- MCS

though the requirements are increasingly being articulated and consolidated through MCS.

2.3.7 The relation of UK and Scottish training and accreditation to the developing European system, and particularly to the EU-CERT scheme which has emerged as the likely future standard, has to be resolved. Views vary as to the suitability of EU-CERT for UK conditions, with some commentators wishing to steer clear of it and other seeing consistency with the scheme as the only way forward. Clearly the relation has significant consequences for the mobility of installers in the European labour market and for the ability of firms to expand their operations into other countries. We do not offer a detailed resolution to this issue, but argue it must be discussed and resolved soon. We think it should be possible to design training that is consistent with the EU-CERT scheme and allows trainees to qualify under it. This may involve seeking modifications to the scheme through the EHPA and European authorities, and these should be worked out quickly while there are opportunities to shape the detailed form of the scheme.

## **2.4 Interventions in other industries and professions**

2.4.1 Introducing general awareness of HPs, and training in HP system design and specification, entails influencing the education and training of a number of professions and inserting HP elements into their syllabuses at undergraduate,

postgraduate and CPD levels: architects, engineers, energy consultants and managers.

- 2.4.2 Industry organisations should continue to look for opportunities to influence the training of such professionals both through initiatives with specific education providers, and through educational and professional bodies that influence or accredit curricula, such as the engineering and architecture institutions.
- 2.4.3 Interest in, and pressure towards, sustainability, energy efficiency and renewables is increasing in the construction and building services industries and their policy and regulatory environment. There is a growing range of new materials and technologies being offered individually, but the integration of these into building design and construction – to get optimal sizing of microgeneration, the combinations of technologies most appropriate to the site, building and user requirements, and to get the most cost-effective solutions – remain a problem. Architects, builders or project managers willing and able to take on this coordinated design role, sufficiently knowledgeable about the variety of technologies, and even sufficiently aware of their significance, are still relatively rare. The scope and responsibilities of each of these functions – and those of building services engineers and energy consultants – is often too tightly limited; the parts of the building process are often seen as separate and sequential, so that for example, the design of building services comes after that of the building envelope and is constrained by it; it is not clear who is responsible for integrated design; and the opportunities for design for optimal energy performance too often fall in the gaps.
- 2.4.4 This is obviously a problem concerning a much wider domain than just the GSHP industry, but it profoundly affects the level of uptake of GSHPs and may contribute to problems with the performance of particular installations and hence the reputation of the technology. The industry therefore has an interest in encouraging
- building professionals to learn more about energy issues and the new technologies;
  - dialogue among them and policy-makers about cooperation and more effective integration;
  - the emergence and recognition of a distinct role and capability for integrated design.

### **3 Information, education, publicity, marketing**

#### **3.1 Awareness-raising and education**

- 3.1.1 There is clearly still much to be done in raising awareness of heat pumps and their merits among the general public, businesses, public agencies and NGOs as energy consumers, in related industries and professions such as HVAC and architecture, in government and other national, regional and local agencies that influence decisions over energy and the built environment, and even in environmental campaigning groups. Many people are simply unaware of the existence of the option, and oversimplified information and invalid claims about heat pumps are still common [3.2], even in related industries and in policy circles.

### **3.2 Information and popular messages**

- 3.2.1 Generally we judge there is a wide enough range of appropriate material for people seeking basic information on GSHPs, or directed to it when seeking general information on energy saving, heating options or renewables. Aside from advertising material from the industry, much of the material is issued by bodies without a direct interest in the technology and likely to be seen as impartial.
- 3.2.2 There is a need to provide summary information on GSHPs to wider audiences and to translate detailed evaluations of GSHPs – particularly its energy efficiency and environmental advantages – into popular messages, especially to counter current dismissals of GSHPs as ‘electric heating’ and related claims that the option is not an effective means of reducing carbon emissions.
- 3.2.3 Many of the organisations providing information and advice on microgeneration and renewables are obliged to be technology-neutral or choose to remain disinterested towards the options while listing impartially their advantages and disadvantages. GSHP advocates cannot and should not seek to influence this stance other than through open debate. However they should monitor closely the material on GSHPs that these organisations issue and seek to change any misinformation, questionable comparisons or other statements that treat the option unfairly.

### **3.3 Information and advice sources and credibility**

- 3.3.1 There is strong demand from potential consumers for independent credible advice on the performance and economics of GSHPs, and scepticism about the information provided from interested sources. Information from manufacturers and installers is widely seen as indicating only theoretical or ideal performance, and consumers rightly assume that actual achievements will differ from this. While public agencies have produced evaluations of GSHPs alongside other microgeneration and heating options, their obligation to remain technology-neutral limits the extent to which they can highlight the advantages of GSHPs specifically. We have noted elsewhere that hardly any of the general publicity for GSHPs aimed at users and the wider public address these and the other key concerns that affect consumer confidence and act as deterrents to interested would-be users.
- 3.3.2 Industry associations and GSHP suppliers and installers should
- find, and highlight in their marketing and publicity material, statements and evaluations from independent sources;
  - encourage relevant independent organisations to undertake further evaluations, particularly based on in situ monitoring of installations [4.5]; and
  - cooperate with those efforts to the extent they can without compromising the independence of these evaluations.

### **3.4 Messages for marketing and publicity**

- 3.4.1 Comments and claims on GSHPs are made in a variety of public forums on energy and building issues: conferences, workshops and presentations; internet forums on energy; and media reports. Misinformation, adverse claims and dismissals

often go unchallenged. Industry associations, GSHP suppliers and installers, and other advocates need to intervene more regularly in such forums to present information and arguments and to respond to adverse claims.

3.4.2 We note that one supplier in the UK recently had complaints upheld over misleading claims in advertising. Industry associations and GSHP suppliers and installers must be careful

- not to overstate the performance or benefits of GSHPs;
- not to use ambiguous phrasing which can be interpreted as overstatement;
- to ensure that qualifications and conditions on claims are retained in publicity material.

### **3.5 Support for marketing and publicity**

3.5.1 At present the relatively small number of specialist HP installers do not have to undertake extensive marketing to sustain their orders, and indeed some are overwhelmed by enquiries. In future though, marketing practice and outlets will have to be evaluated more rigorously and best practice in marketing discussed and disseminated.

3.5.2 Those concerned with marketing in the industry associations need to consider means by which marketing experience can be shared and best practice disseminated. Individuals installers might be expected to be reluctant to discuss their marketing strategies with potential competitors, but at present to opposite seems to be the case: we were impressed by the willingness of established installers to pass on their experience in the marketing workshop at the *GSHP Scotland* event.

## **4 Standards and quality**

### **4.1 System and component performance standards and criteria**

4.1.1 Moves to unify the certification of heat pump and related equipment in the UK under the MCS are clearly important and beneficial, particularly for user and installer confidence. There remain concerns that the way this has been pursued – for example in the limited range of equipment mandated for the revised LCBP scheme – may create unfair advantage.

4.1.2 These moves however

- are first, in continued tension with a tendency to proliferate overlapping or competing certification and labelling schemes, especially where different industries and their regulators have overlapping jurisdictions and where there are multiple concerns and criteria, such as energy efficiency, carbon emissions, recyclability, or more general sustainability as represented by ‘ecolabels’;
- and second, do not yet sufficiently address the issue of consistency or harmonisation of certification across Europe.

### **4.2 Quality management for equipment, installation and service**

4.2.1 The certification schemes consolidated and rationalised in the MCS are advantageous for the growth of the industry and for consumer confidence in it.

- 4.2.2 There are still disputes within the industry and among experts over best practice in some detailed aspects of heat pump system design and installation – for example, over the best way to provide DHW in conjunction with a GSHP for low-temperature space heating. These create confusion among users seeking advice and trying to assess the offerings and claims of different manufacturers and installers.
- 4.2.3 It is certainly desirable to allow these arguments to play out in industry forums so that it becomes clearer which practices are most appropriate. To this end, the industry should facilitate greater dialogue with experts elsewhere in Europe through the EHPA, joint projects and other forums.
- 4.2.4 However, it is unlikely that consensus will be reached on all of them. Nor is it necessarily sensible to resolve these *a priori* through mandatory standards or even specific identification of best practice at a detailed technical level. Although the consequence is that some users may in the meantime be given systems that do not perform optimally and installers have to learn from their mistakes, it is probably better for the continued improvement of the technology to continue to allow differences of opinion and practice, and only seek to eliminate features and practices as a clear consensus emerges in the industry that they are inappropriate.

### **4.3 Sub-contracting**

- 4.3.1 Some installers and designers of GSHP systems have had problems ensuring the quality of sub-contracting work, particularly that of borehole drillers. This problem should diminish as installers develop relations with particular contractors and as more drillers gain experience with the specific requirements of drilling for GSHP groundloops. There is nonetheless a need for specific training and quality assurance mechanisms, particularly while this side of the industry matures, but for the longer term as well when there are more installers, and a greater variety of types of firm, in the market.

### **4.4 Categories, classifications and definitions**

- 4.4.1 The eventual classification by the European Union of HPs as renewable energy technologies is clearly a major gain for the industry. It should help the acceptance of the technology and its inclusion as a matter of course in discussions and policy proposals on renewables and their role. This formal acknowledgement will not of itself settle the issue, and there will continue to be assertions that HPs should not be included in this category. The industry should however invoke this decision and the rationale for it to ensure HPs are classified by UK authorities and treated in discussions at least as partly ‘renewable’, and to challenge opposing views.

### **4.5 Performance monitoring**

- 4.5.1 Would-be users clearly look for, and should have available, independent information on actual performance of installations. They are sceptical of claims from manufacturers and installers, particularly in the form of ideal COPs that they suspect will not be achieved. Clear and evidence-based statements of economic benefits and payback times are needed, and in publicity material figures for energy and financial savings would be better than vague claims for such.
- 4.5.2 We therefore commend recent moves by the EST to set up *in situ* performance evaluations, and the evaluation of microgeneration installations for low income

households in the Scottish fuel poverty pilot study. More such work will need to be done, and the industry has an interest in supporting this appropriately [3.3.2].

- 4.5.3 The industry as a whole should encourage and perhaps offer incentives to users to offer their installations for monitoring and evaluation exercises as well as to make them available for potential users to inspect [5.1.1].

## **5 Technical practice**

### **5.1 Case studies, demonstration installations, communities**

- 5.1.1 Potential users typically like to see operating installations and talk to users, and word-of-mouth is still an important means by which people find out about HPs. Potential users are willing to invest that time for such a large commitment, and are reassured by the experience. For as long as the technology is unfamiliar and not a standard option, and the residential market is dominated by self-builders or renovators who are enthusiastic about energy saving and environmental benefits, the industry should therefore try to facilitate such demonstrations and dialogue. Installers should encourage users, and perhaps give incentives to them where they might be reluctant, to act as ambassadors for the technology and to make their installations available not only for monitoring [4.5.3] but for potential users to inspect.

- 5.1.2 More generally, the relatively small number of early users could be encouraged to see themselves as pioneers and to form self-conscious 'communities of use' to share experiences. This suggestion comes from the lively interactions we have observed at public forums among current and would-be users.

### **5.2 Criteria and calculation techniques for economic and environmental assessment**

- 5.2.1 Aside from needing actual performance data to insert into arguments about HPs [4.5], there is a need to settle continuing disputes about how energy, economic and environmental benefits of alternative heating and cooling options should be calculated, and to find accepted methods for doing so. For example, claims for the carbon savings offered by HPs compared to other heating methods depend in detail on the way the carbon intensity of grid-provided electricity is assessed. It is also claimed that different options are being assessed unfairly – for example, by basing the performance of condensing gas boilers on hypothetical efficiencies in the absence of long-term experience. Particularly when measures are enshrined in standardised calculation methods, whether in SAPs or the many calculators offered for quick assessments, such calculations continue to be contentious and the resulting disputes a problem for consumer confidence and for policy makers and regulators.
- 5.2.2 These arguments need to be resolved both so that detailed calculations can be done routinely and on a consistent basis for users, for policy and regulatory purposes, and for publicity material, and so that acceptable summary statements of the benefits can be disseminated and damaging contrary views rebutted [3.2.1].

## **6 Market development**

### **6.1 System cost structures and component costs**

- 6.1.1 High capital costs, and resultant long pay-back times, are still a deterrent to HP installation and an obstacle to the growth of the market. This basic cost structure

cannot be overcome, but it could be improved marginally and addressed more effectively in financial support mechanisms.

- 6.1.2 It is unlikely given the volume of existing production in Europe that HP unit costs will decrease significantly, though being able to import them in larger numbers, and demand for multiple installations from collective customers like social housing providers, may lead to reductions.
- 6.1.3 Installation costs can be expected to decrease as the market grows and as more installers enter it. In particular costs could be brought down if installations were more concentrated; at present the scattered pattern of installations makes each more expensive, when installers have to cover large areas of the country and especially when drilling rigs have to be brought long distances for single boreholes.
- 6.1.4 We can see no acceptable way of prematurely inducing such concentration, except by encouraging developers of private and social housing estates to consider mass installations where dwellings are to be sold or let fully equipped.

## **6.2 Financial support mechanisms**

- 6.2.1 There are mixed views of the subsidy schemes that have operated so far, and differing interpretations of overseas experience of subsidies for HPs. Some commentators argue the UK systems so far have been confusing, opaque and inadequate in the amounts of money made available. There does seem to be a consensus that they have not in themselves had, and cannot have, a significant effect in building the market other than by encouraging early installations as demonstrations, and that they are not the ideal long-term solution for the imbalanced cost structure.
- 6.2.2 We support the suggestion from several quarters that future support mechanisms should include loans for householders and other users of small installations, and enhanced capital allowances for commercial installations. Applying such support in part retrospectively, and basing the amount on performance outcomes in terms say of actual energy savings, could help promote more realistic prior evaluations, better consideration of the effectiveness of HPs versus other options, and better quality installations.
- 6.2.3 CERT represents a large part of the funds that are being and will be directed towards energy efficiency and carbon emissions reduction. The explicit identification of GSHPs in CERT, and the inclusion of microgeneration in the strategies of energy companies for meeting their obligations, are clearly favourable for GSHPs. Given that much of the investment under CERT has to be directed towards low income households, the recent linking of microgeneration with the fuel poverty agenda reinforces that. All energy companies involved in CERT should be encouraged to plan ahead for microgeneration and specifically for HPs.
- 6.2.4 It would help to ensure that HPs are included in any future schemes for personal or institutional carbon or energy savings allowances – or the renewable component of their energy use in renewable obligations schemes that operate at the appropriate scale.

6.2.5 Current tax incentives that favour GSHPs – VAT of 5%, and reduced or zero stamp duty on zero-carbon homes – could be usefully be extended and strengthened.

### **6.3 Priority market segments**

6.3.1 Several of the recommendations here are influenced by the identification of key segments of the UK residential HP market: new large self-build by environmentally aware householders, social housing, and off-gas-grid properties. The industry should continue to consider how it can better communicate with and serve these segments, while looking to extend the market beyond them.

### **6.4 Energy prices and markets**

6.4.1 Rising gas and oil prices in the longer term will continue to favour HPs, but any intervention to manipulate those prices for the purposes of encouraging other heating options would not be acceptable and is unlikely to produce more than a marginal effect on consumer choice.

### **6.5 Government purchasing and public buildings**

6.5.1 Greater use of GSHPs in new and retrofitted public buildings – central and local government premises, schools, hospitals, community centres, etc. – could greatly stimulate the market, further development of the technology, and improvements in installation practice. This needs to be encouraged through all channels: particularly through architects, energy consultants and other service providers who regularly work on public buildings; through presentations to, and information targeted at, public agencies commissioning them; and by facilitating the sharing of experience among agencies. Considerable expertise has already built up within certain agencies, such that they have become advocates of HPs and offer advice or services to others.

### **6.6 Position of GSHPs in relation to other forms of heat pump**

6.6.1 Air-to-air heat pumps are predicted to become more popular, given their applicability to existing buildings with space constraints, and their lower capital costs. Many installers now offer both systems.

## **7 Governance**

### **7.1 Information on markets and performance**

7.1.1 There is still a dearth of precise information on the number of installations in the UK. We understand that the GSHPA is working with the Heating and Hot Water Industry Council (HHIC) to produce more reliable figures.

### **7.2 Building standards, codes, regulations**

7.2.1 Up to a point – that is, until new buildings meet *Passivhaus* standards and the requirement for additional heating is minimal – any measure that enforces more energy efficient buildings benefits the HP market by improving the economics of installations. Recent and planned increases in insulation standards will therefore have helped indirectly. A move towards mandatory contributions from renewable sources, as embodied in the Merton initiative, can be of more direct benefit to the industry. GSHP advocates must ensure that HPs are defined locally as at least

partly reliant on renewable sources [4.4.1] and as contributing to such renewable energy targets.

### **7.3 Planning, environmental and safety regulations**

7.3.1 Some local authorities are using the local planning approval system actively to encourage energy efficient buildings and microgeneration, informally as well as through rules like Merton. This spread of this more active stance should be encouraged through helping progressive local authorities disseminate their experience, particularly through local authority associations, and by encouraging better cooperation between energy and planning staff.

### **7.4 Local and regional energy initiatives**

7.4.1 Locally focussed energy and sustainability initiatives, some now under the banner of 'transition towns', present another vehicle through which the uptake of HPs can be encouraged. GSHP advocates should make presentations to such groups and seek to have GSHPs included in any specific projects – particularly where local government is starting or supporting such initiatives and there is scope for encouraging it to use its powers and influence.

### **7.5 Road-mapping, scenarios, targets and other futures exercises**

7.5.1 HPs feature increasingly in energy futures targets and scenarios, but it is clear that the level of contribution expected of them is not matched with practical measures to ensure the required growth of the industry so that the targets can be met. GSHP advocates should use this observation as the pivotal argument in lobbying the UK and Scottish government for more concrete and targeted measures to support the industry and stimulate the market.

### **7.6 Public and interest group consultation**

7.6.1 Unlike centralised energy conversion facilities, a GSHP installation has little direct effect in operation on anyone else but the user, and wider disruption during installation is minimal. It is thus highly unlikely that local or wider opposition to the option would develop (other, that is, than over its disputed energy and environmental benefits or from advocates of competitor technologies). However, it is still advisable to be sensitive to the concerns of those who may be affected, say, by multiple borehole drillings during installation or by potential localised ground cooling during operation, or those who may think they are likely to be affected. This is especially important if other aspects of a construction project have been controversial or disruptive and neighbours may be looking for further pretexts for objection. Installers of significant projects should consider appropriate consultation in communities to reassure them on the effects of the installation. Such consultation has the added benefit of making more people aware of the option and informing them of its benefits.