



Northern Ireland Audit Office

# Introducing Gas Central Heating in Housing Executive Homes

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL

NIA 43/03, HC 725 Session 2003/04: 1 July 2004





Northern Ireland Audit Office

Report by the Comptroller and Auditor General  
for Northern Ireland

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# Introducing Gas Central Heating in Housing Executive Homes

HC 725 Session 2003/04  
NIA 43/03

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*Cover photograph courtesy of Baxi Potterton*

## INTRODUCING GAS CENTRAL HEATING IN HOUSING EXECUTIVE HOMES

This report has been prepared under Article 8 of the Audit (Northern Ireland) Order 1987 for presentation to the Northern Ireland Assembly in accordance with Article 11 of the Order. The report is also to be laid before both Houses of Parliament in accordance with paragraph 12 of the Schedule to the Northern Ireland Act 2000, the report being prescribed in the Northern Ireland Act 2000 (Prescribed Documents) Order 2002.

*J M Dowdall CB*  
Comptroller and Auditor General

**Northern Ireland Audit Office**  
30 June 2004

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For further information about the Northern Ireland Audit Office please contact:

**Northern Ireland Audit Office**

106 University Street

BELFAST

BT7 1EU

Tel: 028 9025 1100

email: [info@niauditoffice.gov.uk](mailto:info@niauditoffice.gov.uk)

website: [www.niauditoffice.gov.uk](http://www.niauditoffice.gov.uk)

## List of Abbreviations

BPG	-	Belfast Practice Group
C&AG	-	Comptroller and Auditor General
CITB	-	Construction Industry Training Board
CORGI	-	Council of Registered Gas Installers
CUP	-	Central Unit on Purchasing
DFP	-	Department of Finance and Personnel
DOE	-	Department of the Environment
DSD	-	Department for Social Development
EU	-	European Union
HSENI	-	Health and Safety Executive Northern Ireland
KPIs	-	Key Performance Indicators
NDPB	-	Non-departmental Public Body
NIAO	-	Northern Ireland Audit Office
NIHE	-	Northern Ireland Housing Executive
OJEU	-	Official Journal of the European Union
PAC	-	Public Accounts Committee
SMART	-	Specific, Measurable, Agreed, Realistic and Time-dependent

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# Introduction and Executive Summary

1. The Northern Ireland Housing Executive (NIHE) is an executive Non-departmental Public Body of the Department for Social Development. NIHE is the largest landlord in Northern Ireland, with 113,000 domestic dwellings, including houses, bungalows and flats, and is responsible for providing adequate heating systems for tenants' use. In addition to its specific responsibilities to tenants, the Home Energy Conservation Act (1995) names NIHE as the Home Energy Conservation Authority for Northern Ireland. In that capacity, it is responsible for providing advice and guidance to all householders, in line with the Act's aim of ensuring that affordable warmth can be provided for all sectors of the population in a way that will reduce emissions of greenhouse gases and conserve natural resources.
2. In the past, most NIHE properties were equipped with either solid fuel or electric heating systems. By 1995, NIHE's ongoing replacement programme had identified 10,000 systems as being in need of replacement or upgrading, with many becoming obsolete, because of problems with obtaining spare parts. In determining the type of heating to be offered to tenants as replacement for these systems, NIHE was obliged to consider a number of issues, including:
  - the extent to which meeting targets associated with its role as Home Energy Conservation Authority would require a move away from a policy of giving tenants a choice of fuel to one of changing standard fuel options and limiting choice; and
  - affordability of heating for tenants.

In 1997, NIHE decided to adopt an interim fuel policy, under which newly available natural gas was offered to tenants as a replacement option for the first time.



3. Gas heating had the potential to improve energy efficiency in NIHE properties and bring savings in energy bills paid by tenants. However, the introduction of this new fuel type represented a challenge for NIHE because:
  - the successful completion of this programme of new work required a considerable input of NIHE resources and particular expertise;
  - the natural gas industry was in its infancy in Northern Ireland, and there was no established local pool of contractors experienced in installing and maintaining gas central heating systems; and
  - tenants' unfamiliarity with gas central heating created a need for a large-scale information and education programme.
4. From 1997 to 2000, NIHE awarded gas installation contracts on the basis of lowest tendered price. However, problems were encountered with the cost and quality, particularly the latter, of the work of some contractors, and one in particular. In June 2001, NIHE awarded new heating contracts, based on the partnering approach (see part 5 of this report), which reflected developing best practice in contract management, including reports by Sir Michael Latham (1994)<sup>1</sup> and Sir John Egan (1998).<sup>2</sup>
5. In its report "Improving Construction Performance" (HC 337 2001-02), the House of Commons Public Accounts Committee (PAC) re-iterated its views on the importance of tendering arrangements that encourage contractors to put forward bids that will provide value for money. The Committee considered that "Better value for money may be found by looking beyond the lowest price, as long as improvements to be secured are clearly identified and closely monitored".
6. This report examines the award and implementation of NIHE's initial gas heating contracts. The issues that arose in connection with these contracts underline the conclusions reached in the PAC's report. We also examined the steps taken by

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1 "Constructing the Team" by Sir Michael Latham, was the report of the Government/Industry Review of Procurement and Contractual Arrangements in the UK Construction Industry.

2 "Re-thinking Construction" was produced by the Construction Task Force, under the Chairmanship of Sir John Egan.

NIHE to address many of these issues, through implementing its new partnering arrangements. We consider that the lessons learned have wider application to other NIHE projects, and to projects in other public sector organisations.

### Scope of our examination

7. We examined the NIHE gas installation programme from April 1997 to date, concentrating on the following key aspects:
  - the decision to choose gas heating for NIHE properties;
  - the award of heating contracts;
  - installation of the new heating systems;
  - maintenance arrangements for the gas systems; and
  - the introduction of new partnering contracts.

## Main Conclusions and Recommendations

### Part 1: The decision to offer gas heating systems

8. A 1997 NIHE heating policy review/appraisal concluded that oil was the most cost effective heating option for houses and bungalows, and that solid fuel was less suitable than oil or gas for all dwelling types. NIHE subsequently introduced a policy of offering tenants a choice of natural gas (where available) or solid fuel as replacement heating options, a decision which, it said, reflected the policy of its parent Department at the time (the Department of the Environment (DOE)). NIHE subsequently spent over £25 million between 1997 and 2001 on installing gas heating systems (paragraphs 1.1 and 1.2).
9. The 1997 review/appraisal did not comply with Department of Finance and Personnel (DFP) guidance for appraising expenditure proposals and policy

changes. In addition, although its parent Department requested NIHE to produce economic appraisals, on an individual scheme basis, to assess which heating options were most effective, NIHE did not do so (paragraph 1.3 and Figure 1).

10. There are hundreds of different boiler models available, but only two main boiler types (back boilers and wall-hung boilers). The choice of boiler is important because efficiency and operating costs can differ significantly, and the greater complexity of installation for certain types can give rise to increased health and safety risks. On the basis of an economic appraisal, NIHE decided to install back boiler systems. However, in view of weaknesses in the appraisal, we do not consider that this policy decision was based on sufficiently robust research (paragraphs 1.8 to 1.12).
11. As the gas heating programme progressed, NIHE experienced considerable difficulties associated with installation of back boiler systems on some contracts. In June 2001, it changed its policy in favour of the wall-hung option, to counteract the poor quality of work experienced on some of its contracts. By this stage, almost 8,000 dwellings had back boiler systems (paragraphs 1.13 and 1.14).
12. In 1997, NIHE compiled a list of boiler models, which formed the basis of its approved specification. The list contained two boilers that did not comply with an EU Directive, effective from 1997, which prohibited the use of gas boilers without safety cut-off switches. The list also included models that were discontinued by the manufacturer in mid-1997, and replaced by upgraded models. NIHE told us that only modern appliances that complied with the EU Directive were installed, but could not provide definitive evidence to support this view (paragraphs 1.16 and 1.17).
13. In April 2000, NIHE produced an economic appraisal for fuel policy that complied more fully with DFP requirements and found gas to be the most cost

effective option, with regard to the factors applicable at that date. Although this appraisal was more robust, we consider that there are still weaknesses that may have skewed the evaluation of options in favour of gas. We recommend that NIHE carries out a revised appraisal that complies fully with DFP requirements, and is based on actual cost outturns from completed contracts and updated running costs for the different fuel options. This should take into consideration fluctuations in the price of both oil and gas. We also recommend that NIHE carries out a post project evaluation of the gas installation programme to date, so that its findings can be factored into the new appraisal (paragraphs 1.18 to 1.20).

### **Part 2: Managing the award of heating contracts**

14. NIHE did not aggregate the heating installation schemes undertaken between 1997 and June 2001 but, instead, let the work through 52 separate contracts, ranging in value from £100,000 to £662,000, and with a total tendered value of £18.5 million. NIHE let the work in tranches of individual contracts, many of which were advertised at the same time, rather than bundling the work together into larger contracts that would have required open tendering and advertisement in the EU Journal, under the terms of the Public Works Directive. By not aggregating these contracts, we consider that NIHE limited the opportunity to maximise competition and the potential for securing value for money in this substantial investment (paragraphs 2.1 to 2.5).
  
15. NIHE's procurement manual states that the prime criterion for letting contracts is lowest price, and this method was used in letting the initial 52 gas contracts. DFP guidance requires purchasing decisions to be based on value for money. NIHE said it considered its practice to be sound and in accordance with published best practice. However, in our view, NIHE's practice of awarding contracts on the basis of lowest price, with only a very limited assessment of quality, may not have been sufficient to ensure that value for money has been achieved (paragraphs 2.6 to 2.8).

16. In September 2000, NIHE's Internal Audit reported that, despite disqualifying a number of contractors on grounds of insufficient financial capacity, NIHE had awarded three heating contracts, with an estimated value of £1.7 million, to a contractor whose vacant financial capacity it had set at only £100,000 in 1994 and which it had not updated since. On at least two occasions, other firms tendering for heating contracts had been eliminated because of insufficient capacity. NIHE said that this firm was subject to guarantee from its parent company, which had substantial assets, but it was unable to provide evidence of this guarantee. We welcome NIHE's decision to include formal guidance for the calculation of contractors' financial capacity into its contracts manual, and consider it essential that this guidance is complied with fully (paragraphs 2.9 to 2.11).
17. A further Internal Audit report in April 2000 expressed concerns that contractors may have been engaged in collusive tendering to win contracts and concluded that the tendering patterns displayed some of the indicators of fraud, as defined by HM Treasury. Our main findings support Internal Audit's conclusion that some contractors may have been acting in concert (paragraphs 2.12 to 2.15).
18. NIHE said that it did not consider that this case fell within DFP guidance requiring all cases of known or suspected fraud to be notified immediately to both DFP and the C&AG. However, we consider that there were adequate grounds for NIHE to report this matter. The concerns highlighted by Internal Audit should have alerted NIHE to the need for a further, more rigorous, independent and properly resourced investigation. In our view, the outcome of such an investigation would have enabled NIHE to conclude whether there was a need to refer the matter to the police, and what changes may have been necessary to its internal controls in order to guard against fraud (paragraphs 2.17 to 2.19).

### **Part 3: Managing installation of heating systems**

19. In recent years, most major NIHE construction contracts have been managed using detailed building surveys as a basis for drawing up comprehensive design

specifications. However, the gas contracts were managed on the “bill of quantities” basis, under which detailed building surveys are not undertaken. NIHE said it considered this method to be acceptable, and that it represented commercial sense. Nevertheless, final contract costs have consistently exceeded tendered prices, and our examination indicated that net overspends and variances are likely to be at least £2.5 million (paragraphs 3.2 to 3.5).

20. Overspends and variances have been caused by three main factors:

- the need to carry out unforeseen work costing over £422,000 (net) just on the first 11 contracts (paragraphs 3.6 to 3.8);
- higher uptake levels among tenants - the actual level of tenant uptake of gas consistently outstripped NIHE’s estimates by a considerable margin (paragraphs 3.9 to 3.11); and
- dwellings added in after the commencement of schemes (at a cost of £900,000 to date) (paragraphs 3.12 to 3.14).

21. In April 2000, Internal Audit noted breaches of Standing Orders on 25 heating replacement contracts, and said that “it would not be unreasonable to describe these contracts as having been uncontrolled”. These breaches related to Contract Administrators not obtaining the required prior approval for variances of original contract sums. We identified variations and overspends on these contracts, amounting to £2.3 million, and underspends of £0.18 million incurred in breach of Standing Orders (paragraphs 3.15 to 3.16).

22. Under the 1997 Gas Safety (Installation and Use) Regulations (NI) 1997, employers are:

- prohibited from allowing employees to carry out work on a gas fitting unless they are members of the Council of Registered Gas Installers (CORGI); and

- required to take steps to ensure that any work in relation to a gas fitting is undertaken by CORGI-registered fitters (paragraph 3.17).

NIHE told us that it relied on CORGI registration as a measure of contractors' competence, although this subsequently did not prove to be effective, in several cases (paragraph 3.18).

23. At the outset of the gas heating programme, NIHE Headquarters staff (the Belfast Practice Group (BPG)) were appointed to develop the design specification for the gas contracts. At this stage, none of these staff had completed the CORGI qualification (paragraphs 3.22 to 3.23). The BPG also assumed responsibility for quality assuring contractors' work, but NIHE did not set out terms of reference to define BPG's responsibilities in respect of supervision and inspection, nor outline requirements for inspecting individual gas installations. We also found that, at the outset of the programme:

- of 16 CORGI-qualified NIHE staff, only four were in the Belfast Area, where the installation programme was centred, and only two of these were assigned to carry out on-site inspections of contractors' work;
- one of these two went on long-term sick leave and was not replaced; and
- the sole remaining inspector also had other duties.

NIHE said that, in 1998, a further two staff obtained the CORGI qualification, and that all relevant staff were trained by the Health and Safety Executive for Northern Ireland (HSENI) on the Gas Regulations. By the time CORGI training was intensified in February 2000, when some 16 staff completed the course, over 3,200 gas systems had already been installed in NIHE dwellings (paragraphs 3.24 to 3.25).

24. In 2001, NIHE began receiving complaints from tenants about some gas heating systems, particularly in North and West Belfast, which it subsequently investigated, and found specific defects. A subsequent HSENI investigation in NIHE properties throughout Belfast concluded that:
- design specifications provided by NIHE to contractors were not sufficient;
  - the overall standard of installation work was poor; and
  - the overall lack of control of the contracts exercised by NIHE allowed the contractors to produce poor work with impunity (paragraphs 3.28 to 3.31).
25. In order to address the problems identified by both investigations, NIHE introduced a number of measures during 2001, including:
- discontinuing the use of back boiler systems;
  - immediate re-inspection of all installations, and remedial repair work, in estates where acute problems had been identified;
  - a wider re-inspection programme covering all other gas installations, to be carried out in conjunction with the annual servicing programme;
  - establishing new partnership arrangements for heating contracts (see Part 5 of this report); and
  - developing a safety plan to address the unsafe practices identified (paragraph 3.32).

### **Part 4: Managing maintenance of heating systems**

26. The Gas Safety Regulations place a duty on landlords to ensure that gas heating appliances and flues are checked at intervals of not greater than 12 months, and that specific records in respect of any check are completed, retained and made available on request to tenants (paragraph 4.1).



27. Much of the documentation supplied to NIHE by contractors involved in installing gas heating systems before June 2001 was incomplete and incorrect, and not submitted on a timely basis. Consequently, data generated by NIHE's database, which it used to schedule and manage the planned servicing programme, was unreliable and placed NIHE in a position where, from the outset of its servicing programme, it was likely to be in breach of the Regulations. In addition, we found that NIHE did not commit sufficient internal resources to the planning and administration of the maintenance function (paragraphs 4.2 to 4.3).
28. NIHE has been unable to monitor the full extent of its breach of the Regulations on an ongoing basis, mainly due to gaps in its management information systems. In our view, the evidence indicates widespread non-compliance. By not complying with the Regulations, NIHE potentially exposed a number of its tenants to health and safety risks, as well as making itself vulnerable to prosecution and fines (paragraphs 4.4 to 4.5).
29. We consider that NIHE's management of the planned servicing and response maintenance of gas heating systems was not based on sufficient forward planning or strategic direction. NIHE has addressed the lessons learned from the problems experienced with its maintenance programme, in the design of the new partnership contracts for maintenance (paragraph 4.7).

### **Part 5: The potential of new partnering arrangements to deliver better value for money**

30. In March 2000, the NIHE Board approved the consolidation of the heating replacement programme into three large partnership contracts, incorporating the design, installation and maintenance of heating systems. Contractors were appointed for an initial five-year period, with each contract having an estimated annual value of £5-6 million. Appointed partners assumed responsibility for heating installations from June 2001, and maintenance from April 2002 (paragraphs 5.3 to 5.6).

31. NIHE incorporated a number of key performance indicators (KPIs) into the new contracts, aimed at ensuring that partners achieve high levels of quality and satisfactory cost and timeliness outcomes. Although the contract terms clearly specify the performance standards required for partners to achieve payment of bonus, the extent to which performance would have to deteriorate in order for NIHE to terminate the contracts has not been clearly outlined. We consider that NIHE could have benefited more from the partnering approach, and reduced its risk of exposure to financial loss further, by incorporating clearly defined penalties for poor performance and a full risk assessment at the outset of the contract procedure (paragraphs 5.9 to 5.11).
32. In order to establish the extent to which the partnership arrangements have achieved their objectives, NIHE carried out an evaluation of the first year of operation of the contracts (June 2001 to May 2002). We acknowledge that the evidence available to date suggests that the partnership arrangements will deliver many significant benefits, including:
- a high degree of cost predictability;
  - high standards of workmanship; and
  - high levels of customer satisfaction (paragraph 5.18).

## General recommendations arising from the gas heating programme

1. Capital investments should always be preceded by a proper business case, including an economic appraisal, which complies fully with DFP guidance. The business case should also contain a clear indication of the criteria that will be used to measure outcomes through a subsequent post project evaluation.
2. Especially where a project is innovative in nature, extensive efforts should be made by the sponsoring body to ensure that all risks have been identified and quantified, together with a full assessment of the likelihood of their occurrence, their potential effects upon project outcomes and how they will be addressed.
3. Where a large project is to be carried forward in stages, as in the case of the gas heating schemes, sponsoring bodies should carry out a post project evaluation on early stages, so that any lessons to be learned can be incorporated into the design of subsequent stages.
4. It is essential that public bodies should estimate probable project costs as accurately as possible, and group together similar blocks of work, where possible, in order to ensure that EU procurement regulations are applied properly and that value for money can be obtained in letting public contracts.
5. When letting contracts, public bodies' overriding concern must be to ensure that value for money is maximised. Awarding contracts on the basis of lowest price alone is not sufficient to ensure the achievement of this objective.
6. Any suspicion of possible fraudulent activity on the part of bidders for contracts must be treated with the utmost seriousness by public bodies, and subjected to rigorous and independent investigation. It is important to ensure that such suspicions are reported, as soon as possible, to both DFP and the C&AG and, where it is considered appropriate, the police.
7. Awarding authorities should specify, as fully as possible, the volume and nature of work required before letting contracts, so that the need for subsequent additions and alterations can be minimised. Substantial alterations to work required, after the contract has begun, can expose the letting authority to a risk of not achieving value for money.
8. Notwithstanding the legal obligations of contractors, public bodies must ensure that they have in place adequate controls, including physical checks, where appropriate, to ensure that work being carried out on their behalf is of a proper standard. Minimising problems as work is under way is easier, and cheaper, than attempting to rectify them at a later date and attempting to recoup additional costs from contractors.
9. Partnering arrangements have the potential to deliver tangible improvements in public procurement. These arrangements must include an adequate balance of incentives for both parties, as well as clear definitions of the triggers for bonus payments or penalties to be applied for performance that is above or below the required standard.



*Photograph of inset gas fire (courtesy of Baxi Potterton)*

# Part 1

## The decision to offer gas heating systems

### Appraisal of options for heating NIHE properties

1.1 By 1997, a natural gas supply had become available in Northern Ireland, for the first time. A heating policy review/appraisal for new build homes, undertaken by NIHE in April 1997, concluded that:

- oil was the most cost effective heating option for houses and bungalows;
- natural gas was the most cost effective option for flats; and
- solid fuel was less suitable than oil and gas for all dwelling types.

The review also said that these results could be used, where appropriate, to determine options for improvement works to existing stock. Despite these results, NIHE introduced a policy of offering tenants a choice of only natural gas (where available) or solid fuel as replacement heating options. NIHE advised us that it was its understanding at the time, through the then Department of Economic Development and the Gas Regulator, that the promotion of gas was government policy. In areas where natural gas was not available, oil was offered as the preferred option.

1.2 The decision to offer gas represented a major policy change, with NIHE subsequently spending over £25 million between 1997 and 2001 on installing gas heating systems alone. Although the 1997 review showed oil as the most cost effective option for houses and bungalows, NIHE told us that only interim policy arrangements, based on tenant choice between solid fuel and gas, could be introduced, owing to a number of important emerging issues, including:

- the need to meet targets associated with its new role as the Home Energy Conservation Authority for Northern Ireland;
- affordability of heating for tenants; and
- developments in the heat delivery area, including the impending arrival of the natural gas supply.

NIHE also said that this reflected the policy of its parent Department (then the Department of the Environment (DOE)) at that time, and that it had disregarded oil as a replacement option because of a number of important non-monetary factors, including problems with delivery and limited payment options for tenants. In addition, there were outstanding cost, technical and delivery issues that had to be addressed, through a full and final appraisal, to be approved by DOE. Consequently, the interim policy that emerged included natural gas as an option for both new build and replacement schemes.

1.3 NIHE told us its 1997 review was based on the best information available. However, it did not comply with basic Department of Finance and Personnel (DFP) requirements for appraising expenditure proposals and policy changes, set out in the “Green Book”.<sup>3</sup> In addition, although DOE requested NIHE to produce economic appraisals, on an individual scheme basis, to assess which heating options were most effective, NIHE did not do so. Figure 1 below provides a summary of the key weaknesses identified in the 1997 review:

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<sup>3</sup> DFP Guidance on carrying out economic appraisals.



### Figure 1: Summary of key weaknesses in NIHE's 1997 heating policy review/appraisal

- the review did not adequately outline how the proposed policies complied with the strategic aims and objectives of NIHE and its parent Department (then DOE);
- the review did not demonstrate a case for changing fuel policy or the need for a heating replacement programme before proceeding to the identification of options to be considered;
- no SMART<sup>4</sup> objectives were established for the policies proposed. In addition, no analysis of possible constraints was undertaken;
- the review did not contain sufficiently detailed monetary analysis, and the analysis which was undertaken did not permit comprehensive comparisons of the different options under consideration;
- there was no analysis of risk and uncertainty associated with a change in fuel policy or commencement of a major heating replacement programme;
- there were gaps in performance and cost data relating to some of the heating options that were assessed; and
- there were no arrangements for monitoring or post project evaluation.

1.4 Because natural gas was new to Northern Ireland at the time of this review, we consider that it was particularly important to carry out a robust analysis of the risks and uncertainties associated with it, in order to establish:

- the particular risks associated with an installation programme of a type not undertaken before in Northern Ireland. In this respect, NIHE could have liaised, for example, with a local authority in Great Britain or the Republic of Ireland that had recent experience of managing such a programme (NIHE liaison with two local authorities in Great Britain was limited to a review of boiler types and maintenance arrangements, with no specific examination of recent installation schemes);

4 SMART - DFP guidance recommends that SMART (Specific, Measurable, Agreed, Realistic and Time-dependent) objectives should be established within appraisals for capital projects.

- whether the gas heating industry in Northern Ireland was sufficiently developed at that stage to deliver the installation programme to high standards; and
- the human resources required by NIHE to plan and manage the programme, together with training needs for these staff.

In our view, more detailed consideration of these important risks and constraints within the 1997 review may have enabled NIHE to identify, in advance, the potential for problems that arose subsequently, and to have taken appropriate steps to minimise them.

## Choosing heating types for NIHE properties

1.5 While NIHE’s heating review concluded that gas and oil heating had a number of advantages, significant drawbacks were identified in respect of solid fuel. Solid fuel appliances were found to be “poor in the area of safety” and rated “very poorly” with regard to sulphur dioxide emissions. In addition, running costs for solid fuel are high, as illustrated by Figure 2 below, which details the average annual costs for the different fuel types between 1997 and February 2002.

**Figure 2: Average annual running costs for NIHE properties 1997 - 2002**

Property Type	Oil £	Gas (wall hung boiler)* £	Gas (back boiler)* £	Solid Fuel £
Two bedroom bungalow	254	264	279	397
Three bedroom house	330	332	352	503

Source : NIHE quarterly fuel cost analysis 1997-2002

\* estimated costs



- 1.6 Given that oil had the lowest average annual running costs of all fuel options during the previous five years, and is significantly less harmful to the environment than solid fuel, we consider that NIHE's decision in 1997 to offer solid fuel, but not oil, as an alternative option to gas in heating replacement schemes (see paragraph 1.2) was not soundly based.
- 1.7 NIHE told us that its policy since 2000 had been to install solid fuel only in exceptional circumstances. However, between 1998 and 2001, it installed approximately 700 solid fuel systems in its properties in the Belfast area alone. In our view, these installations are not consistent with the findings of NIHE's heating appraisal and with its statutory role as the Home Energy Conservation Authority for Northern Ireland (see Introduction, paragraph 1). Since around 80 per cent of NIHE's tenants are in receipt of Benefits, we find it surprising that the most expensive and environmentally unfriendly heating option available has been installed in low-income households. NIHE told us that it was acting in accordance with Departmental policy of offering tenants an element of fuel choice and was not in a position to refuse solid fuel installation until a policy change by the Department in July 2000.

### Selecting the most appropriate gas boilers

- 1.8 Having decided to offer gas as an option to tenants, it was important that NIHE should identify the most suitable type of gas boiler. Although there are hundreds of different models available, there are two main boiler types (back boiler units and wall-hung units). The choice of boiler type is important, because:
- operating costs for households can differ significantly due to varying efficiency ratings for different boiler types; and
  - the installation process is more complex for certain types, and can give rise to more potential health and safety risks.

- 1.9 NIHE told us that it considered the variation in running costs between the two boiler types to be minimal. Our research indicated that wall-hung boilers are, generally, at least five per cent more efficient than back boiler units.
- 1.10 In addition to potentially higher running costs, we identified a greater potential for health and safety risks with back boilers. NIHE told us that both boiler types have equal safety status, if properly installed. However, the Health and Safety Executive for Northern Ireland (HSENI) told us that the most up-to-date data available for Great Britain has suggested that approximately 80 per cent of carbon monoxide gas installation fatalities involved back boiler-type units. Although this data is historical and includes older, and possibly less safe, boilers than those installed by NIHE, it illustrates the risks associated with gas. The Construction Industry Training Board (CITB) in Great Britain told us that, had NIHE approached it for advice, it would have “strongly recommended” the wall-hung option. It also said that the absence of an experienced gas installation workforce in Northern Ireland when NIHE’s gas heating programme commenced strengthened the case for choosing a wall-hung model.
- 1.11 NIHE’s appraisal of boiler types identified wall-hung units as the most cost effective option. However, it also noted that their installation may have involved extensive modification work to kitchens and suggested that back boiler units may have been more cost effective, in such cases. In our view, these factors should have been fully quantified by NIHE during the appraisal process, before arriving at a final decision.
- 1.12 Our review of this appraisal identified the following additional weaknesses:
- it assessed only one type of dwelling;
  - it did not contain an assessment of non-monetary factors (including potential health and safety issues); and
  - there was no assessment of the key risks and uncertainties.

On the basis of its appraisal findings, NIHE opted to install back boiler units. NIHE told us that it had chosen this option because, at the time, it was cost-effective, more popular with tenants and presented relatively few installation problems. However, in view of the weaknesses in the appraisal, we consider that this decision was not soundly based.

1.13 As the installation programme progressed, NIHE experienced considerable difficulties on some contracts. These related mainly to the need to ensure that chambers were adequately sealed and flue liners safely installed. In some instances, the problems were exacerbated by poor contractor workmanship and, in a number of cases, tenants were exposed to potential health and safety risks (see paragraphs 3.27 to 3.37). To date, NIHE has incurred additional expenditure through repairing or replacing back boiler systems in the following instances:

- in one estate, faulty installation of flue liners resulted in all flues being re-inspected and, where necessary, repaired or replaced. This remedial work cost NIHE over £115,000, which it is currently seeking to recover from the original contractors; and
- in single-storey dwellings in another estate, the existing flues were not long enough to ensure that carbon monoxide fumes were drawn outside the building. NIHE has replaced 25 of these back boilers with wall-hung models, incurring additional costs of over £57,000. NIHE said that this related to a potentially one-off local climate issue, and had only affected a small percentage of dwellings in what was a 229-house contract.

1.14 In June 2001, NIHE changed its policy in favour of the wall-hung option, and told us that this decision was taken to counteract the poor quality of work experienced on some contracts. However, by this stage almost 8,000 dwellings had back boiler systems. In our opinion, a more rigorous appraisal at the outset may have identified wall-hung boilers as being more appropriate for use in the replacement programme. This, in turn, would have avoided the inconvenience to tenants and additional costs to NIHE arising from the need to re-inspect and

repair back boiler systems. In addition, tenants would have been provided with a more energy efficient and cost effective boiler.

1.15 NIHE told us that, given the subsequent improvement in the quality of workmanship, it intended to reassess the potential for reverting to the use of back boiler units. We consider it essential that any such policy change is supported by a robust economic appraisal, which complies fully with current DFP guidance and takes account of the shortcomings in the previous appraisal, and lessons learned in the interim.

1.16 In 1997, NIHE compiled a list of boiler models, which formed the basis of its approved specification for the replacement programme, and successful contractors were permitted to install only these approved models. However, we found no evidence that NIHE had undertaken any independent research in compiling this list. Instead, almost total reliance was placed on advice received from manufacturers' sales representatives. We noted that:

- an EU Directive, which came into force in 1997, prohibited the use of gas boilers that did not have safety cut-out switches. Two of the models on NIHE's approved list did not comply with this requirement; and
- these boilers had already been replaced by an upgraded, more energy-efficient model in October 1996 and were discontinued by the manufacturer in mid-1997.

1.17 We were unable to establish whether any of the models that were prohibited by the 1997 EU Directive have been installed, mainly due to the incompleteness of documentation supplied by contractors. NIHE told us that, although these boilers had been included on its approved list, its specification required the use of appliances with an atmospheric sensing device and that only modern appliances that complied with the EU Directive were installed. However, it could not provide definitive evidence to support this view.

## Lessons learned from the early heating contracts

- 1.18 In April 2000, NIHE produced an economic appraisal for fuel policy that complied more fully with DFP requirements, satisfactorily addressing most of the weaknesses contained in the 1997 document. This appraisal found gas to be the most cost effective option, with regard to the factors applicable at that date. It also highlighted important non-monetary benefits of gas, such as it being the most environmentally friendly of all fuel options, ease of use for tenants and the minimal risk posed by vandalism and theft compared with oil.
- 1.19 While the 2000 appraisal is more robust than NIHE's earlier heating policy review, we consider that there are still weaknesses that may have skewed the evaluation of options in favour of gas. Our principal concerns are:
- capital cost assumptions were based on the initial tendered prices, rather than actual prices paid, despite the fact that overspends of over £1.5 million on gas heating contracts had already occurred by the time this appraisal was completed. NIHE's Internal Audit concluded, in April 2000, that "the numerous unforeseen costs and additional works related to gas installation may necessitate that Technical Services need to review the Fuel Policy Economic Appraisal document"; and
  - gas was only marginally preferred to oil in the evaluation of non-monetary benefits. However, we found insufficient evidence to support the evaluation of the different options.
- 1.20 In light of these findings, we recommend that NIHE carries out a revised economic appraisal that complies fully with DFP requirements, and is based on actual cost outturns, to determine formally the most cost effective and appropriate future heating policy. This will be particularly important in light of fluctuations in the price of both oil and gas. We also recommend that NIHE carries out a post project evaluation of the gas installation project to date, so that its findings can be factored into the new appraisal. This evaluation should identify, and cost, the factors that have contributed to problems encountered thus far, in order to inform future spending decisions.





*Housing Executive property showing back boiler with fire inset (photo courtesy of NIHE)*

# Part 2

## Managing the award of heating contracts

2.1 Between 1997 and June 2001, NIHE let some 52 contracts for the heating replacement programme in Belfast, ranging in value from £100,000 to £662,000, and with a total tendered value of £18.5 million. We examined the process employed by NIHE in awarding these contracts, in order to assess whether it was likely to deliver value for money, and observed proper standards of accountability.

### NIHE tendering procedures for the gas heating contracts

2.2 An EU Directive on Public Works Contracts, which came into force in 1991, required all such contracts above a prescribed cost threshold to be advertised in the Official Journal of the European Union (OJEU). One of the main objectives of EU procurement regulations is to prevent restrictive or anti-competitive practice. In addition, advertising a programme of work in the OJEU creates a larger contract field, and increases the potential to secure value for money.

2.3 In circumstances where a number of separate contracts are let for the purposes of carrying out similar works, the aggregated value of these must be considered when determining whether or not the programme of work should be advertised in the OJEU. As Figure 3 below shows, NIHE awarded a total of 42 contracts related to the Belfast heating replacement programme between 1997 and 1999, which had an estimated total value of over £15.2 million.

**Figure 3: Heating contracts approved for tender by NIHE between 1997 and 1999**

Date	Number of heating contracts approved	Estimated value of contracts (£ million)
May 1997	11	4.59
August 1998 - October 1998	13	4.40
June 1999 - August 1999	18	6.25
<b>Total</b>	<b>42</b>	<b>15.24</b>

Source: NIHE records

2.4 When the heating replacement programme began in 1997, the EU threshold stood at £3.5 million, and it was increased to £4.02 million in 1998. In our view, the estimated aggregated value of these contracts exceeded the EU threshold in each year between 1997 and 1999, with the total value of contracts let during this period amounting to over three times the EU threshold. However, NIHE let the work in individual contracts, many of which were advertised at, or around, the same time, rather than bundling the work together into larger contracts that would have required open tendering to comply with the EU Directive. NIHE told us that the industry structure in Northern Ireland at that time could not have handled aggregation, and that it had required substantial restructuring to meet the requirements of the aggregation programme under the tendering arrangements now in place (see Part 5 of this report).

2.5 By not aggregating the gas heating contracts, we consider that NIHE limited the opportunity to maximise competition and the potential for securing best value for money in this substantial investment. In addition, it is possible that the small value of individual contracts may have deterred some potential bidders outside Northern Ireland, including those with a proven track record of undertaking work in this particular field. NIHE advised us that aggregation through the Egan-style contracts did not produce any bidders from outside Northern Ireland.



## Procedures for obtaining a good deal

- 2.6 NIHE awarded the heating contracts referred to in paragraph 2.1 in accordance with its procurement manual, which stipulates that the prime criterion for letting contracts is lowest price. A detailed bill of quantities is examined for the lowest-priced bid, to ensure that stipulated quality requirements can be met. NIHE said that this method was in accordance with recognised best practice (the National Joint Consultative Committee Code of Practice for Single Stage Selective Tendering).
- 2.7 DFP guidance in 'Government Accounting Northern Ireland' requires purchasing decisions to be based on value for money, which it defines as "quality (or fitness for purpose) and delivery against price", and says that "value for money should be based on whole life costs, not simply initial costs". We consider that NIHE's practice of awarding contracts on the basis of lowest price, with only a limited assessment of quality, may not have been sufficient to ensure that value for money has been obtained, and that evaluation of tender prices should have been combined with the following steps advocated by HM Treasury:<sup>5</sup>
- bid conditioning (comparing bids in full so as to ensure that like is being compared with like); and
  - assigning a weighting to each assessment criterion and scoring each bid systematically against these weighted criteria, as the basis for arriving at a decision.

NIHE said that this approach would not have been practical because of the workload associated with its 52 gas contracts. We consider that this underlines the advantages of aggregating the work into a smaller number of larger contracts, at the outset.

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<sup>5</sup> CUP Guidance Note 12: Contracts and Contract Management for Construction Works (1989).

- 2.8 NIHE has incorporated these improvements into the new partnership heating contracts (see Part 5 of this report), and intends to have partnership arrangements in place by the end of 2004 for all major maintenance functions (except multi-element improvements). New contracts are to be awarded on the basis of a stringent assessment of both quality and price. NIHE also said it was updating its Contracts Manual, in anticipation of letting more contracts in this way.

### **Verifying the financial capacity of successful bidders**

- 2.9 In September 2000, NIHE's Internal Audit reported that, despite disqualifying a number of contractors on grounds of insufficient financial capacity, NIHE had awarded three heating contracts, with an estimated value of £1.7 million, to a contractor whose vacant financial capacity<sup>6</sup> it had set at only £100,000 in 1994 and which it had not updated since then. Although NIHE subsequently reassessed, and increased, this contractor's capacity to £0.9 million, Internal Audit found that its established procedures were not followed in arriving at this decision. NIHE management has accepted Internal Audit's findings.
- 2.10 Our findings in relation to the award of these contracts are detailed in Figure 4 below.

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<sup>6</sup> Vacant financial capacity can be defined as the maximum value of work that a contractor is capable of discharging with regard to its current operating and financial circumstances.

**Figure 4: Award of heating contracts to a firm with insufficient financial capacity - NIAO findings**

- in March 1999, this company was awarded three contracts with a total tendered value of almost £1.7 million. Under the procedures in NIHE’s Contracts Manual, this company would have required vacant financial capacity of £1.6 million in order to be awarded all three contracts. However, NIHE determined its vacant financial capacity to be only £0.9 million;
- although the contracts had been awarded in March 1999, NIHE arrived at the £0.9 million assessment of vacant financial capacity only in October 1999. In addition, this belated assessment was based on a set of out-of-date (1994) accounts and, consequently, could not provide an accurate reflection of the company’s financial standing;
- NIHE’s Contracts Manual stipulates that the vacant financial capacity of a company may be uplifted to the level of its full financial capability, provided that this is authorised by the Contracts Manager and endorsed by the Assistant Director of Technical Services. However, we found no evidence of any management approval or endorsement to this effect; and
- this company was awarded two of the three contracts that it won, with a total value of £1.1 million, in the absence of evidence that it had sufficient financial capacity whereas, on at least two occasions, other firms tendering for heating contracts had been eliminated in similar circumstances.

2.11 In our opinion, the management of the letting of these contracts did not facilitate proper financial control and, potentially, exposed NIHE to accusations that it afforded this company favourable treatment. There was also a risk that the company may have been unable to fulfill its contractual obligations. NIHE told us that this firm was subject to guarantee from its parent company, which had substantial assets, and it took the view, therefore, that the firm had sufficient capacity. However, NIHE was unable to provide evidence of this guarantee or the financial capacity of the parent company. We welcome NIHE’s decision to include formal guidance for the calculation of contractors’ financial capacity into its contracts manual, in line with Internal Audit’s recommendations, and we consider it essential that this guidance is complied with fully.

## Measures employed to maximise competition

2.12 A further Internal Audit report in April 2000, which addressed the letting of heating contracts between 1997 and 2000, expressed concerns that contractors may have been engaged in collusive tendering<sup>7</sup> to win contracts, and specifically commented that:

- contracts had been awarded to suppliers on a select list, rather than through an open tendering process, with no documentary evidence that this approach had been approved by senior management, as was then required by NIHE Standing Orders;
- the listing process used had not been operated consistently;
- there was a pattern of two distinct groups of contractors - those who consistently tendered accurately with regard to scheme estimates and won contracts, and those who consistently submitted high tenders and failed to win contracts;
- firms in the 'successful group' were not bidding against each other; and
- successful bidders were sub-contracting work to a company that had consistently submitted high tenders for heating contracts.

Internal Audit concluded that the tendering patterns displayed some of the indicators of fraud, as defined by HM Treasury (see Appendix 1), and that explanations were required to justify the actions taken.

2.13 In November 2000, NIHE management responded to Internal Audit's concerns, and commented that:

- senior NIHE management approval had been given to tender heating contracts without advertisement, but the documents authorising this were not available;

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<sup>7</sup> Collusive tendering occurs when two or more firms agree on their individual bids for contracts, or agree not to bid against one another, thus undermining the competitive tendering process. The practice is designed to ensure that participants each receive a share of the value of contracts, and can result in winning tenders being 'fixed' at an unreasonably high level. Collusive tendering in public sector procurement is particularly harmful to society as it diverts funds which could be used to provide other public services.

- it was unable to comment on the patterns of tendering behaviour highlighted by Internal Audit; and
- full checks had not been carried out for the contractor whose financial capacity was uplifted (see paragraphs 2.9 to 2.11), but allowances were made due to ongoing legal proceedings between NIHE and the contractor.

2.14 In view of the significance of Internal Audit's findings, we examined the letting of heating replacement contracts in Belfast up to June 2001. Our main findings are listed in Figure 5 below, and support Internal Audit's conclusion that some contractors may have been acting in concert.

**Figure 5: Award of NIHE heating replacement contracts 1997 to June 2001 - NIAO findings**

- We confirmed the existence of a 'successful group' of contractors. Five contractors won 43 (over 90 per cent) of the 47 contracts let between 1997 and 2000. After the initial tranche was let in 1997, only members of the 'successful group' were awarded subsequent contracts;
- The 'successful group' received £17.3 million out of the £19.2 million of expenditure which was incurred by NIHE on the 47 contracts between 1997 and 2000; and
- On at least four occasions, the contractor who had submitted the lowest priced tender withdrew, usually to the benefit of a member of the 'successful group'.

2.15 We also noted the following:

- NIHE did not advertise, in any form, any of the 25 contracts (with a total value of £10.7 million) let in 1997 and 1998. Instead, it compiled a select list of contractors, from which it issued invitations to tender for each contract. Firms were included on this list on the basis of advice from the gas suppliers and CORGI. Even when NIHE began to advertise contracts in 1999, only contractors on this select list were eligible to tender;

- inconsistencies in the number of firms being invited by NIHE to tender for individual contracts. On occasions, as few as four firms were invited, potentially resulting in competition for work not being maximised and failure to obtain the best value for money;
- inconsistencies in issuing invitations to tender to individual contractors. For example, two firms from the 'successful group' were invited to tender for all but one of the contracts in which they expressed an interest, but another firm, which was not in the 'successful group' and which had registered an interest in 19 contracts, was invited to tender on only six occasions; and
- five occasions when NIHE had made amendments to the list of contractors being invited to tender, either adding or removing firms, without documenting the reasons behind this action.

2.16 NIHE said that it would have expected a successful group of contractors to emerge, given the nature and location of the work and took the view that prices were in a general downward trend and that, in limiting the number of firms being invited to tender, it was complying with national guidance (see paragraph 2.6). NIHE also said that it attributed the inconsistencies in numbers of bids sought on individual contracts to some firms being already at full financial capacity or unwilling to work in certain areas covered by the contracts. We found no documentary evidence of grounds for these assumptions on the part of NIHE staff responsible for inviting bids and consider that, in the interests of transparency and fairness, all firms with the necessary financial capacity should have been invited to tender for all contracts.

2.17 DFP guidance, current at the time Internal Audit raised its concerns over possible collusive tendering, required all cases of discovered fraud (proven or suspected) within a Department or Non-departmental Public Body to be notified immediately to DFP and the Comptroller and Auditor General (C&AG).

2.18 NIHE told us that:

- the matters raised by Internal Audit had been considered by Senior Management; had been discussed by the Audit Committee (on three occasions); and it had consulted an advisor with extensive expertise in investigating fraud. It was concluded that there was no evidence of collusion and no likelihood of gaining such evidence, particularly since prices were highly competitive, with no evidence of cost inflation. However, no written report was obtained from this advisor, nor a documented rationale for his conclusions; and
- in its view, this case did not fall within the DFP guidance, as it was not considered to be a case of discovered fraud (proven or suspected).

2.19 We consider that there were grounds to warrant notification of this matter to DFP and the C&AG. The concerns highlighted by Internal Audit (see paragraph 2.12) should have alerted NIHE Senior Management to the need for a further, more rigorous, independent, and properly resourced and documented investigation. In our view, the outcome of such an investigation would have enabled NIHE to conclude whether there was a need to refer the matter to the police, and what changes may have been necessary to its internal controls in order to guard against fraud.

### **Improving NIHE procedures for deterring collusive tendering**

2.20 Contractors seeking initial registration with NIHE as prospective tenderers are required to sign a declaration stating that they will not indulge in collusive tendering, and must also reiterate this pledge annually. In addition, NIHE told us that staff in its Contracts Branch constantly monitor tendering behaviour for evidence of collusion. However, it currently does not have any written guidance, either within its contract manuals or fraud policy documents, that outlines checks that could prevent or detect collusive tendering.

2.21 In our opinion, the practice of relying on a signed declaration is inadequate, and unlikely to deter those determined to engage in collusion. Figure 6 below provides a number of possible measures which we consider have the potential to improve control in this respect.

**Figure 6: Suggested steps for improved prevention and detection of collusive tendering<sup>8</sup>**

- reduce the potential for collusion by providing the largest competitive base possible. As the number of bidders increases, the potential for collusive bidding decreases. However, the desire to encourage genuine competition must be balanced with the need to minimise the costs to firms of preparing bids that may be unsuccessful. Current EU guidance is that a minimum of five suppliers should be invited to tender;
- schemes should be consolidated into large contracts to increase the value of the prize. This is more likely to heighten competitive tension between contractors, resulting in keener, non-collusive bidding;
- while disclosure of the prices bid enhances transparency and may help encourage competition for future contracts, contracting authorities should consider not publicly disclosing the identity of firms that have submitted bids. This would prevent competitors from knowing which other firms to contact. Consideration should also be given to not publicly disclosing the scheme design estimate so that bidders do not have an incentive to use that estimate as a baseline for submitting tenders. In each case, a balance must be struck between facilitating transparency and guarding against providing opportunities for collusion between potential bidders;
- ensure that staff involved in procurement and contract-letting are fully trained, so that they understand both the indicators of collusion and relevant effective measures for preventing and detecting it; and
- develop an IT-based programme for recording, analysing and identifying tendering patterns. It would also be beneficial, as a deterrent measure, to advise bidders that this type of analysis is carried out on an ongoing basis.

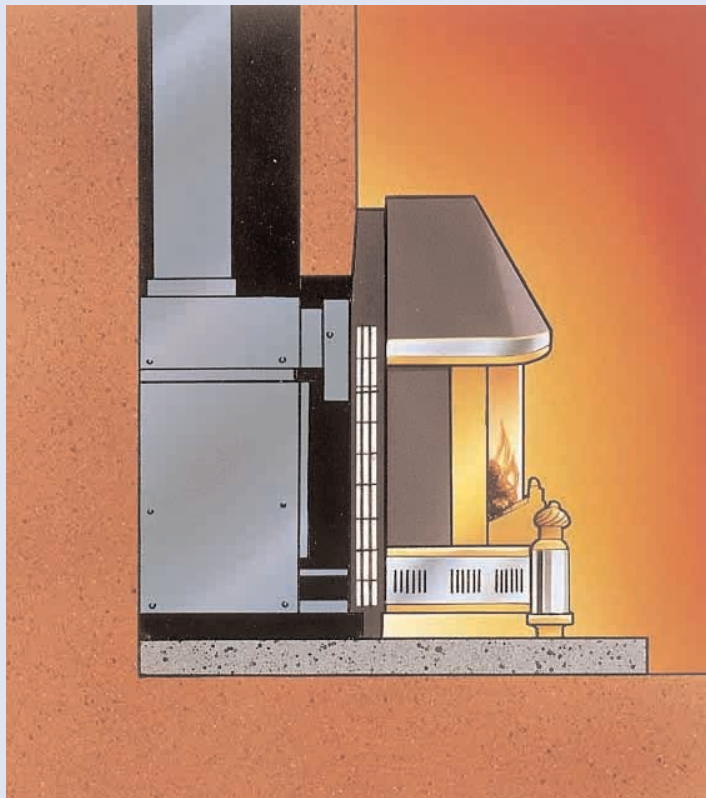
2.22 Collusive tendering can occur when participating contractors agree to share out a programme of work that has been divided into small contracts, and the steps above are mainly designed to address such circumstances. By contrast, partnership contracts involve detailed assessments of price and quality, and the

<sup>8</sup> From good practice guidance issued by the Cartels Division of the Republic of Ireland's Competition Authority, a statutory body with a specific role to enforce competition in order to protect and benefit the consumer.



appointment of a single contractor under a large contract framework. NIHE said that it has consistently sought to comply with public sector procurement guidance. NIHE also told us that the progress it has made to date in implementing partnership contract procedures, together with its targets for introducing such arrangements by the end of 2004 for the vast majority of its maintenance contracts, will greatly reduce any potential for collusive tendering in the future.

INTRODUCING GAS CENTRAL HEATING IN HOUSING EXECUTIVE HOMES



*Diagrams of back boiler with fire inset (courtesy of Baxi Potterton)*

# Part 3

## Managing installation of heating systems

### The need to exercise proper controls over contracts

3.1 Effective procedures for managing and monitoring works-type contracts are essential in order to:

- retain sufficient control over contract costs and the contractor's performance;
- anticipate potential problems and notify management quickly of any necessary changes to specifications or contractual arrangements; and
- establish a clear basis for assessing whether value for money is being obtained.

In assessing how well NIHE managed the contracts for the Belfast heating replacement programme, we examined the steps taken to control costs and ensure that high standards of workmanship were achieved.

### Control of contract costs

3.2 In recent years, most major NIHE construction contracts have been managed on the basis of the 'drawings and specifications' process, which requires detailed building surveys to be undertaken as a basis for drawing up comprehensive and robust design specifications. As the exact nature of work required is identified by this process, the potential for contract overspends is minimised. In our opinion, this approach is consistent with good practice.

3.3 NIHE told us that it had not been feasible to adopt its usual approach for the heating replacement programme, as it had scheduled a large number of heating schemes to begin simultaneously. Instead, it managed these contracts through the ‘Bill of Quantity’ process, under which detailed building surveys are not undertaken, but contractors are invited to price tenders on the basis of:

- Co-ordinated Project Information and contract drawings;
- a detailed specification for the standard work required; and
- a Bill of Quantities, which includes numerous items and measurement for the work, and acts as a measurement tool to value extra work and work omitted.

3.4 NIHE told us that it considered this method of tendering to be acceptable, and that it represented commercial sense, borne out by comparing the level of variations against an estimated £400,000 saving secured on survey fees. However, since the heating replacement programme began, final contract costs have consistently exceeded tendered prices. NIHE told us that net overspends and variances for the programme amounted to £2.5 million. This net calculation includes deductions in respect of omitted items, such as smoke alarms and partial (as opposed to complete) replacement of some existing systems. Our examination of contract costs indicated that overspends amount to a gross figure of at least £3.5 million, and are likely to be even higher, because NIHE has not yet processed final accounts for 22 out of 52 contracts. In order to inform the design of future contracts and facilitate improved estimating of costs, we recommend that NIHE carries out a full analysis to identify the extent of overspends/variances, once final accounts are available, as part of a post project evaluation of the pre-partnership heating contracts.

3.5 As Figure 7 below shows, overspends and variances have been caused by three main factors.

**Figure 7: Overspends/variances on NIHE gas heating replacement programme 1997 to June 2001**

Background to contract overspend/variance	Overspend/variance to date £ million
The need to carry out unforeseen/additional work (overspend)	1.75 <sup>1</sup>
Higher uptake of gas by tenants (variance)	0.87
Additional dwellings added in after contracts signed (variance)	0.90
Total gross contract overspends/variances	3.52
(Less)	
Tendered cost of work that was not required	(1.02) <sup>2</sup>
<b>Total net contract overspends/variances</b>	<b>2.50</b>

Source: NIHE papers presented to Chief Executive's Business Committee

Notes:

- 1 NIHE paid contractors an additional £1.75 million due to the need to carry out work which was unforeseen when the contracts were initially let.
- 2 Contractors had initially priced work valued at £1.02 million, which was subsequently found to be unnecessary, and no expenditure was incurred.

## Reasons for overspends and variances

### The need to carry out unforeseen work

- 3.6 Shortly after beginning the first tranche of 11 contracts, contractors identified the need for significant levels of unforeseen work, mainly related to:
- the need to flush heating systems;
  - unanticipated plumbing and heating work; and
  - the need to replace chipboard flooring.

This additional work cost NIHE an extra £422,000 (net) on these contracts alone, made up of £840,000 for additional items, less £418,000 for omissions.

- 3.7 NIHE told us that it had anticipated the need for replacement chipboard flooring, but had omitted this work from the contracts' specifications. NIHE also said that other items omitted from the initial specifications were incorporated into later contracts. However, despite making these improvements in later contracts, NIHE continued to follow the 'Bill of Quantities' approach, and did not undertake building surveys before tendering. In addition, NIHE did not incorporate the specific requirements for gas heating installations into the Co-ordinated Project Information until 1999, some two years after the programme had started. Consequently, unforeseen work was needed in almost all subsequent contracts, until the new partnership arrangements were introduced in June 2001 (see Part 5 of this report).
- 3.8 In our view, the need for so much non-contracted work was largely avoidable, had NIHE carried out building surveys, before letting the contracts. NIHE told us that it had paid a reasonable price for the work; in the event of unreasonable demands, based on the contract terms, from contractors, the matter would have gone to arbitration as provided for in the terms of the contracts; and carrying out building surveys would have involved lengthy delays in pre-planning and could have led to cost claims and delays at construction stage. However, we consider that the need to agree terms for the extra work after the contractors had begun work on site risked undermining NIHE's negotiating position and may have diminished the scope for achieving value for money.

### **Higher uptake levels among tenants**

- 3.9 At the outset of the programme, NIHE assumed that tenant uptake for the first tranche of contracts would be evenly split between gas and solid fuel, and said that it based this assumption on the outcome of tenant consultation surveys. In the event, the actual level of uptake of gas consistently outstripped NIHE's estimates by a considerable margin - 85 per cent against the 50 per cent estimate on the first tranche of contracts and 95 per cent against an estimated 80 per cent on subsequent contracts.

- 3.10 An Internal Audit report, in April 2000, commented that they saw “no evidence that the questionnaires returned by tenants were analysed for preference” and that “the tenant consultation process does not appear to have been effective”. NIHE told us that, after the initial contracts, and following the gas supplier’s introduction, and subsequent withdrawal, of tenant incentives, there was no way of knowing whether the high uptake would continue.
- 3.11 In our view, circumstances where there is such a large disparity between planned and actual volumes of work risk creating a potential for contractors to manipulate the tendering process. Because of the higher cost of installing gas systems, increased gas uptake meant that the contracts could have significantly higher outturn values. Consequently, as the high uptake of gas became apparent, contractors could have submitted low prices for the solid fuel elements of tenders, knowing that the actual proportion of this work required would be significantly lower than that envisaged by NIHE’s scheme design estimate. NIHE told us that there was no evidence of such strategic pricing by bidders on these contracts and the change in the uptake level was largely attributable to the first 11 contracts. However, in such circumstances, there is a risk that a contracting body may inadvertently reject more accurately priced tenders at the outset, and fail to secure value for money, as a result. This underlines the importance of identifying work required as accurately as possible, before letting contracts.

### **Dwellings added in after the commencement of schemes**

- 3.12 After compiling its initial scheme design estimates, NIHE added additional dwellings into almost all the pre-partnership heating contracts, at a cost of £900,000 to date. The practice of adding and deleting dwellings is a normal feature of housing contracts, and is unavoidable, due to factors such as house sales and tenants opting in and out of schemes. However, adding a significant number of extra dwellings can change the nature and value of contracts significantly, and may render the initial tendering process largely meaningless and decrease the likelihood of achieving value for money.



- 3.13 In five of the 52 contracts, the number of installations increased by more than 20 per cent compared with the original tender. In one case, some 215 installations were completed, compared with a specification of 139. The additional cost (£150,208) represented over 62 per cent of the anticipated original value of the contract. This example illustrates the importance of thorough tenant surveys at the outset, in order to minimise the need for such additions after contracts have been let. NIHE said that numerous factors beyond views expressed by tenants at consultation stage led to additions and deletions in the number of dwellings within each scheme, in particular, where the gas supplier adjusted its programme for commercial reasons.
- 3.14 We welcome the fact that, under the new partnership arrangements (see Part 5 of this report), full surveys of each property are carried out prior to starting work. In our view, this has important advantages. Although additional costs are incurred in respect of surveying, the practice has resulted in a greater degree of cost predictability, with final costs in the first year actually marginally lower than the initial scheme design estimates.

## Breaches of NIHE Standing Orders

- 3.15 In April 2000, NIHE's Internal Audit noted that Standing Orders<sup>9</sup> had been breached on some 25 heating replacement contracts. Breaches related to NIHE Contract Administrators not obtaining the required prior approval from the Chief Executive's Business Committee for variances of original contract sums. Internal Audit noted that the total contract variations and overspends for these projects at that stage amounted to over £1.25 million, and stated that "it would not be unreasonable to describe these projects as having been uncontrolled."
- 3.16 We examined all pre-partnership heating contracts in which final accounts have been processed, and identified variations and overspends in 26 contracts amounting to £2.3 million and underspends of £0.18 million that were incurred

<sup>9</sup> NIHE's Standing Orders outline procedures for the operation of the Board and for financial delegation, as well as the Code of Conduct for NIHE Officers.

in breach of Standing Orders. NIHE told us that its staff are fully trained in the requirements of Standing Orders, and that systems are in place to ensure compliance with them. It also pointed to factors which led to contract variations (i.e. difficulties caused by changes of mind by tenants and the need to identify alternative locations when problems arose with the natural gas supply). However, we consider that systems failed to operate as intended with regard to these contracts, and we therefore recommend that NIHE compiles updated guidance on the requirements of Standing Orders. This guidance, which should address the shortcomings experienced in the gas heating contracts, should be disseminated to all relevant NIHE staff.

### Quality assuring heating installation work

3.17 The Gas Safety (Installation and Use) Regulations (NI) 1997 stipulate how the installation of pipework, fittings and appliances should be undertaken and, under these Regulations, employers are:

- prohibited from allowing employees to carry out work on a gas fitting unless the employer is a member of the Council of Registered Gas Installers (CORGI); and
- required to take steps to ensure that any work in relation to a gas fitting is undertaken only by CORGI-registered fitters.

NIHE told us that it took the necessary steps at the outset of its installation programme to ensure that contracts were awarded only to contractors who fulfilled the legislative criteria.

3.18 Before work on its programme began, NIHE liaised with local representatives of CORGI, in order to assess the ability of the local industry to deliver its programme. However, this was not a comprehensive analysis of the industry's ability to deliver the volume and standard of work that would be required, within the necessary time frame. NIHE told us that it relied on CORGI registration as a measure of competence, although this subsequently did not prove to be effective, in several cases.

3.19 In light of the fact that this was a large project of a type that it had not attempted before, we consider that it would have been important for NIHE to:

- assess the risks involved with undertaking such a large programme, involving a pool of relatively inexperienced contractors, and develop procedures and policies to address these risks adequately; and
- ensure that it had sufficient internal resources to plan, manage and control the programme properly.

Given the nature and cost of the project, we consider that the assessment and analysis of risks was very important, particularly as this step had been omitted from the 1997 heating policy appraisal (see paragraph 1.4), upon which the decision to offer gas heating was based.

3.20 In our view, appropriate analysis of these issues would have enabled NIHE to identify a number of significant internal and external constraints that needed to be addressed before its programme could be progressed safely and effectively. NIHE told us that it considered that the benefits derived from proceeding with the programme had outweighed the scale of the installation problems subsequently encountered. However, we identified a number of specific shortcomings associated with the planning and management of the installation programme, (see paragraphs 3.21 to 3.27).

### **Inadequate consultation with relevant bodies before beginning the programme**

3.21 Before letting the initial contracts for the programme, NIHE did not seek to obtain appropriate advice or guidance from organisations with relevant expertise or experience in dealing with gas heating (see paragraphs 1.4 and 1.10). We consider that early consultations with bodies such as:

- Health and Safety Executive for Northern Ireland (HSENI);

- Construction Industry Training Board in Great Britain; and
- housing authorities in Great Britain or the Republic of Ireland that had recently undertaken major gas heating installation programmes

would have assisted NIHE in identifying potential problems and risks associated with managing the installation programme, and enabled it to develop appropriate policies and strategies to address them.

### **Detailed building surveys and appropriate design specifications not produced**

- 3.22 At the outset of the programme, NIHE Headquarters staff were appointed to develop the design specification for the gas heating contracts. The Belfast Practice Group (BPG)<sup>10</sup> was required to provide the technical drawings associated with this. However, the BPG had no previous experience in developing specifications for gas heating installations and, at that stage, none of its staff had completed the CORGI qualification. Furthermore, the absence of detailed building surveys may have made it difficult to develop adequate specifications.
- 3.23 HSENI told us that design specifications produced for a number of subsequent contracts were found to be incomplete, and said that the shortcomings in the BPG's design specifications increased the likelihood that contractors would produce poor quality installation work and expose tenants to health and safety risks.

### **Inadequate arrangements for supervising and inspecting installation work**

- 3.24 In addition to developing design specifications, the BPG was appointed as Contract Administrator for almost all gas heating contracts, and assumed responsibility for quality assuring contractors' work. However, in view of the lack of expertise within the BPG at the outset of the programme, we do not

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<sup>10</sup> The Belfast Practice Group is one of NIHE's Design Practices, which provide a multi-disciplinary professional service in support of NIHE's ongoing planned maintenance and improvement contracts, as well as for some Housing Associations' house building programmes.

consider that it had the relevant technical expertise to develop proper policies and procedures relating to the quality assurance of installation work. In addition, when issuing its terms of appointment as Contract Administrator, NIHE did not set out terms of reference to define its responsibilities in respect of supervision and inspection, nor outline requirements for inspecting individual gas installations.

3.25 The extensive nature of NIHE’s heating replacement programme meant that up to 12 schemes, involving over 2,000 gas installations, could be ongoing simultaneously. However, we found that, at the outset of the programme:

- of the 16 CORGI-qualified NIHE staff, only four were in the Belfast Area (where the gas installation programme was ongoing), and only two of these were assigned to carry out on-site inspections of contractors’ work;
- one of the two on-site inspectors went on long-term sick leave shortly after obtaining the CORGI qualification and was not replaced; and
- the remaining inspector had other duties, such as examining new build housing and adaptations.

NIHE said that a further two staff obtained the CORGI qualification in 1998, and that all relevant staff were trained by HSENI on the Gas Regulations. CORGI training was intensified in February 2000, when some 16 staff completed the course. However, by this time, over 3,200 gas systems had already been installed in NIHE dwellings.

3.26 The absence of a policy framework for quality assuring work, combined with the few resources provided on-site, resulted in an inconsistent and reactive approach towards supervision and inspection of installation work. One Inspector told us that it was possible to make only “passing visits” to gas installation sites and that “numerous” gas systems had been switched on without having been inspected by NIHE staff. In such circumstances, it would have been possible to identify

only those defects which were visible at the time of an Inspector's visit, and the scope for undetected poor and unsafe work is evident. This approach also increased the potential for the unauthorised sub-contracting of work, possibly to non CORGI-registered contractors. In our view, this method of quality assurance represented a risk to value for money.

### Poor quality and unsafe workmanship

- 3.27 In August 2000, an inspection by a representative from the natural gas supplier identified problems with installation work in a number of NIHE properties in South Belfast. Significant defects were identified, and six installations were declared to be "At Risk". The general quality of workmanship was also found to be inadequate.
- 3.28 In 2001, NIHE began receiving complaints from tenants, particularly in North and West Belfast, about the unsatisfactory condition of some gas heating systems. An examination in two estates by NIHE's servicing contractor identified specific defects in several cases. Although NIHE recalled the contractors responsible for installation, they were unable to remedy satisfactorily the defects identified.
- 3.29 An internal NIHE investigation into contract management in one estate, where acute problems with poor quality installation work had been identified, concluded that:
- the standard of workmanship was generally poor;
  - particular difficulties had arisen with the use of back boiler systems;
  - the supervision of work had been poor; and
  - NIHE had placed too much reliance on CORGI registration as an indicator of contractors' competence to undertake work. In a letter to a Belfast City councillor, NIHE acknowledged that "it would be fair to suggest that the

industry was not well prepared by way of skilled labour and sound supervision programmes”.

3.30 A subsequent HSENI examination of gas installations in NIHE properties throughout Belfast identified:

- four installations classified as being “Immediately Dangerous”, three of which failed a spillage test;<sup>11</sup>
- three installations considered to be “At Risk”; and
- 20 cases in which the installation work undertaken did not comply with the Gas Safety (Installation and Use) Regulations 1997.

3.31 In respect of its investigations, HSENI concluded that:

- design specifications provided by NIHE to contractors were not sufficient;
- the overall general standard of gas installation work within NIHE properties was poor; and
- the overall lack of control of the contracts exercised by NIHE allowed the contractors to produce poor work with impunity.

3.32 In order to address the problems identified by both investigations, NIHE introduced a number of measures during 2001, including:

- discontinuing the use of back boiler systems;
- arranging for the immediate re-inspection of all gas installations, and remedial repair work, in the two estates where acute problems had been identified;
- ordering the immediate re-inspection of all gas installations that were currently on-site, or had been completed within the previous six months;

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<sup>11</sup> A spillage test is undertaken to determine whether products of combustion are present in a room. The presence of such products may result in the build-up of dangerous levels of carbon monoxide.



- a wider re-inspection programme covering all other gas installations, to be carried out in conjunction with the annual servicing programme;
- establishing new partnership arrangements for heating contracts; and
- developing a safety plan to address the unsafe installation practices identified.

3.33 Initially, NIHE had intended that all repairs would be undertaken by the original contractors, at no additional cost to NIHE. However, in March 2002, local tenant groups in two estates where acute problems had arisen applied for a judicial review aimed at preventing the return of the original contractors. Consequently, for these estates, alternative contractors were appointed to carry out re-inspections and repair work, with the intention that NIHE would recoup the cost from the original contractors.

3.34 NIHE is seeking to recover a total of £100,000 on one contract, and has held £80,000 from monies owed to the contractors, pending the outcome of negotiations. NIHE told us that costs incurred in respect of the other contract will only be fully identified when the remedial works are complete, but estimates that these may be in the region of £220,000.

3.35 As regards its wider re-inspection programme, NIHE told us that a further 16 heating systems had been identified as being “Immediately Dangerous”, but were unable to tell us how many systems were assessed as being “At Risk” or did not comply with the current Gas Regulations. However, we identified over 370 cases in 2001 in which installation faults were referred back to contractors for repair. NIHE told us that most of the repair work required related to contractors failing to comply strictly with its specification or building work requirements, and did not constitute safety risks. In our view, the amount of remedial work required suggests that the overall extent of unsatisfactory work may have been considerable, and underlines the need for an effective quality assurance regime.

- 3.36 It is unfortunate that NIHE did not comply with DOE's request, in May 1997, that it should "submit for examination, under Technical Audit arrangements, one of the first gas schemes installed". In our view, completion of this piloting exercise would have assisted NIHE in identifying and addressing potential problems at an earlier stage, and in designing measures aimed at preventing them. NIHE has acknowledged that it "underestimated the resources necessary to properly supervise the contracts".
- 3.37 The new partnership arrangements for heating contracts (see Part 5 of this report) place considerable emphasis on the delivery of high quality and safe workmanship, and contractors are required to achieve a number of performance indicators in this respect. NIHE told us that, since the introduction of these arrangements, no instances of "Immediately Dangerous" or "At Risk" installations had been identified.



*Photograph of open boiler (courtesy of Baxi Potterton)*

# Part 4

## Managing maintenance of heating systems

### NIHE's legal obligations as a landlord

4.1 The 1997 Gas Safety Regulations place a duty on landlords to ensure that:

- gas heating appliances and flues are checked at intervals of not greater than 12 months and maintained in a safe condition; and
- specific records in respect of any check are completed, retained and made available upon request to tenants.

Failure to comply with the Regulations is an offence under Article 31 of the Health and Safety at Work (NI) Order 1978, and, if convicted, offenders are liable to a fine of up to £5,000 for each offence.

### Quality of management information

4.2 In order to comply with the Regulations, NIHE requires a management information system that contains complete and accurate data in respect of each heating system installed. However, much of the documentation supplied to NIHE by contractors before June 2001 was incomplete and incorrect, and not submitted on a timely basis. Consequently, data generated by the database and used by NIHE to schedule and manage the planned servicing programme was unreliable.

4.3 We also found that:

- NIHE did not commit sufficient internal resources to the planning and administration of the maintenance function, eg. at the outset, only one individual had been fully trained in the operation of the servicing database; and
- contractors appointed to service gas systems were not required to provide service records in a format compatible with NIHE's software, and the data had to be input manually - a considerable task, given the thousands of installations involved.

In our view, these weaknesses, together with those noted in paragraph 4.2:

- placed NIHE in a position where, from the outset of its servicing programme, it was likely to be in breach of the Regulations; and
- impacted negatively on NIHE's ability to plan and manage the servicing programme effectively and efficiently.

### **Breach of statutory obligations**

4.4 By March 1999, the initial batch of over 300 gas heating systems were either due or overdue their annual service, but NIHE's contractors did not begin servicing them until April 1999. This placed NIHE in breach of the Regulations.

4.5 NIHE has been unable to monitor the full extent of this breach on an ongoing basis, mainly due to gaps in management information. However, the following indicates that there was a major ongoing backlog of maintenance, which was not cleared until November 2002:

- while over 1,900 gas systems had been installed by December 1998, only 640 planned services were undertaken in 1999; and

- out of a sample of 60 dwellings, we identified 45 cases in which servicing had not been undertaken within the statutory deadline. In 35 of these, servicing was not carried out until more than 3 months after the due date.

In our view, this evidence suggests widespread non-compliance with the Regulations, and the HSENI finding that a large proportion of tenants did not receive inspection certificates from contractors indicates further possible breaches (see paragraph 4.1). By not complying with the Regulations, NIHE potentially exposed a number of its tenants to health and safety risks, as well as making itself vulnerable to prosecution and fines (see paragraph 4.1).

### **Award of maintenance contracts**

4.6 Figure 8 below outlines the steps taken by NIHE to appoint contractors to undertake planned servicing and other maintenance for gas heating systems. We have made a number of comments on both the contract letting process and problems that subsequently arose with the servicing process.

**Figure 8: Details of servicing and maintenance contracts**

Contractor ref & date appointed	Type of agreement & value	Maintenance duties	NIAO comments/findings
Contractor A April 1999	Formal agreement  £0.25 million (estimated value)	<ul style="list-style-type: none"> <li>• Planned servicing of 300 gas installations and response maintenance for all gas installations.</li> <li>• Contract Administration duties for other gas servicing contracts.</li> <li>• From August 1999, the quality assurance of new gas installations.</li> </ul>	<p>1. NIHE appointed this contractor without undertaking any competitive tendering procedure. Instead, it entered into a negotiated procedure, due to the contractor’s specialist knowledge of the work required.</p> <p>2. NIHE said the original cost estimate for this contract was £50,000, well below the £160,000 threshold that would require advertisement in the Official Journal of the European Union (OJEU). The final cost (at least £0.25 million) was well in excess of the threshold.</p> <p>3. The fee for planned servicing (£72) was exceptionally high compared to that for Contractor B (£30). It was based on an existing servicing contract for an English council, which involved maintaining older boilers that would require more maintenance than those in NIHE properties.</p> <p>4. The contractor was not required to supply maintenance records in a format compatible with NIHE’s software, resulting in NIHE having to input the data manually.</p>
Contractor B November 1999	Contract  £0.94 million	<ul style="list-style-type: none"> <li>• Planned maintenance of 3,500 gas systems.</li> <li>• From July 2000, the contractor assumed responsibility for response maintenance of these systems.</li> </ul>	<p>1. This contract was not competitively tendered, but was subsumed by means of a negotiated procedure into an existing solid fuel maintenance contract. Although the contract amount considerably exceeded the EU threshold, NIHE considered that EU regulations permitted it to enter into negotiation with the existing contractor, instead of advertising the work.</p> <p>2. The contractor had carried out over 20 per cent of gas installations between 1998 and 2001. In our view, asking a contractor to identify any faults with his own installation work represented a potential conflict of interest.</p> <p>3. The contractor was subsequently unable to fulfil his contractual requirements, and a significant backlog of planned servicing developed. The contract was ended, by mutual agreement, and the new maintenance contractor started work some 4 months earlier than scheduled, in November 2001.</p>



4.7 In our view, these findings illustrate that NIHE's management of the planned servicing and response maintenance of gas heating systems was not based on sufficient forward planning or strategic direction. We also consider that NIHE placed undue reliance on the ability of contractors appointed to undertake the necessary maintenance and associated administrative duties. As a consequence:

- NIHE risked breaching EU tendering regulations;
- value for money may not have been achieved due to the absence of competitive tendering for two high-value contracts; and
- the planned maintenance programme fell well behind schedule, placing NIHE in breach of the 1997 Gas Regulations.

NIHE told us that its decision, in March 2000, to introduce partnership arrangements for its heating installation contracts had exacerbated the backlog in its planned maintenance programme, because most of the qualified engineers who were employed with the maintenance contractor left the company to take up employment with the partnership contractors. NIHE has addressed the lessons learned from the problems experienced with its maintenance programme in the design of the new partnership contracts for maintenance that have operated since April 2002.



*Photograph of wall-hung boiler located in kitchen (courtesy of Baxi Potterton)*

# Part 5

## The potential of new partnering arrangements to deliver better value for money

5.1 Reports by Sir Michael Latham in 1994 and Sir John Egan in 1998 (see Introduction, paragraph 4 of this report), both emphasised the need to improve the efficiency and quality of public sector construction projects. Both reports highlighted the potential of the partnering approach to deliver the necessary improvements, through client and contractor working together to continually improve performance and to achieve satisfactory cost and delivery outcomes through agreed objectives.

### Process used by NIHE to appoint contract partners

5.2 In January 2000, NIHE established a steering group to consider projects that could be delivered more efficiently and effectively through application of the Egan principles. Heating was identified as an area in which improvement was required, and achievable, primarily because:

- traditional procurement arrangements, with approximately 30 contracts being let annually, resulted in a heavy administrative workload; and
- poor standard of workmanship, particularly in relation to gas installations, had become prevalent in the existing contracts. Larger contracts, combining design, installation and maintenance would enable NIHE to develop longer-term relationships with contractors, and offer the potential for quality improvements.

- 5.3 In March 2000, the NIHE Board approved the consolidation of the heating replacement programme into three large partnership contracts, incorporating the design, installation and maintenance of heating systems. Contractors were appointed for an initial five-year period, with each contract having an estimated annual value of £5-6 million.
- 5.4 Previously, NIHE awarded heating contracts solely on the basis of the lowest tender submitted (see Part 2 of this report). The appointment of partners is more complex, and requires awarding authorities to undertake comprehensive assessments of contractors' ability to deliver quality work. Good practice guidance generally acknowledges the appointment process as being one of the biggest potential risks associated with partnering. In particular, it is recognised that the following factors need to be adequately addressed by contract awarding authorities:
- partnership agreements must be planned adequately - the success factors desired from the partnership must be clearly identified at the outset. This assists the development of appropriate criteria for assessing the suitability of potential partners to undertake contracts; and
  - the appointment process must demonstrate probity and accountability - in order that this is achieved, a pre-defined model setting out the basis for assessing prospective partners must be developed. Records of how prospective partners were subsequently evaluated, and by whom, should be retained.
- 5.5 The key steps taken by NIHE to appoint partners for the three new heating contracts are detailed in Appendix 2. We consider that the approach used by NIHE was sufficiently robust, and complied with relevant good practice in the following key areas:
- the NIHE steering group identified the key success factors desired from partnering, before initiating the contract award process;

- NIHE complied with EU tendering regulations and took the steps necessary to maximise competition and ensure probity and accountability;
  - NIHE used a pre-defined, comprehensive model to evaluate prospective partners, including assessment by panels of suitably qualified assessors. An appropriate audit trail of assessment records was retained;
  - the weightings allocated to quality of work (70 per cent) and price (30 per cent) were established prior to the assessment of tenders and were in line with those recommended by the Construction Industry Board; and
  - panel members undertook assessments of the quality aspect of tenders, without prior knowledge of the prices submitted.
- 5.6 Following completion of the assessment process, partners were appointed for the three contracts, assuming responsibility for heating installations in June 2001, and maintenance in April 2002. As a result of the emphasis placed on quality, one of the contracts was awarded to a contractor who had not submitted the lowest priced tender.
- 5.7 We welcome the important steps outlined above. However, we note that NIHE did not agree a formal risk allocation schedule with the contractors. Consequently, it has no assurance that all the risks associated with the proposed programme of work have been fully assessed, and that responsibility for these has been allocated to the party best equipped to manage them. This increases the potential for increased costs and lower quality of work. NIHE told us that it has produced risk allocation schedules for the current contracts, but these have not yet been agreed by contractors. Without formal agreement, these schedules cannot be enforced as a means of allocating relevant costs to contractors, should any of the risks materialise. We recommend, therefore, that NIHE should agree these schedules with contractors without delay and ensure that such schedules are formally incorporated into future contracts.

## Measuring partners' performance

- 5.8 Adequate performance monitoring and reporting arrangements are an essential component of a successful partnering arrangement, in order to assess whether:
- the new arrangements are delivering improvements in comparison to the procurement process previously used; and
  - partners are achieving, and exceeding, the level of performance desired under the new contracts.
- 5.9 NIHE has incorporated a number of key performance indicators (KPIs) into the new contracts, aimed at ensuring that partners achieve high levels of quality and satisfactory cost and timeliness outcomes. These are broadly in line with indicators developed by the Construction Best Practice Programme,<sup>12</sup> with some amendments made to reflect the specific requirements of NIHE's heating contracts. Partners are rewarded with a financial bonus of 0.5 per cent of the annual value of the contract (approximately £25,000) if all the KPIs are achieved. Conversely, the contract may be terminated if a contractor fails to achieve the standard. In order to encourage continuous improvement, the standard of performance required will be increased annually over the contract period. Appendix 3 outlines the level of performance required in the initial year.
- 5.10 Although the contract terms clearly specify the performance standards required for partners to achieve payment of any bonus, the extent to which performance would have to deteriorate in order for NIHE to terminate the contract has not been clearly outlined. In circumstances where the partner fails to achieve the performance required, it is therefore unclear whether, or how, this sanction would be applied.
- 5.11 We consider that NIHE could have benefited more from the partnering approach, and reduced its risk of exposure to financial loss further, by incorporating clearly

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<sup>12</sup> The Construction Best Practice Programme provides support to individuals, companies, organisations and supply chains in the construction industry seeking to improve the way they do business. It is funded by the Department of Trade and Industry and steered by Government and the Construction Industry.

defined penalties for poor performance and a full risk assessment at the outset of the contract procedure. In our opinion, more soundly based allocation of risks and better definitions of performance shortcomings, linked to specified penalties, would provide a more fitting and accountable framework for managing the contracts. We recommend, therefore, that such arrangements are introduced as standard practice for all future partnership contracts.

## Evaluating Contract Outcomes

5.12 In order to establish the extent to which the partnership arrangements have achieved their objectives, NIHE carried out an evaluation of the first year of operation of the contracts (June 2001 to May 2002). As contractors did not assume responsibility for maintenance until April 2002, the review was confined to the design and installation elements of the contracts. The review sought to evaluate whether:

- contractors had achieved their financial performance targets;
- the quality of work required had been delivered; and
- the partnering arrangements were functioning adequately and had succeeded in improving relations between NIHE and contractors.

5.13 NIHE's review of the financial aspects of the new contracts found that the arrangements had resulted in a high degree of cost predictability. Final costs for the first year of the two Belfast contracts were 0.4 per cent below estimate, and those for the South Area contract were 2.17 per cent above estimate. This outturn compared favourably with the KPI which requires the final cost of the year's programme to be no more than 5 per cent above or below estimated costs.

5.14 In respect of timeliness and quality, NIHE noted that:



- all schemes had been completed within the required three-month period;
- all individual installations had been completed within the required three-day target;
- customer satisfaction levels (either 'satisfied' or 'very satisfied') stood at 95 per cent, (2 schemes) and 99 per cent, easily surpassing the required KPI level of 90 per cent in each instance;
- no instances of 'Immediately Dangerous' or 'At Risk' defects had been identified; and
- no accidents at work were reported by contractors.

5.15 In order to establish how the relationship between the two parties had developed during the first year, questionnaires were sent to representatives of both NIHE employees and the contractors. The overall results of the exercise indicated that partnering had improved the contract relationship. However, some negative comments were recorded on questionnaires, and these are currently being considered by NIHE management to ascertain whether action is required to address criticisms raised.

5.16 NIHE also sought to compare the cost of heating installations under the partnership contracts with costs incurred under the previous heating contracts. A meaningful comparison proved difficult, because:

- the type and nature of work has changed, with the new schemes tending to comprise more full heating replacements rather than boiler conversions, which were more prevalent in the old schemes; and
- costs for the new contracts are inclusive of scheme survey and design, tenant consultation, 12-month warranty and tenant video/information pack, which were not provided under the previous arrangements.

In an attempt to compare costs for the old and new contracts on an accurate basis, NIHE benchmarked costs for similar types of schemes, making adjustments to allow for items that were not included as part of the old contracts. NIHE estimated that the cost of individual gas installations has increased by £245, with oil installations increasing by £233, under the first year of the partnership arrangements.

5.17 On the basis of these assumptions, NIHE estimates that the 2,800 heating installations completed during the first year of the partnership arrangements have resulted in additional capital costs of £671,300 in comparison to the previous contract arrangements. However, NIHE anticipates that potential savings due to reduced repair and maintenance costs will provide a net saving within the next 12 months. Additional administrative savings are also anticipated due to:

- reduced administrative costs in NIHE's Contracts department as individual schemes (approximately 30 per year) no longer need to be tendered; and
- lower administrative costs due to a reduction in complaints from tenants about poor quality work.

### Scope for further gains through partnering

5.18 Overall, NIHE's review concluded that "the new heating contracts are considered to be a success" and that, although the cost of heating installations has increased under the new arrangements, "the quality and service is in excess of the additional cost and value for money has been achieved". We acknowledge that the evidence available to date suggests that the partnership arrangements will deliver many significant benefits, including:

- a high degree of cost predictability, mainly due to improved procedures for design, survey and financial control;
- high standards of workmanship, with only a few, minor, defects identified; and
- high levels of customer satisfaction, with all individual installations completed within a three-day period.

In order to demonstrate whether the higher standard of work ultimately delivers the financial savings that NIHE anticipates (see paragraph 5.17), it is important that full post project evaluations are produced. These should include identification and quantification of any reductions in maintenance and administrative costs.

5.19 As well as the main room heater replacement programme, NIHE installs heating systems in its own dwellings, and those owned privately, under its adaptations scheme. This involves altering the homes of elderly or disabled people, to make them safer and more suitable for their needs. In 2000-01, NIHE spent some £2 million on heating adaptations in the Belfast Area alone, more than was spent on ordinary heating replacements in that year.

5.20 NIHE's new heating partnership arrangements do not include adaptations, which are managed separately under three Measured Term Contracts.<sup>13</sup> In our opinion, this procurement method does not provide the best value for money, because:

- costs for oil and gas installations are higher compared with the partnership contracts; and

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<sup>13</sup> A Measured Term Contract is one where tendering is based on specific rates for different types of work, over a set time period, rather than for an entire, specific job. Contractors are usually appointed on the basis of a select list competitive tender.

- Measured Term Contracts do not place the degree of emphasis on quality that partnership arrangements seek to deliver. There is a less rigorous regime of inspection of work, and contractors are not required to meet any of the formal KPIs included in the partnership contracts.
- 5.21 NIHE told us that it had identified the potential to extend partnership arrangements to cover heating adaptations, and that these should be in place by April 2004. In light of the obvious potential for improvement offered by the partnership contracts, NIHE anticipates that savings will be realised, in addition to quality improvements, through extending their use to adaptations works.
- 5.22 With annual maintenance and construction expenditure of over £200 million, NIHE has responsibility for managing one of the largest public sector budgets of this type in Northern Ireland. The potential scope for developing partnership arrangements to deliver programmes of work is, therefore, significant. NIHE told us that it had put in place measures to ensure that targets established by the Government Construction Client Group for adoption of the Rethinking Construction principles by Northern Ireland Government bodies would be fully met. NIHE anticipates that the vast majority of its maintenance contracts will be Egan-compliant by the end of 2004. We welcome these important initiatives.

# Appendices

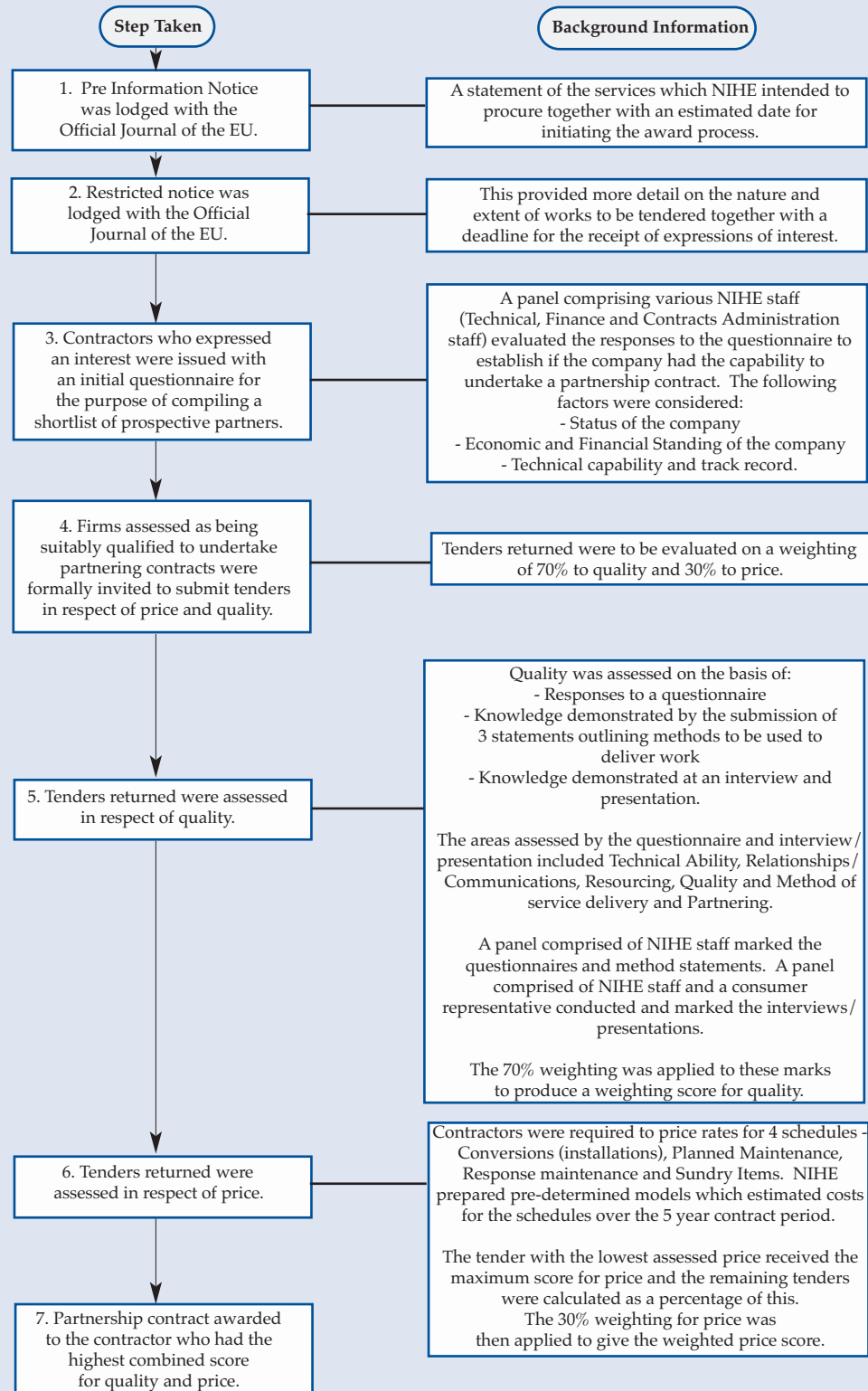
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**Appendix 1**  
(paragraph 2.12)

## **Indicators of procurement fraud (HM Treasury)**

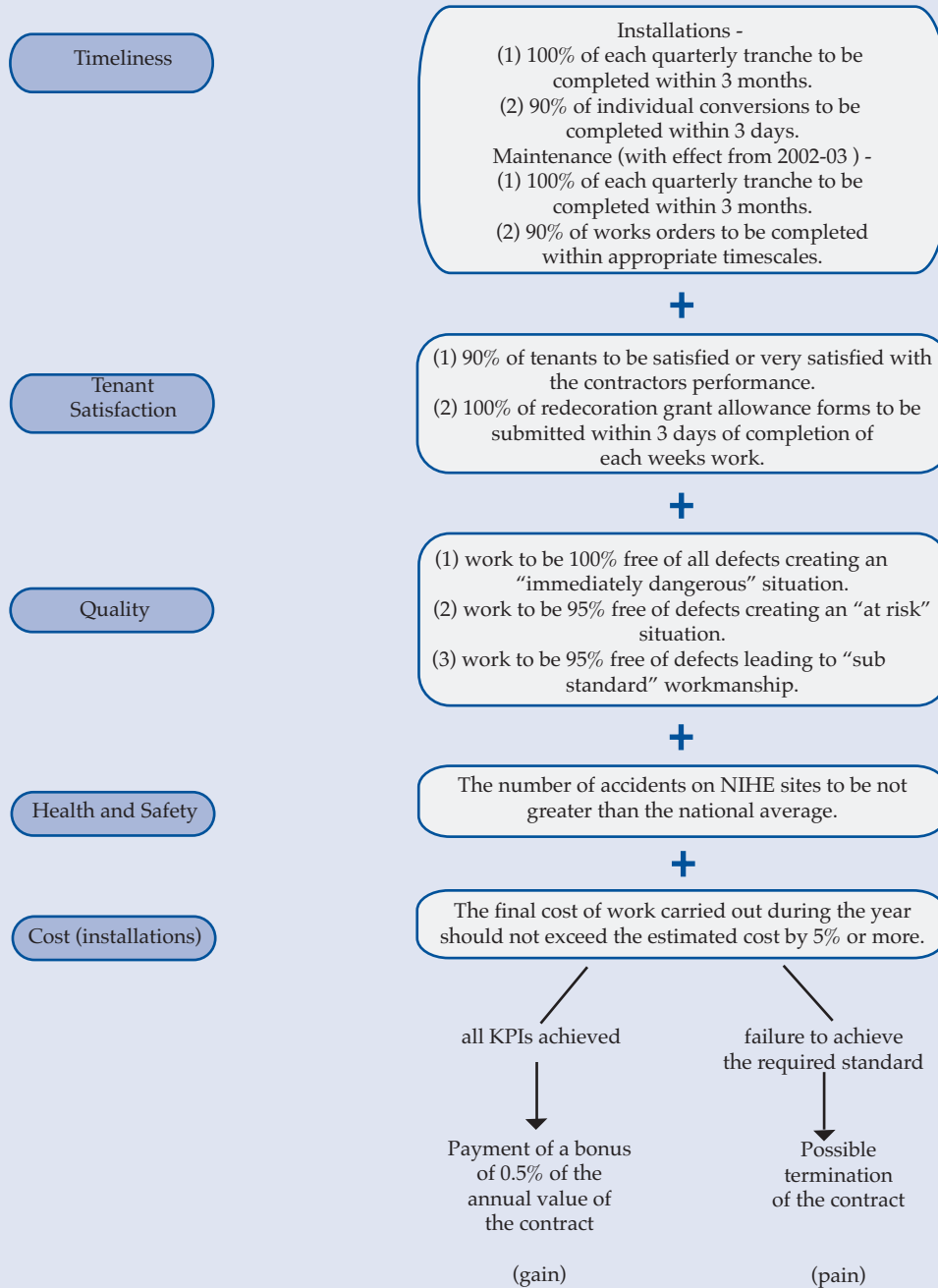
- Disqualification of suitable tenderers;
- 'Short' invitation to tender list;
- Unchanging list of preferred suppliers;
- Consistent use of single source contracts;
- Contracts that include special, but unnecessary specifications, that only one supplier can meet;
- Personal relationships between staff and suppliers;
- Withdrawal of a lower bidder without apparent reason and their subsequent sub-contracting to the successful bidder;
- 'Flexible' evaluation criteria;
- Acceptance of late bids;
- Changes in specification after bids have been opened;
- Consistently accurate estimates of tender costs;
- Poor documentation of the contract award process;
- Consistent favouring of one firm over another;
- Unexplained changes in the contract after award;
- Contract awarded to a supplier with a poor performance record;
- Split contracts to circumvent controls or contract conditions;
- Suppliers who are awarded contracts disproportionate to their size; and
- Frequent increases in contract specifications.

## Key steps in appointing heating contract partners



**Appendix 3**  
(paragraph 5.9)

**Partnership heating contracts Performance Indicators**





# List of NIAO Reports

Title	NIA/HC No.	Date Published
<b>2003</b>		
The Sheep Annual Premium Scheme	NIA 75/02	6 February 2003
The PFI Contract for the Education and Library Board's New Computerised Accounting System	NIA99/02	20 March 2003
Areas of Special Scientific Interest	NIA103/02	27 March 2003
Financial Auditing and Reporting: 2001/02	NIA 107/02	2 April 2003
The Use of Operating Theatres in the Northern Health and Personal Social Services	NIA111/02	10 April 2003
Investigation of Suspected Fraud in the Water Service	HC 735	26 June 2003
Management of Industrial Sickness Absence	HC 736	1 July 2003
Encouraging Take-Up of Benefits by Pensioners	HC 737	3 July 2003
<b>2004</b>		
Navan Centre	HC 204	29 January 2004
The Private Finance Initiative: A Review of the Funding and Management of Three Projects in the Health Sector	HC 205	5 February 2004
De Lorean: The Recovery of Public Funds	HC 287	12 February 2004
Local Management of Schools	HC 297	19 February 2004
The Management of Surplus Land and Property in the Health Estate	HC 298	26 February 2004
Recoupment of Drainage Infrastructure Costs	HC 614	8 June 2004
Use of Consultants	HC641	10 June 2004

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