



## **Knauf Insulation Limited and Superglass Insulation Limited**

A report on the proposed acquisition of Superglass Insulation Limited by Knauf Insulation Limited

November 2004

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### **Note by the Competition Commission**

The Competition Commission has excluded from this report information which the inquiry group considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002. The omissions are indicated by [✂].

# The acquisition by Knauf Insulation Limited of Superglass Insulation Limited

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## Glossary

## Summary

1. On 17 June 2004 the Office of Fair Trading (OFT) referred the proposed acquisition by Knauf Insulation Limited (Knauf), a subsidiary of Gebrüder Knauf Verwaltungsgesellschaft (Knauf Group), of Superglass Insulation Limited (Superglass), a subsidiary of Encon Limited (Encon), to the Competition Commission (CC) for investigation and report. The reference was made under section 33 of the Enterprise Act 2002 (the Act). Our terms of reference are set out in Appendix A. We are required to publish our final report by 1 December 2004.
2. Knauf and Superglass overlap in the manufacture of glass wool insulation products. These are used mainly in loft and cavity wall insulation.
3. On 19 December 2003, Encon entered into an agreement with Knauf to sell the entire share capital of Superglass to Knauf, which will result in the two enterprises ceasing to be distinct. Knauf's share of supply (by value) of all mineral wool insulation products is currently 35 to 45 per cent; Superglass's share is currently 10 to 20 per cent. We therefore believe that if the merger takes place the merged entity's share will be 50 to 60 per cent, which satisfies the share of supply test in the Act. We therefore concluded that arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of a relevant merger situation.
4. We concluded that the markets primarily affected by the proposed merger were those for glass wool rolls for loft insulation (the loft roll market); for glass wool, stone wool and plastic slabs for cavity wall insulation (the slab market); and for glass and stone blowing wool for cavity wall insulation (the blowing wool market). We concluded that these markets are Great Britain wide, and that Great Britain is a separate geographic market from Northern Ireland. The products produced by the parties for these markets (loft insulation rolls, cavity wall slabs and blowing wool) together account for three-quarters of their glass wool sales.
5. We found that the nature of competition in mineral wool markets depended on the specific interaction of demand and capacity. For some years prior to 2004 capacity had exceeded demand and a 'spare capacity pricing regime' had been in place. In this regime, although list prices were regularly increased (almost always led by Knauf), the prices actually paid by customers (realized prices) did not follow. Customers were often able to defeat these list price increases in negotiation by switching, or threatening to switch, supplier. Manufacturers were prepared to compete on price in order to try to use more of the capacity of their plants and thus reduce their unit costs.
6. Early in 2004 demand for loft rolls, for the first time in many years, reached and exceeded capacity for some products, and an 'excess demand pricing regime' has come into effect. Realized prices for loft rolls and slabs appear to have started to rise in line with list price increases (of the order of 30 per cent in 2004 so far). Opportunities for customers to switch supplier were much reduced, since manufacturers unable to supply all the material required had less incentive to compete for customers dissatisfied by price rises. Among other steps taken in response to these circumstances, manufacturers have put in place plans to expand capacity, but most of the new capacity proposed is not expected to be available before 2007. The quickest expansion available to any manufacturer is the opportunity of a 20 per cent increase in capacity in Superglass's Stirling factory, which could start to become available from 2005.

7. Our assessment of likely demand and capacity trends suggests that demand is likely to exceed capacity for loft rolls until significant new glass wool capacity becomes available in 2007, at which point we expect capacity again to exceed demand. At present, capacity exceeds demand for blowing wool. However, we expect demand to exceed capacity for blowing wool for at least part of the period prior to significant new capacity becoming available. Thereafter, we expect that capacity will once again exceed demand.
8. We considered what might happen to Superglass if the merger did not go ahead. We could not form an expectation that Superglass would be sold to a purchaser other than Knauf in the near future, nor that funds would be made available for capacity expansion under either current or new ownership (though we think both are possibilities). However, in our view, even if no investment were to be forthcoming, Superglass could be expected to continue in existence as a competitive force in the market, as it does at present, at least in the medium term.
9. If the merger proceeds, an independent competitor will be eliminated and the number of competitors will be reduced from three to two in the loft roll market and from four to three in the blowing wool market. The merged entity would have over 80 per cent of the loft roll market in Great Britain, more than four times that of its only competitor. Similarly, the merged entity would have roughly two-thirds of the blowing wool market in Great Britain, more than three times that of its closest competitor. The merged entity would have less than 20 per cent of the slab market in Great Britain. We did not think that the position in the slab market was such as to give cause for concern, so we did not consider it further.
10. In assessing the effect of the merger on the loft roll and blowing wool markets, we considered first the period when demand exceeds capacity (which we expect to last until early 2007), then the period when capacity once again exceeds demand (which we expect will occur at some point in 2007), and then the potential impact of the merger on the likelihood and timing of the return to spare capacity.
11. In periods where demand exceeds capacity, even though manufacturers cannot increase their total volume sales, there is still scope for competition between them for the most profitable customers. Through the reduction in the number of competitors from three to two (in the loft roll market) and from four to three (in the blowing wool market), and through the increase in Knauf's share of capacity and the corresponding decrease in its competitors' share of capacity, the merger will enable Knauf to charge higher prices to some customers than in the absence of the merger. We therefore expect the merger to give rise to a substantial lessening of competition (SLC) in periods when demand exceeds capacity. We expect this to be the case for loft rolls immediately, and at least until early 2007, and for blowing wool from the point at which demand exceeds capacity in that market (which we expect shortly), to the point in 2007 at which capacity once again exceeds demand.
12. We considered the likely impact of the merger on price competition when there is excess capacity in the market (for blowing wool for the time being and in both markets once additional capacity becomes available in 2007). We concluded that in these circumstances the increase in Knauf's market share (and in its share of total capacity) will have a significant effect on Knauf's incentives. Knauf will have both the incentive and the ability to restrict supply to the relevant markets in Great Britain to levels which enable it to maintain the level of prices which have characterized the excess demand regime. Knauf might achieve this by seeking to export to overseas markets in order to fill capacity, or by tolerating less than full utilization if necessary.

13. We think that British Gypsum-Isover (BGI) would have an incentive to follow Knauf's price leadership rather than to seek to capture market share from Knauf by competing with Knauf on price. We recognize that Rockwool is also a close competitor in the market for blowing wool, but do not believe that its presence makes a fundamental difference to Knauf's incentives or ability to act as described.
14. This set of circumstances is distinctly different from the circumstances which would exist without the merger. If Superglass remained independent, Knauf would face two competitors sharing the remaining one-third of the loft roll market and three competitors sharing the other half of the blowing wool market. In order to maintain price levels in these circumstances Knauf would have to concede more of the market and incur higher unit costs in consequence. We would also expect Superglass to remain an active competitor on price as it has been in recent years. Thus we believe the incentive on Knauf to restrict output destined for domestic markets and maintain high prices is substantially increased by the removal of Superglass. We therefore also expect the merger to give rise to an SLC in periods when capacity exceeds demand in the loft roll and blowing wool markets.
15. We further considered the impact of the merger on the level of available capacity. Knauf told us that additional capacity at Superglass's Stirling plant would only become available quickly if the merger proceeded. However we do not expect that the expansion of capacity at the Stirling plant would be significant enough to create levels of spare capacity which would have a significant impact on the current excess demand regime. Even if it were, the period between the new Superglass capacity becoming available and the larger capacity increases planned by other manufacturers becoming available would be short-lived (a maximum of around 18 months). We therefore do not expect that making this capacity available quickly would enhance competition in the market.
16. We also considered the effects of the merger on the likelihood of the expansions of capacity planned for 2006 to 2007 coming to fruition, and on their timing. We concluded that we expect the merger not to have any effect on manufacturers' announced plans for capacity expansion (although if it did, the excess demand regime would be prolonged and there would be an adverse effect on customers).
17. In sum, we expect that as long as demand exceeds capacity in either market, the merger will enable Knauf to raise prices more to certain customers than would otherwise be the case. In circumstances where capacity exceeds demand in either market, we expect the merger to increase Knauf's incentive and ability to maintain prices at the levels possible where demand exceeds capacity, and above those we expect under the counterfactual. The merger will also leave BGI and other competitors with clear incentives, even if they were to have spare capacity, not to initiate vigorous price competition. We therefore expect that manufacturers' selling prices in the loft roll and blowing wool markets in Great Britain following the merger will be higher than they would be in the absence of the merger.
18. This assessment is based on a number of expectations. In all cases, if the most likely alternative to our expectation were to prevail we believe that the adverse effect of the merger on customers would be no less than described, and could be worse.
19. We note that if, as a result of the merger, manufacturers' selling prices of glass wool loft rolls alone were to be, say, 20 per cent higher than in the absence of the merger, customers would be paying around £10 million a year more.

20. We conclude that the merger may be expected to give rise to a number of substantial lessening of competition in the markets for glass wool loft insulation rolls and glass and stone blowing wool for cavity wall insulation in Great Britain.
21. In our notice of possible remedies published on 7 October 2004 we suggested that a prohibition of the merger was likely to be the most appropriate remedy. We have also considered two kinds of alternative remedy—divestments and behavioural remedies. Given that the SLC we identified bore largely on price, we have considered mainly behavioural remedies (including some suggested by Knauf) which would constrain prices.
22. However, we concluded that available divestment remedies were either disproportionate (in the sense of being more intrusive or costly than prohibiting the merger) or would not effectively address the SLC. Moreover, in the light of the characteristics of this market, we concluded that there is no behavioural remedy which is both practicable and capable of remedying the adverse effects of the SLC.
23. We therefore conclude that the only effective remedy is to prohibit the merger.

## Findings

### 1. The reference

- 1.1 On 17 June 2004, the OFT referred the proposed acquisition by Knauf, a subsidiary of Knauf Group, of Superglass to the CC for investigation and report. The reference was made under section 33 of the Act. Our terms of reference are set out in Appendix A. We are required to publish our final report by 1 December 2004.
- 1.2 This document, together with the appendices, constitutes our final report which we are required to publish by the Act.<sup>1</sup> Further information, including non-commercially sensitive versions of main party and third party written submissions and summaries of third party views given in oral evidence can be found on our web site.<sup>2</sup> We cross-refer to those documents as appropriate.

### 2. The products and companies

#### *Mineral wool*

- 2.1 Knauf and Superglass overlap in the manufacture of glass wool insulation products. A full description of the purposes of insulation, the different applications of insulation, the materials used and their properties is contained in a report we commissioned from Mott MacDonald, a consultancy company, which is published on the CC's web site. Paragraphs 2.2 to 2.6 are a brief summary.
- 2.2 Thermal insulation materials are used in applications where it is necessary or desirable to reduce heat transfer between two areas, to keep areas either warm or cool. Insulating materials may be used, for example, to increase the level of comfort in occupied buildings or to save energy in domestic, commercial or industrial applications, appliances and equipment. Typical domestic uses include the insulation of internal and external walls, roofs and floors of buildings, insulating hot or cold appliances (ovens, refrigerators or freezers) and lagging hot and cold water pipes and tanks. Insulating materials may also contribute to acoustic insulation and fire prevention in buildings.
- 2.3 Materials used for insulation fall broadly into two categories—organic foams (plastics) and inorganic materials. Organic foams are plastic or similar materials into which small bubbles of air or other gas are introduced. They include polystyrene, polyurethane, and others in a variety of forms including boards and beads. The principal inorganic material is mineral wool.
- 2.4 Mineral wool consists of fine fibres which are formed from molten raw material (usually sand, soda ash and limestone and cullet in the case of glass wool, and a rock such as basalt or diabase in the case of stone wool) by passing the molten material through spinning disks with small holes in them (known as fiberisers or spinners) to create fine strands of material which quickly solidify. Once the fibres are formed, they are generally bonded together by a resin, and then shaped into one of several products:
- Rolls are soft, flexible blocks of mineral wool, packaged in rolls.

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<sup>1</sup>Section 38(1).

<sup>2</sup>[www.competition-commission.org.uk](http://www.competition-commission.org.uk).

- Slabs are denser, rigid blocks of mineral wool which are made in various densities.
- Blowing wool comprises mineral fibre ground up into small balls of fibre a little like cotton wool. 'White wool' is made from virgin glass fibre extracted from the manufacturing line before any resin is added. 'Yellow wool' is made from trimmings of finished product and other scrap (and is therefore yellow in colour because of the resin already in the material). 'Brown wool' is blowing wool made from stone fibre.
- Pipe sections are tubular covers which fit round pipes of varying diameters.

Specialist applications require products of various shapes and sizes to fit the appliance being insulated (for example, jackets for hot water tanks). The manufacturing process is explained in more detail in Appendix B.

## 2.5 Glass wool products have two primary uses:

- for cavity wall insulation: slabs of glass wool (sometimes known as batts) can be built into the wall cavity as the wall is constructed. It is also possible to fill the cavity at any time after the wall is built, using a machine to blow blowing wool through small holes drilled in the cavity wall; and
- for loft insulation: glass wool rolls (sometimes known as mats or quilts) can be used to insulate lofts, either at ceiling level (laid between the joists) or at rafter level (placed between the rafters and held in place with a suitable liner board).

There are a number of other uses of glass wool, including cladding of industrial buildings, lagging pipes and hot water tanks, insulating floors, insulating industrial machinery etc. Stone wool is used in the same applications as glass wool, although it is rather less used for cavity walls and lofts and rather more used in the other applications, and also in high temperature applications where glass wool is not suitable.

- 2.6 The processes for making glass wool and stone wool are broadly similar, but the properties of each material are different. For example, stone wool is denser and provides better fire protection and acoustic insulation than glass wool. Glass wool is lighter and its thermal performance is generally better for the same weight of material. The implications of these differences for substitution between the two materials in different applications are addressed in section 4.
- 2.7 Total UK sales of mineral wool by UK manufacturers in 2003 amounted to £160–£190 million,<sup>3</sup> of which glass wool accounted for the clear majority (around £100 million) and stone wool around £70 million.
- 2.8 The parties told us that total sales of loft insulation materials in 2002 were worth approximately £60–£70 million, and that total sales of cavity wall insulation materials were worth a further £60–£70 million, of which three-quarters was attributable to new build and one-quarter to retrofit. Estimates from market research companies show that total sales of insulation have grown by around 8 per cent a year since 1999, and that most of the growth has come from the domestic sector which has grown by

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<sup>3</sup>Imports to the UK amounted to around £17 million of glass wool and £26 million of stone wool in 2003, exports amounted to £18 million of glass wool and £30 million of stone wool.

12 per cent a year over that period. The increase in demand for insulation is expected to continue—this is discussed further in section 5.

## **Knauf**

- 2.9 Knauf is a subsidiary of Knauf Group, a German-based group with an annual turnover of approximately €3 billion, which specializes in the manufacture of building products. Knauf Group currently has six factories in the UK and in addition to being the market leader for insulation is also the second largest supplier of drywall products. Knauf told us that the insulation division is an increasingly important element within Knauf Group, contributing almost €[redacted] billion to annual turnover worldwide.
- 2.10 The UK insulation business now owned by Knauf was originally owned by Pilkington Insulation. It was acquired from Pilkington in June 1994 by Owens-Corning Fibreglass (UK), the UK subsidiary of a large American supplier of glass fibre insulation and other building materials. In June 2000 the Owens Corning business formed a joint venture with Alcopor (a Swiss company). The following year Alcopor bought out the Owens Corning interest and formed a joint venture with Knauf; in December 2002 Knauf bought out Alcopor to bring the whole business under Knauf control.
- 2.11 Knauf operates three mineral wool plants in the UK, manufacturing stone wool at Queensferry in North Wales, and glass wool at Ravenhead (St Helens) and at Pontyfelin in South Wales. In addition, Knauf manufactures extruded polystyrene at Hartlepool.
- 2.12 Summary financial details for Knauf are set out in Appendix C. The insulation business now owned by Knauf has experienced fluctuating profitability over the last five years, but achieved profit before tax of over £3 million on turnover of £83 million in 2003. [redacted]

## **Superglass**

- 2.13 Superglass manufactures glass wool at its factory in Stirling in central Scotland. It is a wholly-owned subsidiary of Encon Limited (Encon). In addition to Superglass, Encon has three other trading subsidiaries; Encon Insulation Ltd (Encon Distribution), Gill Insulation Eastern Ltd and Gill Insulation Notts Ltd. Encon Distribution is a specialist distributor of insulation and other building products, operating from 18 locations across the UK. Gill Insulation Eastern Ltd and Gill Insulation Notts Ltd are insulation installers, based in Ipswich and Nottingham respectively. In 2003, Encon Ltd had a consolidated turnover of £134 million, of which Superglass accounted for £24.5 million, Encon Distribution for £112 million, and the two Gill Insulation businesses £7 million.<sup>4</sup>
- 2.14 The Superglass business was started in 1987 by a management team led by Mr Douglas McKerracher, with backing from a group of venture capitalists. The management team bought a former Pilkington stone wool factory which, whilst closed down, had not been decommissioned. They were therefore able to convert it to glass wool production and restart two of the original four lines.

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<sup>4</sup>The difference between the sum of the constituent parts' turnover and the consolidated turnover is accounted for by consolidation adjustments (mostly intra-group transactions).

- 2.15 Encon and its subsidiaries were acquired by 3i Group plc (3i) on 20 November 1997 from the original venture capitalists who were looking to exit the business. 3i paid £[~~2~~] million for an 80 per cent stake in the share capital; management held the remaining 20 per cent. 3i increased its shareholding in Encon to 83 per cent in November 1999 when Superglass management sought additional capital to invest in new blowing wool technology. Management retains the balance of 17 per cent.
- 2.16 Summary financial details for Encon and Superglass are in Appendix D. Superglass has been consistently profitable for the last five years, and generated profit before tax of over £2 million on turnover of £24.5 million in 2003. Superglass is a thinly capitalized company and therefore has gearing ratios which, while high, are not unusual for a private equity funded company.
- 2.17 Besides Knauf and Superglass, there are two other major manufacturers of mineral wool active in the UK market:
- British Gypsum-Isover (BGI) is a joint venture between British Gypsum, part of the BPB Group, and Isover Saint-Gobain (a subsidiary of the French company Saint-Gobain), the largest EC producer of glass wool. BGI produces glass wool at its factory in Runcorn.
  - Rockwool is a subsidiary of a Danish company, Rockwool International, the largest producer of stone wool in the EC. It produces stone wool at its factory at Pencoed near Bridgend.

### ***Supply chain***

- 2.18 All these manufacturers sell principally to intermediate customers (distributors or retailers) rather than to contractors or householders who fit insulation (who we refer to as installers). The supply chain is a little different depending on the product; Appendix E illustrates the differences.
- 2.19 Apart from the manufacturers, the key players in the supply chain are:
- Distributors: The two largest distributors are SIG (formerly Sheffield Insulation Group) and Encon Distribution, which is owned by Encon. These stock a range of insulation materials (and sometimes other building products) and sell mainly to installers. In general larger distributors will sell to the largest installers; some are in common ownership with installers (SIG, for example, is part of the same group as Miller Pattison, one of the largest installers).
  - Builders merchants: The largest builders merchants include Travis Perkins plc and Jewson Limited, which is part of the Saint-Gobain Group. They tend to sell to smaller installers and jobbing builders.
  - DIY stores: B&Q plc, Wickes Building Supplies Ltd, and others. They mainly sell loft insulation (and some other insulation products) to small builders and contractors, and to householders.
  - Installers: Market research estimates suggest there are about 1,000 contractors who fit insulation, that three-quarters of them employ fewer than eight people and that only 2 per cent employ more than 80. However, some specialist installers are quite large and we were told that the industry is consolidating further. Installers generally buy from distributors or builders merchants, but sometimes buy directly from manufacturers (in particular blowing wool).

2.20 The supply chain is complicated in the case of blowing wool by the existence of system designers. To be allowed to blow wool into walls, an installer's 'system' (essentially the machine and the wool used) has to be certified by the British Board of Agrément (BBA). System designers serve as distributors for blowing wool and blowing machines and arrange training in, and certification of, installers' systems. There are five system designers, three of whom are vertically integrated with the manufacturers—Knauf, Rockwool and BGI. A fourth, Insta Foam and Fibre Ltd (Insta), has a [redacted]-year mutually exclusive contract with Superglass (see paragraph 3.4). The fifth (and smallest), 1<sup>st</sup> Insulation Partners Ltd (1<sup>st</sup> Insulation), sources blowing wool from Knauf and Rockwool.

2.21 Insulation of houses is ultimately funded from several sources. For new houses, Building Regulations specify the standards of insulation a new house must meet; the cost of insulation to the housebuilder will be reflected in the price of the house (but generally represents less than 2 per cent of the overall cost of materials to the housebuilder). For existing houses, there is a number of sources of funding:

- The current Government has promoted fuel poverty schemes, such as Warm Front in England (designed to meet the cost, up to certain limits, of installation of heating and other energy efficiency measures such as insulation in households receiving specific benefits). These are administered by managing agents on the Government's behalf.
- The Government's Energy Efficiency Commitment (EEC), which runs from April 2002 to March 2005, sets enforceable targets for electricity and gas supply companies to install energy efficiency measures in households (they may fund such measures through increased prices). The targets can be achieved in a variety of ways, including installation of insulation. The EEC is to be succeeded by EEC2; a consultation document on the proposed targets was issued in May,<sup>5</sup> for response by August and implementation in April 2005, to run for two further periods of three years, to March 2008 and to March 2011.
- Householders can improve the standards of insulation of their own homes, at their own expense, in the interests of increased comfort and reducing energy bills. This is known as the 'able to pay' sector, although people in this group are often eligible for funding under EEC.

### 3. The transaction

3.1 The sale of Superglass was prompted by the desire of 3i to realize its investment. 3i told us that while it has some flexibility in managing its exits from investments, it generally tries to realize them within three to five years. By 2002 3i had held its investment for five years, and following advice from its bankers, decided to sell Superglass, which was showing a steady profit trend [redacted].

3.2 Superglass was offered for sale in June 2002. Several trade buyers were approached, [redacted] made indicative offers, and only Knauf made a firm offer which was regarded as acceptable by Encon and 3i (see Appendix J). Knauf told us that one of the attractions of Superglass was the opportunity to increase capacity at the Stirling factory by 10,000 tonnes a year by adding two fiberisers to the existing glass wool lines. This represented the quickest, and one of the cheapest available means of capacity expansion and Knauf was keen to capture the opportunity rather than allow a competitor to do so. Knauf also believed that it could make significant savings in

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<sup>5</sup>The Energy Efficiency Commitment from April 2005: Consultation Proposals, May 2004.

transport costs by servicing its customers in different parts of the UK more efficiently from the combination of factories it would own were the merger to be completed.

- 3.3 Knauf has entered into a conditional Sale and Purchase Agreement dated 19 December 2003 (the Purchase Agreement), with Encon Investments Ltd<sup>6</sup> and Douglas McKerracher (a director of Encon and Superglass), whereby Knauf will purchase the entire issued share capital of Superglass. The acquisition is conditional on the approval of the relevant UK competition authorities. [REDACTED]
- 3.4 The two largest customers of Superglass (Encon Distribution and Insta) together purchase [REDACTED] of Superglass's production by volume. Although Encon is free to purchase glass fibre products from other manufacturers, it sources the bulk of its requirements from Superglass. Insta is prevented from purchasing yellow or white blowing wool (or glass wool rolls) from any other supplier during the term of its agreement with Superglass. Knauf told us that securing relationships with both of these customers was a further benefit of acquiring the Superglass business (Knauf already supplies glass fibre to Encon Distribution but does not have any relations with Insta). The merger arrangements include supply agreements with both which have been renegotiated covering the next [REDACTED] years for Encon Distribution and the next [REDACTED] years for Insta.
- 3.5 Glass Inc, a US-based company, provides the technology used by Superglass in the production of its glass fibres. Superglass is one of only two users of this technology worldwide; the other is based in Canada. For access to this technology, Superglass pays an annual royalty fee to Glass Inc. [REDACTED].

### ***Jurisdiction***

- 3.6 We are required by the Act to establish whether there are arrangements in progress or contemplation which, if carried into effect, will result in the creation of a relevant merger situation. Section 23 of the Act provides that a relevant merger situation exists where two or more enterprises have ceased to be distinct. In addition, thresholds must be met, either in relation to the value of the turnover in the UK of the enterprise being taken over, or in relation to the share of supply of goods of any description in the UK or a substantial part of the UK, before the existence of a relevant merger situation can be found.
- 3.7 We find that the agreement for the acquisition by Knauf of the entire issued share capital of Superglass as set out in the Purchase Agreement constitutes arrangements in progress which would, if carried into effect, result in two enterprises ceasing to be distinct within the meaning given to that expression by section 26 of the Act.
- 3.8 To meet the share of supply requirements of the Act, a consequence of the merger must be that in relation to the supply of goods of any description at least one-quarter of all the goods of that description supplied in the UK, or in a substantial part of the UK, are supplied by or to one and the same person, or are supplied by or to the persons by whom the merging enterprises are carried on. If that person or persons already supplies at least one-quarter of those goods, then their share of supply must increase as a consequence of the merger.
- 3.9 For the purpose of determining shares of supply, we consider the appropriate measure to be the share of supply by value of mineral fibre insulation products.

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<sup>6</sup>An intermediate holding company owned by Encon Ltd.

- 3.10 From information provided by the parties, we have calculated their share of supply by value of mineral fibre insulation products, measured in sales in the UK, in 2003. Knauf's share of supply was 35–45 per cent in 2003; Superglass's share of supply was 10–20 per cent in 2003. Knauf therefore already supplies more than one-quarter of mineral fibre insulation products in the UK, and as a consequence of the acquisition of Superglass, Knauf's share of supply of these goods will be increased.
- 3.11 We find that Knauf's agreement to acquire the entire issued share capital of Superglass constitutes an arrangement in contemplation or progress that would lead to Knauf increasing its share of supply of mineral fibre insulation products in the UK to 50–60 per cent by value, and that the share of supply test is therefore met. We do not therefore have to consider whether the turnover test is met.
- 3.12 We therefore find that there are arrangements in progress or contemplation which if carried into effect will result in the creation of a relevant merger situation. During the course of our inquiry, neither Knauf nor Superglass disputed that this was the case.

#### **4. Market definition**

- 4.1 In defining the market we identify first the relevant product market and then the geographical market. In essence, we are seeking to identify the extent to which customers could readily demand, or suppliers supply, adequate substitute products in response to a change in price or other terms imposed by a hypothetical monopolist. This test is described in the CC's guidance.<sup>7</sup> In our analysis we drew on the parties' submissions and on evidence from their competitors, from direct customers and from housebuilders and insulation installers which are the users of the products, but which are seldom direct customers of the manufacturers. The report we commissioned from Mott MacDonald (see paragraph 2.1) also included an assessment of the alternatives to glass wool across a range of uses.

##### ***Product market:demand-side substitution***

- 4.2 Glass wool loft rolls, glass wool cavity wall slabs and glass blowing wool, the three main products which the parties both produce, together account for over three-quarters of the parties' glass wool sales. On the demand side, substitution possibilities are driven mainly by the intended application of the different glass wool products. We therefore considered the scope for demand-side substitution between glass wool and other types of insulation products for each of the two main applications of glass wool products; loft insulation and cavity wall insulation. These applications together account for three-quarters of all glass wool sales in the UK (and for over [X] of Knauf's glass wool sales and nearly [X] of Superglass's sales). Appendix F shows the proportions represented by each application for each of the UK glass wool manufacturers. Nearly half of all glass wool sales are for loft insulation, and a further quarter for cavity wall insulation, split roughly evenly between blowing wool and slabs.

##### ***Loft insulation***

- 4.3 The main products used in loft insulation are glass wool rolls, stone wool rolls and plastic products. According to data provided by the parties, mineral wool rolls account for 82 per cent of sales of loft insulation, and plastic products account for a further

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<sup>7</sup>Merger References: Competition Commission Guidelines (CC2).

13 per cent of sales. The remaining 5 per cent is accounted for by other insulating products such as cellulose and blowing wool.

4.4 Within loft insulation, two sub-uses may be distinguished:

- ‘Cold roof’ or joist level insulation involves laying rolls of mineral wool between and on top of the joists or attaching insulating boards to the joists.
- ‘Warm roof’ or rafter level insulation involves attaching insulating materials between and below the rafters, allowing the space to be used for living.

4.5 Glass wool rolls represent over 80 per cent of the materials used in cold roofs. Therefore, whether there are economic substitutes for glass wool in loft insulation turns on two questions:

- whether warm roof insulation is an economic substitute for cold roof insulation, in the sense that a 5 per cent increase in the price of cold roof insulation might induce some switching to warm roof insulation; and
- whether there are economic substitutes for glass wool rolls within cold roof insulation, in the sense that a 5 per cent increase in the price of glass wool rolls might induce some switching to other materials for cold roof insulation.

*Warm roof vs cold roof insulation—new build*

4.6 The choice of warm or cold roof appears to depend in new build on the desired use of loft space (living or storage). We were told that warm roofs currently represent a little over 20 per cent of new build, but that this share is expected to increase as builders make maximum use of space in line with current planning guidance. The main parties cited market research estimates which predict that the warm roof market will comprise over 35 per cent of the new build market by 2007.

4.7 Plastic insulation materials represent over 95 per cent of the materials used in warm roofs. These are generally more expensive than mineral wool alternatives (evidence from housebuilders and from a manufacturer of plastic foams for warm roof insulation suggested that these products were approximately two and a half times more expensive than mineral wool alternatives) but give better performance for equivalent thickness, are easier to handle and can be more easily attached to rafters.

4.8 We have seen no evidence from the parties, from market research or from housebuilders that the choice between cold and warm roof in loft insulation is driven by the cost of insulating materials. The difference in price indicated in paragraph 4.7 is very large, and it is very unlikely that a 5 per cent increase in the price of cold roof insulation would trigger any switching to warm roofs.

*Warm roof vs cold roof insulation—retrofit*

4.9 The creation of warm roof insulation in existing houses is largely the result of loft conversions (though there may be some installation of warm roof as an option for improving insulation of a loft space). It is possible to enhance the insulation of a loft either by increasing the depth of insulating material or by converting to a warm roof. This also appears to be a design choice, since creating a warm roof is much more expensive than insulating at joist level.

### *Substitution between glass wool and stone wool for cold roof insulation*

4.10 Joist level (cold roof) loft insulation is largely the preserve of glass wool. Rolls of glass wool are laid between joists and another layer laid on top in order to achieve the thickness (currently 250mm for stone wool, 270mm for glass wool), and thus the thermal performance required by Building Regulations in new houses. The principal alternatives to glass wool rolls are stone wool rolls. Evidence from housebuilders suggested that they were indifferent on technical grounds between these materials, but also that they tended to leave the choice to insulation installers, to whom they subcontracted the work. Most of the installers who submitted evidence told us that stone wool is a poor substitute for glass wool in this application because:

- it is appreciably more expensive (30 per cent more according to Rockwool<sup>8</sup>); and
- it is heavier and harder to install. Because stone wool does not pack as tightly as glass wool a contractor would need more rolls to cover a comparable area (ten rather than four for a typical semi-detached house, according to one installer).

We calculated that stone wool represents a very small proportion (11 per cent by value) of mineral wool used in this application.

4.11 Installers told us that the disadvantages of having to carry more, bulkier material in a van and to lift more rolls of a heavier material into a loft would not be overcome by a small price differential. The benefits of stone wool over glass (greater rigidity and better fire resistance and acoustic insulation properties) are not generally relevant in cold roof loft insulation. Rockwool told us that it had historically made some inroads into this market selling stone wool loft rolls through DIY retailers, but that it was now reducing its presence in this market, in which (unlike some others) stone wool could not command a price premium. Rockwool therefore had other more profitable uses for its output.<sup>9</sup> Knauf told us that Rockwool could readily re-enter this market. However, given Rockwool's reasons for reducing its presence in this market and the fact that it has done so at a time when prices are at a historically high level, we consider this unlikely.

4.12 Mott MacDonald undertook a telephone survey of insulation installers in each of six separate regions of the UK, which confirmed that glass wool was by far the predominant material for loft insulation.<sup>10</sup> Thirty-two out of the 33 installers interviewed were installing glass wool in lofts, and only three installers interviewed even offered stone wool. Where it was offered, the installed costs of stone wool were somewhat higher than those of glass wool.

4.13 Knauf told us that changes to the CE marking regime which required the use of greater thicknesses of glass wool than of stone wool would advantage stone wool and increase the likelihood of its use in this application. We think that most of the impact of these changes has already been felt, and we do not expect this (or any other foreseeable regulatory change) to be sufficient to prompt any significant increase in the use of stone wool.

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<sup>8</sup>Rockwool is the sole UK supplier of stone wool loft rolls; Knauf does not manufacture them.

<sup>9</sup>As the sole producer of stone wool quilt, Rockwool is in a position to set prices at whatever level it chooses and accept consequent variations in sales volume. We were told that Rockwool priced stone wool quilt to compete with glass wool in DIY stores.

<sup>10</sup>The parties told us that this was a small and thus unreliable sample. We believe that we can rely on the results where the conclusion is overwhelming and corroborated by other evidence.

- 4.14 The requirement in Building Regulations for thickness of glass wool in excess of the height of the joists (which are generally around 150mm thick) might be thought to disadvantage glass wool, because the extra thickness makes it harder to lay any kind of floor in the loft<sup>11</sup> and thus to make it usable for storage. But we have not heard that this has prompted any move to other materials (for example, plastic boards). We think that this is because of the continued price difference and because the thickness of insulation in a loft is unlikely to have a significant influence on house buyers' decisions. It is also likely that changes to Building Regulations take longer to influence practice in the retrofit sector, and that people insulating their own lofts will not necessarily install as much insulation as the Building Regulations would require for new buildings. We see no evidence, therefore, that the Building Regulation requirements serve to disadvantage glass wool in this application in practice.
- 4.15 Overall, we have seen little evidence that any other insulating materials are a good substitute for glass wool rolls for cold roof loft insulation. We were told that blown mineral wool or EPS beads, or other materials (cellulose, sheep's wool etc) can be used for loft insulation. But none appear to have made significant inroads into this market. One installer told us that sheep's wool was very expensive; others told us that householders do not like cellulose or blowing wool because they are loose filled and therefore messy.
- 4.16 We conclude that for cold roof insulation glass wool has no effective demand-side substitute. Stone wool may provide some constraint, and in the future it is possible that other materials will do so too, but that constraint is not strong enough for us to regard them as currently being in the same market.

### *Cavity wall insulation*

- 4.17 Cavity walls have insulation material added either as they are built (new build) or subsequently (retrofit). The merging parties produce two categories of glass wool products which can be used for cavity wall insulation: blowing wool and slabs. Glass wool slabs are used exclusively in new build cavity wall insulation, whereas blowing wool can be used both in new build cavity wall insulation and in retrofit cavity wall insulation. The range of potential substitutes depends on whether the products are being used for new build or for retrofit cavity wall insulation, and therefore in the following we distinguish between these two applications.

#### *Retrofit*

- 4.18 For retrofit cavity wall insulation (into existing buildings), the only way to install cavity wall insulation is through blown or pumped materials. The main categories of blown materials are glass blowing wool (which both parties produce) and stone blowing wool (which is only produced in significant quantities in the UK by Rockwool). Other potential materials are blown expanded polystyrene (EPS) beads and ureaformaldehyde (UF) foam. The parties estimate that EPS beads account for approximately 11 per cent of sales of blown materials in the UK. Market research estimates are much lower, and we estimated that the figure for Great Britain is probably nearer 5 per cent (see Appendix F). We discuss EPS beads further in paragraphs 4.21 to 4.23. The predominant material for this application is mineral blowing wool. Within mineral blowing wool, we estimated that glass blowing wool accounts for some 80 per cent of all sales.

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<sup>11</sup>If glass wool is compressed, for example by a board laid on top of it, it loses some of its thermal efficiency.

### *Substitution between different kinds of blowing wool*

- 4.19 We heard conflicting evidence from installers on the relative merits of white and yellow blowing wool, but nothing to suggest that either held any significant advantage over the other. They appear to be very similar in terms of installed cost. The parties told us that the material cost per square metre of wall of white and yellow wool were within 3 per cent of one another, and manufacturers told us that prices were set to ensure that installed costs were competitive. We concluded that they are good substitutes.
- 4.20 We also heard conflicting evidence on the suitability of stone wool ('brown wool') as a substitute for glass wool for this purpose. Some installers told us that it was heavier and more bulky to transport for the same amount of work, and that as a more abrasive material it was less pleasant to work with and imposed more wear and tear on blowing machines. There are also some practical barriers inhibiting switching from glass wool to stone wool. Not all blowing machines are capable of blowing stone wool; the cheapest machines are designed to blow only glass wool. Even where machines can blow stone wool some adjustment is necessary. If an installer does not currently blow stone wool they would need to secure a new BBA certificate to enable them to do so.
- 4.21 However, on balance we think that stone wool is a substitute for glass wool in this application. There are no clear functional or performance disadvantages of either, and Mott MacDonald's telephone survey of insulation installers found that where installers offer both materials for cavity wall insulation, the differences in costs were usually small. Manufacturers and system designers told us that most machines blow both with some adjustment, and we were told by Insta that many installers who have machines which only blow glass wool also have machines that blow stone wool. The costs and time required to secure a new BBA certificate are not great (BBA told us that the one-off certification cost which would be incurred if an installer switched permanently from glass to stone was around £2,000). Many installers stock both types of wool (the parties told us that 16 per cent of installers did), and appear to switch freely between them, and the prices and installed costs appear comparable. We would expect that a modest rise in price of one would be likely to lead to a shift in the balance of use, and conclude that they are good demand-side substitutes.

### *Substitution between blowing wool and other materials*

- 4.22 The only alternatives to blowing wool are UF foam (which we were told has never recovered from damage to its reputation caused by a health scare in the 1970s) and EPS bead (small balls of EPS blown into the wall in a similar way to blowing wool). We were told that EPS beads were widely used and were becoming the predominant material in Northern Ireland, where they are priced competitively with glass blowing wool and have achieved some 50–75 per cent usage for retrofit cavity wall insulation. However, in Great Britain, they have yet to make significant inroads: very few installers currently offer EPS beads in Great Britain (EPS bead system designers told us that there were approximately ten installers currently offering beads in Great Britain), and their current share of retrofit cavity wall insulation is still very low (around 5 per cent according to our estimates).
- 4.23 The parties told us that there was plenty of spare production capacity for EPS beads in Great Britain and that the costs of installing EPS plant are substantially lower than for mineral fibre manufacture. However, we were told that there are significant obstacles to the further expansion of EPS beads in Great Britain, notably difficulties of access to market. A manufacturer of EPS beads would need either to establish a new system design business or to persuade one of the existing independent ones to

add EPS beads to their portfolio and market them energetically. In either case, the system designer would need to persuade installers to use EPS beads either as an alternative to or in addition to blowing wool. Independent EPS bead manufacturers could expect to meet resistance from incumbent blowing wool manufacturers and system designers.<sup>12</sup> We think that reputational issues may also be significant.<sup>13</sup> We were told that much of the success of EPS beads in Northern Ireland was attributable to energetic and effective marketing which has not been successfully replicated in Great Britain.

- 4.24 The survey conducted by Mott MacDonald showed that the very few installers who offered EPS beads in Great Britain priced them a little above glass blowing wool. In response to this survey, contractors currently using a glass wool delivery system for cavity wall insulation said that the increase in the price of glass wool would need to exceed 10 per cent before they considered changing to other materials. Of those who would consider switching materials, most would switch to stone wool and some to EPS beads. In the event of a 5 per cent increase in the price of blowing wool, it is therefore unlikely that installers who do not currently offer them would switch to EPS beads. The few installers who are currently offering both systems may, however, switch some of their purchases to EPS beads. We therefore conclude that they are not part of the same product market, although there is some scope for limited substitution between EPS beads and blowing wool. Moreover, given their very limited penetration in Great Britain, EPS beads are likely to provide only a limited constraint on the prices of blowing wool in Great Britain.

#### *New build*

- 4.25 For new build cavity wall insulation, there are more alternatives than for existing buildings:
- Plastic or mineral wool slabs may be inserted as the wall is being built.
  - Blown insulation (mainly, blown mineral wool) may be blown in to fill the cavity once the wall is completed.

The issues surrounding the choice between glass and stone blowing wool are the same as for retrofit cavity wall insulation. Our survey of major house builders confirmed that both are used in this application. Accordingly, we find them to be in the same market.

- 4.26 Table 1 estimates the relative share of each type of product in new build cavity wall insulation in 2002, in terms of area of cavity wall insulation, according to *The Market for Building Insulation, Great Britain 2003*. Blown mineral wool is the most commonly used type of cavity wall insulation in new build, followed by plastic slabs. Mineral wool slabs are the least popular product, and their use appears to be declining over time. Our own survey of housebuilders bore out this conclusion.

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<sup>12</sup>We note that Knauf itself would be well positioned to enter the EPS bead market if it wished to do so (though it told us that at present it did not). EPS beads manufactured by Knauf would not be an independent competitive constraint on blowing wool

<sup>13</sup>We were told that the withdrawal from the market in the 1980s of major petrochemical companies (which had previously sponsored the use of EPS beads for this purpose) had damaged public confidence.

TABLE 1 Shares of different products in cavity wall insulation, 2003

<i>New build</i>	<i>Area of cavity wall insulation, m<sup>2</sup></i>	<i>%</i>
Blown mineral wool	7,698	37
Other blown or pumped materials	84	0
Mineral wool slabs	3,929	19
Non-mineral wool slabs (plastic slabs)	9,320	44
Total	21,031	100

Source: CC calculations, based on *The Market for Building Insulation, Great Britain 2003*.

4.27 In terms of total installed costs, blowing wool is the cheapest way to insulate a cavity wall, followed by mineral wool slabs, whilst plastic slabs are the most expensive material. Respondents to our survey of major housebuilders gave a range of installed costs for plastic boards of £3.40 to £4.50 per square meter, roughly twice the cost of blown mineral wool (£1.55 to £2.50 per square meter). Mott MacDonald found that plastic slabs were more than twice as expensive as mineral wool slabs when bought through builders merchants, and that the installed cost of slabs was up to 50 per cent greater than that of blowing wool.<sup>14</sup> Blowing wool may also be more convenient—it can be installed at any time once the wall is built, so there is no need to coordinate the presence of bricklayers and insulation installers and incur the risk of one standing idle while waiting for the other. There are also differences in the relative thermal performance of each product. Plastic slabs are a more efficient insulant than blowing wool or mineral wool slabs, so a thinner layer is required for the same thermal performance.

#### *Substitution between blowing wool and slabs*

4.28 Regulatory considerations are an important factor in the choice of method and material for cavity wall insulation. There are two aspects to these: National House Building Council (NHBC) guidelines and Building Regulations. In some circumstances, fully filling a wall is not permitted by NHBC guidelines because of the risk of water ingress, so slabs that partially fill the wall are the only possible options. More commonly, in exposed areas cavity walls should not be fully filled at the time the wall is being built, so full fill mineral wool slabs are ruled out but blown mineral wool is permissible.<sup>15</sup> All the major housebuilders adhere to these guidelines so, for many, the choice of material would depend on the level of exposure and on the type of building, using the lowest cost material that is permitted. However, others use partial fill even when the NHBC guidelines permit the use of blowing wool, citing reasons such as best practice or past experience. Changes in Building Regulations can also change the relative attractiveness of materials (for example, increasing U-value requirements makes partial fill mineral wool slabs less attractive because their insulation properties for a given thickness are less good than plastic boards). When asked the reasons why they would consider changing the method of cavity wall insulation, all the housebuilders who answered this question cited regulatory factors. Only 5 out of 11 major housebuilders<sup>16</sup> mentioned price changes as a reason for change, even though prompted by the question. Most mentioned other factors as well and we find the fact that many did not mention price, given that the product is essentially a commodity, significant.

<sup>14</sup>Knauf pointed out that the choice of material can also have an impact on other costs of building the wall. However, since 75mm of blowing wool has higher thermal resistance than a 25mm plastic slab, using blowing wool cannot require the use of other (more expensive) materials with higher thermal performance.

<sup>15</sup>See the Mott MacDonald report, section 3.2.2.

<sup>16</sup>The 11 housebuilders surveyed which operate in Great Britain collectively represent over 40 per cent of the market

- 4.29 On balance, the evidence suggests that housebuilders' decisions on what materials to use for new build cavity wall insulation are driven by a range of considerations. These include the impact of regulation, the risk of water ingress, the implications for other material choices, a desire, in some cases, for consistency across all their operations (which we would expect to have an impact on procurement costs) and the need to be seen to comply with industry best practice, as well as cost and convenience. But we have seen no evidence from the Mott MacDonald report or the survey of housebuilders that a small increase in price would prompt switching to other materials. We note that the cost of blowing wool represents only 40 per cent of the installer's sales price of retrofit cavity wall insulation. This means that, if the price of blowing wool were to increase by 5 per cent, this would be transmitted in a total increase in the cost of installing blowing wool of 2 per cent. It is unlikely that such a small increase in the installed cost of blowing wool would, on its own, induce any sizeable switching to different insulation methods.
- 4.30 For new build cavity wall insulation, we conclude that blown materials and slabs are unlikely to be economic substitutes on the demand side. We now turn to the question of whether glass wool, stone wool and plastic slabs are substitutes for each other in new build cavity wall insulation.

*Substitution between glass, stone and plastic slabs*

- 4.31 Stone wool slabs account for about one-third of the sales of mineral wool slabs. The evidence we received suggests that stone wool slabs and glass wool slabs are substitutable. We were told that stone wool slabs were priced similarly to glass wool slabs, and also that stone wool slabs are denser and more rigid, which makes them easier to install than glass wool slabs. Rockwool told us that it competes directly with glass wool manufacturers on slabs for cavity wall insulation, and is seeking to expand this part of its business.
- 4.32 Historically, mineral wool slabs have been preferred to plastic slabs for partially filling a cavity wall because they are cheaper. Evidence from the Mott MacDonald report and the survey of housebuilders showed that plastic slabs were up to twice as expensive for the same area. However, plastic is now becoming the material of choice where walls are partially filled as they are built because of its better insulation properties for a given thickness. We were told that any further increases in the standards required by Building Regulations might require a bigger cavity in order to achieve the required level of thermal insulation with mineral wool. Housebuilders are reluctant to increase cavity sizes because it either reduces the interior area of the house or increases the footprint, so reducing the number of houses which can fit on a given piece of land. We were told that these considerations may increasingly outweigh the cost disadvantages of plastic.
- 4.33 The parties argued that the price of blowing wool was constrained by the price of plastic slabs, because blowing wool and plastic slabs are substitutable in the new build sector, and because they cannot distinguish between sales of blowing wool for new build and for retrofit uses. In support of their argument, they referred to the OFT's final decision, which concluded that, for build-in cavity wall insulation, the transaction did not appear to raise any concerns because customers could choose between insulation slab products made from mineral fibre, plastic foam and other insulating materials. However, as discussed above, the evidence we received suggested that in the new build sector neither mineral wool slabs nor plastic slabs were likely to be a strong constraint on the prices of blowing wool. This does not contradict the OFT decision, which only looked at substitution between mineral and plastic slabs for built-in insulation, and did not analyse the potential for substitution between blowing wool and slabs in new build cavity wall insulation.

## *Conclusions on demand-side substitution within each different application*

4.34 The existing evidence suggests that, on the demand side:

- Glass wool rolls for loft insulation have almost no economic substitutes.
- Glass blowing wool for use in new build and retrofit cavity wall applications is substitutable with stone blowing wool. Blown EPS beads are not in the same market, and represent a limited competitive constraint in Great Britain at present.
- Glass and stone blowing wool for use in new build cavity wall insulation is technically substitutable with mineral wool slabs and/or plastic slabs in certain cases. However, the evidence shows that the choice tends to be driven by factors other than price, notably design preference and regulation, and we concluded that substitution driven by a small increase in the price of blowing wool was unlikely.
- Glass wool and stone wool slabs for new build cavity wall insulation are close substitutes for one another, and are increasingly constrained by plastic slabs.

### *Other uses*

4.35 Industrial cladding is the next largest use for glass wool after loft, new build and retrofit cavity wall insulation. It represents only [X] per cent of Knauf's UK glass wool sales by value, and [X] per cent of Superglass's. In general, there are two main types of system for insulating industrial buildings: built up (ie insulation installed as the wall is built on site), and prefabricated. Knauf and Superglass told us that glass wool was only used in built up systems. The greater compressive strength of plastic foams and stone wool was preferred for prefabricated panels. In common with the general trend towards prefabrication, prefabricated systems have been gaining market share in new build but refurbishment of older buildings often re-uses the existing system. Nevertheless, about two-thirds of the market (by area insulated) is 'built up' and one-third prefabricated. We received few representations relating to this market from third parties and have not considered it further.

4.36 All other uses collectively represent a small proportion (around [X] per cent) of the main parties' output and business. We have received very few representations relating to any other market and we have not considered any other markets further.

### ***Supply-side substitution***

4.37 Supply-side substitution occurs when a price rise prompts other firms to start supplying, at short notice, an effective substitute to the product in question. We therefore considered the ability of manufacturers to provide alternative products in response to a small rise in price.

4.38 There does not appear to be any potential for supply-side substitution between glass wool, stone wool and plastic insulation products. A production line producing stone wool could not be converted to the manufacture of glass wool without considerable time and investment to redesign the furnace and install different fiberising and curing equipment. It would be most unlikely that a stone wool plant would be converted to producing glass wool in response to a small increase in price of glass wool. Plastic insulation materials (including EPS) are produced using wholly different technology and production methods.

- 4.39 All three major UK glass wool manufacturers produce rolls, slabs and blowing wool,<sup>17</sup> and there are no other existing UK manufacturers of just one type of product. Within a glass wool plant, the furnace and fiberising processes are common to the production of all glass wool products. Rolls and slabs are then produced on the same lines with only minor adjustments. It appears relatively easy to shift production between them and manufacturers told us that they had no difficulty in doing so. Superglass told us that it aims to produce its entire product range every two weeks, implying relatively frequent shifts in the balance of production. We concluded that glass wool rolls and slabs are supply-side substitutes.
- 4.40 White blowing wool is drawn off for grinding after the fiberising stage; yellow wool for grinding is taken from recycled trimmings from the roll and slab lines. The ability to shift production capacity from rolls and slabs to blowing wool or vice versa depends on the configuration of manufacturing plant. Given spare fiberising capacity, we were told that it is possible to shift production from rolls and slabs to blowing wool (either by drawing off more white wool or by grinding up rolls to make yellow wool). However, shifting significant capacity from blowing wool to rolls and slabs is impossible without major investment (the limiting factor is the capacity of the curing and cutting processes), and recycling yellow wool into roll and slab lines may have implications for the quality of the rolls or slabs. The fact that since all roll and slab lines in the UK reached capacity early this year no manufacturer has shifted any spare capacity from blowing wool into this application tends to confirm this.
- 4.41 We therefore conclude that, given spare capacity, rolls and slabs are good supply-side substitutes for blowing wool. The furnace and fiberising processes are common to all products, and the production of rolls, slabs and blowing wool are closely linked. It is difficult, therefore, to imagine that a hypothetical stand-alone producer of, say, loft rolls, will not be severely disadvantaged relative to an integrated producer of rolls, slabs and blowing wool. That said, blowing wool is not a close supply-side substitute for rolls and slabs. In the longer term, however, plants can be adjusted to shift the balance between the two.

### ***Conclusion on product market definition***

- 4.42 We used the evidence presented above on demand- and supply-side substitution, to define the relevant product markets for the assessment of the competitive effects of this merger, using the framework of the hypothetical monopolist test described in our Guidelines.
- 4.43 The application of the test is an iterative process. The Guidelines indicate that, in the case of a merger, the test typically starts by considering each product (narrowly defined) produced or sold by the merging firms, and asks the following question: ‘if there were only one supplier of that product, would it be able to exploit its monopoly position profitably?’
- 4.44 We applied the hypothetical monopolist test to each of the three main products which the parties both produce (glass wool loft rolls, glass wool cavity slabs and glass blowing wool) in turn. Because glass wool rolls and slabs are produced on the same lines, a hypothetical monopolist producing one of the products is automatically a producer of the other, so we consider a hypothetical monopolist producing both of these products together.

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<sup>17</sup>There are some differences in the glass wool product ranges of the different manufacturers. Knauf produces rolls, slabs of all densities, and white blowing wool, and also produces pipe sections and other specialized products. Superglass produces rolls, low density slabs and white and yellow blowing wool. BGI produces rolls, slabs and yellow blowing wool, and other specialized products (eg faced slabs).

- 4.45 Starting with glass wool rolls, the earlier discussion implies that it would be profitable for a hypothetical monopolist of both rolls and slabs to increase the price of rolls, as there is no effective demand-side substitute for glass wool for cold roof insulation. The relevant market, when considering monopoly power over rolls, is therefore glass wool rolls and slabs because they are supply-side substitutes (see paragraph 4.39). However, as potential monopoly power in this market is exercised in the market segment of glass rolls, our competitive assessment will focus on competition for glass wool rolls.
- 4.46 Turning to slabs, we concluded (see paragraphs 4.31 and 4.32) that both stone wool cavity wall slabs and plastic slabs are substitutes for glass wool cavity wall slabs. The relevant economic market for a hypothetical monopolist seeking monopoly power over glass wool cavity wall slabs therefore includes stone wool cavity wall slabs and plastic slabs.
- 4.47 As for blowing wool, we concluded (see paragraph 4.21) that stone blowing wool was a substitute for glass blowing wool, and therefore should be included in the same relevant market. EPS beads are also a potential substitute for glass blowing wool, but we concluded that they are not part of the same market, and in view of their current market penetration they do not represent a strong competitive constraint in Great Britain.
- 4.48 We considered whether any of the possible changes to the market to which the parties had drawn our attention (for example increasingly demanding standards in Building Regulations) would cause us to think that the product market definition might change in the foreseeable future, but we concluded that none of them would do so.

## **Geography**

- 4.49 In order to ascertain whether the relevant geographic markets went beyond the UK, we considered the possibility that imports could be drawn into the UK market in response to a price increase. Imports have historically represented around 8 per cent of total UK sales of mineral wool. In practice we believe that a significant increase from this level in response to a small change in price is unlikely, for several reasons:
- because of the bulky nature of mineral wool it is expensive to transport (though we were told that blowing wool, because it can be compressed without losing its insulating properties, suffers from this disadvantage less than rolls or slabs). The parties estimated the additional cost of transport incurred by imports at 10–15 per cent of sales price;
  - we were told by manufacturers and others that in addition to the transport cost disadvantage, UK prices have historically been lower than those in continental Europe, further reducing the incentive to import. Recent price increases for glass wool rolls and slabs (see paragraph 5.41) have brought UK prices for these items close to current levels prevailing in Continental Europe;
  - three of the four UK manufacturers are subsidiaries of European groups with other plants on Continental Europe. They may be expected to seek to meet demand from the nearest plant where possible. Imports from these sources do not, however, represent an independent competitive force; there are few other independent sources of imports; and
  - we were told that the Continental factories within realistic range of the UK are themselves close to capacity and that in any event plants outside the UK do not

generally manufacture glass blowing wool that is compatible with UK requirements.

- 4.50 Although we have seen increases in imports in response to current capacity shortages (see section 5), these have not been enough to supply the quantities demanded. We therefore believe that the relevant markets are no larger than the UK.
- 4.51 We heard evidence that the market in Northern Ireland has some different characteristics to the market in Great Britain:
- somewhat different climatic conditions to much of Great Britain have contributed to differences in housebuilding guidelines;
  - there are some relevant differences in Building Regulations;
  - the housebuilders and installers operating in Northern Ireland are for the most part different from those operating in Great Britain;
  - transport costs from British plants to Northern Ireland are greater than within Great Britain because of the need for a sea crossing (which also makes imports from other parts of the EC more competitive than in Great Britain<sup>18</sup>). Some of the Northern Irish market is supplied from the Moy/Isover glass wool plant in Co Tipperary, the only glass wool plant on the island of Ireland; and
  - there is a much higher level of penetration of EPS bead in the blown cavity wall market in Northern Ireland than in Great Britain (see paragraph 4.22).
- 4.52 These suggest that Great Britain is a separate geographic market from Northern Ireland. Indeed, a 5 per cent increase in the price of glass wool products in Great Britain is unlikely to trigger any substitution from Northern Ireland (in the sense of Northern Irish producers or customers increasing sales into Great Britain), because of the existence of these high transportation costs and because there is no glass wool production in Northern Ireland.
- 4.53 We think it is likely that Northern Irish prices are constrained both by prices in the Republic of Ireland because of its proximity, and by Great Britain prices because of the existence of sales from British glass wool plants to Northern Ireland. The parties told us that they saw Ireland as part of a home market and both sell output from factories in Great Britain to Northern Ireland and the Republic of Ireland.
- 4.54 Given that total sales by both parties to Northern Ireland are only under 10 per cent of their total sales of glass wool in the UK, we did not consider the Northern Irish market any further.
- 4.55 Within Great Britain we heard some evidence of regional differences in approaches to building new houses driven by differences in climate. However, all mineral wool manufacturers serve the whole of Great Britain from one or two plants, and we saw no evidence of significant regional variation in prices charged by manufacturers or service levels not explicable by differences in transport costs. We therefore think that the relevant geographic market is Great Britain.

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<sup>18</sup>Sales to Northern Ireland from Great Britain or elsewhere in Europe require a sea crossing; the costs are similar in each case. For sales to Great Britain from Europe, adding the cost of a sea crossing to road transport costs makes imports from Europe more expensive than domestic production.

## **Conclusion on market definition**

4.56 We conclude there are three relevant product markets:

- Glass wool rolls for loft insulation (for which the relevant market includes glass wool slabs—see paragraph 4.39) (the ‘loft roll market’).
- Glass wool, stone wool and plastic slabs for new build cavity wall insulation (the ‘slab market’).
- Glass and stone blowing wool for cavity wall insulation in new and existing buildings (see paragraph 4.47) (the ‘blowing wool market’).

We concluded that these markets are Great-Britain-wide.

4.57 Sales and market shares on each of the relevant markets that we defined are presented in Appendix F. In the loft roll market, Knauf has around two-thirds of the market and is currently three times the size of Superglass, which is the second biggest competitor. Following the merger there would be only two manufacturers, and Knauf’s share would be in excess of 80 per cent [⌘], more than four times that of its only rival. In the blowing wool market, Knauf’s market share following the merger would be around two-thirds [⌘], and would be at least three times that of its closest competitor. In the slab market, we estimate that, following the merger, Knauf’s market share would be less than 20 per cent.

4.58 We observe that even if we had defined the loft insulation market more broadly, as illustrated in Appendix F, Knauf’s share of this market following the merger would still exceed 50 per cent, and would be more than three times that of its nearest rival. Similarly, including EPS beads in the blowing wool market would have little effect on the qualitative difference between the merged entity’s market share and that of its closest rival.

## **5. Competition in the relevant markets**

5.1 In this section we first assess the past, present and future state of demand and supply in the relevant markets identified, and then analyse the nature and level of competition in these markets.

### ***Demand***

5.2 The markets for mineral wool insulation are diverse and the factors driving demand are, therefore, also diverse. We assess below the likely trends in each market in turn. A description of the key factors driving demand for glass wool in the applications for which it is used is given in Appendix G.

### ***Loft insulation***

5.3 There are two principal drivers of demand for loft insulation. The first is the number of new dwellings being built, and the second is government policy, implemented through Building Regulations in new build and through the initiatives described in paragraph 2.21 which encourage retrofit insulation. In 2004 there are expected to be

around 190,000 new housing completions in the UK.<sup>19</sup> Building Regulations requirements now imply a need for 270mm of glass wool insulation where a new loft is insulated at joist level (this figure has almost doubled in the last ten years). Although the use of warm roofs in new dwellings has increased as a proportion of the total (see paragraph 4.6) the main parties and others told us that they expect demand for glass wool for loft insulation to continue to increase as a result of a buoyant new housing market and the requirement for increasing thickness of insulation.

- 5.4 Defra told us that 15 million homes have 100mm or less loft insulation and 6 million have 50 mm or less, which implies that there is plenty of scope for further increases in demand for glass wool insulation in the retrofit sector if people want to increase the thickness of their loft insulation to match the standards applied to new houses. The government programmes referred to in paragraph 2.21 will influence demand among the groups at which they are targeted. However, it may be difficult to persuade homeowners to improve their loft insulation level from what was considered acceptable when it was installed. For the 'able to pay' sector the likely return in energy savings will be the predominant factor, so recent rises in energy prices may be expected to encourage demand.
- 5.5 Current government proposals<sup>20</sup> project around 1.6 million loft insulation installations in EEC2, double the number in EEC, but a number of industry participants told us that they expected the outturn to be far lower than this. The Energy Retail Association (ERA) representing the energy companies which will pay for much of the work under EEC2 (see paragraph 2.21) is asking for the target to be scaled back by about 25 per cent. Even this would represent a significant increase over the level of installations in EEC.

### *Cavity wall insulation*

- 5.6 It has proved difficult to obtain reliable data on the split between new build and retrofit cavity wall insulation. The parties told us that they do not know which segment is the ultimate destination of blowing wool, and their estimates of the proportions of blowing wool used for newly built and older houses are not consistent with those of others that we have received.
- 5.7 In the new build sector, as for loft insulation, the key factors determining demand trends are the number of new housing starts each year (which determines the number of installations) and Building Regulations (which determine the amount of insulation needed for each installation). It is widely anticipated that Building Regulations will be tightened again in 2006. The attractions of plastic foams (which have better insulation properties), or even of alternative forms of construction (such as timber frame), will increase if requirements become more stringent, to the point where even fully filling a 75mm cavity with mineral wool cannot achieve the relevant thermal standard (see paragraph 4.32).
- 5.8 Defra told us that there are 10 million homes in the UK which are suitable for retrofit cavity wall insulation but have not yet had it installed, so the potential market is quite large. At present, about one-third of retrofit cavity wall insulation is thought to be bought by those deemed 'able to pay' (see paragraph 2.21) and the remainder is paid for through government schemes (although grants of up to 50 per cent are often

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<sup>19</sup>This figure has been rising for the last two years following a decline from the mid-1990s peak of just under 200,000. However, the proportion of flats in the total has also risen, suggesting that the number of buildings (and thus the demand for loft insulation) is rising more slowly than the number of housing completions.

<sup>20</sup>Set out in the consultation document *The Energy Efficiency Commitment from April 2005: Consultation Proposals*, May 2004.

available, even for the able to pay). However, given the attention which has already been paid to the homes of the 'fuel poor', most of the remaining homes without cavity wall insulation may be in the 'able to pay' segment. It appears to be more difficult to persuade this group of the merits of cavity wall insulation than it is to persuade those who do not have to meet the costs themselves.

- 5.9 Current government proposals project about 1.7 million retrofill cavity wall insulation installations in 2005 to 2008, two and a half times the number in 2002 to 2005. Most industry participants who spoke to us believe that the outturn figures will be far lower than these; but, how much lower is a matter of speculation. The ERA's requests for the overall number of installations in EEC2 to be scaled back (see paragraph 5.5) applies to cavity wall insulation too.

### *Other sectors*

- 5.10 We have little evidence as to whether glass wool use in other applications can be expected to increase or not. However, in recent years the industrial construction sector has grown more slowly than the domestic and, if prefabricated solutions continue to advance at the expense of built up in the industrial cladding sector, we can expect there to be relatively little increase in demand for glass wool from this application.
- 5.11 Other market sectors, such as heating and ventilation, fire protection, acoustic insulation and industrial process applications, together take about 13 per cent of total glass wool production by weight. Demand is likely to be driven by Building Regulations and the level of industrial activity, and we have very little evidence whether the use of glass wool can be expected to increase in these applications or not.

### *Projected UK demand*

- 5.12 Clearly, given all the uncertainties set out above, projecting demand is difficult. There was a consensus among all parties we spoke to that demand would increase at least for the next five to six years (beyond the end of the first phase of the EEC2 commitment), but views on the extent of the increase were more varied. Projections based on Defra's current proposals were consistently the highest, but industry participants claimed that Defra projections had historically been over-optimistic.
- 5.13 We projected three possible scenarios for demand for glass wool, set out below. We built up these projections by estimating growth rates in each sector in the light of the drivers of demand identified and aggregating these to get an overall figure.<sup>21</sup>
- 5.14 The assumptions which underlie the upper projection (see Appendix G) are, we think, at the upper end of the range of possibilities. All the different factors that affect overall demand (the EEC2 targets set out in the Defra consultation document, new housing growth, the impact of changes in Building Regulations, the trend towards warm roofs) are assumed to have a positive, or at worst neutral, impact on the demand for glass wool. We think it unlikely that the growth rates set out in our upper scenario will be achieved.
- 5.15 Equally, we believe the lower scenario (which is consistent with a linear extrapolation of recent trends, and is approximately what the ERA is calling for) is too pessimistic.

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<sup>21</sup>The key assumptions we made in modelling demand are in Appendix G.

Government initiatives will have a very major impact and most of those that gave evidence to us are expecting acceleration in the rate of use of insulation materials, particularly glass wool, as loft insulation and cavity wall insulation are two of the most cost-effective ways of improving energy efficiency.

- 5.16 No industry participants gave us detailed forecasts of demand; the evidence we were given is consistent with a distribution of possibilities within bounds set by the lower and upper scenarios, and with a central case broadly as indicated in Table 2. Accordingly, our analysis is based on the expectation that the central case is the most likely scenario, but we assess the sensitivity of our conclusions to different assumptions where appropriate. Following their publication in our provisional findings, no party challenged the basis of these projections, nor did any party submit any alternative projections.

TABLE 2 Demand projections, 2003 to 2009

	'000 tonnes						
	2003	2004	2005	2006	2007	2008	2009
Upper	156	169	185	204	232	264	300
Central	156	167	179	193	212	234	258
Lower	156	164	173	183	194	208	223

Source: CC calculations based on information supplied by the parties and others.

- 5.17 We note that once the backlogs of houses suitable for retrofit insulation identified in paragraphs 5.4 and 5.8 have been substantially addressed (probably beyond the period covered by Table 2), it is likely that the increase in demand will slow. While the precise timing and nature of this development is impossible to predict, we would expect manufacturers to take it into account in decisions on capacity expansion (see paragraph 5.23).

## Capacity

### Current capacity

- 5.18 According to the parties, total UK capacity for the manufacture of mineral wool in early 2004 was about 170,000 tonnes a year for glass wool,<sup>22</sup> and 113,000 tonnes a year for stone wool (excluding small specialist producers). The split between producers is set out in Appendix H.

- 5.19 It is important to note, however, that:

- Less than one-third of stone wool by volume (and less than one-fifth by value) is currently used in applications relevant to this inquiry (loft and cavity wall insulation). Other applications of stone wool have historically been more profitable, so it should not be assumed that all stone wool capacity is available for applications where glass wool is generally used.
- All volumes are quoted in tonnes. However, stone wool is generally used at about twice the density of glass wool, so one tonne of stone wool capacity is only equivalent to about half a tonne of glass wool capacity. Direct comparisons between glass and stone wool figures should, therefore, be treated with caution.

<sup>22</sup>The total includes currently unused capacity for pipe sections and for blowing wool, and output currently exported to the Republic of Ireland.

In our analysis we have not assumed any significant change in the pattern of use of stone wool in these markets.

5.20 Additions to capacity can be achieved in three ways:

- Incumbents can achieve increased output by using existing plants more effectively. There is clear evidence of steady incremental increases as a result of eliminating bottlenecks, improvements in technology and minor investment (in some cases it is possible to add fiberisers to existing production lines, for example). The overall change in glass wool capacity achieved by all manufacturers since 2001 equates to an annual increase in glass wool capacity of just under 5 per cent. Increases in stone wool capacity have been rather less than for glass wool; nevertheless, capacity has increased by an average of 2.5 per cent a year.
- Incumbents can make step change increases at their existing plants (for example by building new production lines). Their ability to do so and the cost at which this could be achieved depend on the configuration of those plants.
- Incumbents or new entrants can build a new plant on greenfield sites. We were told that the cost of a new plant on a green field site would typically be £1,000 to £1,200 per annual tonne of capacity and that 25,000 tonnes a year is the minimum economically efficient size. Any participant seeking to develop a new plant would need to identify sites with the appropriate power supplies and transport links and to secure planning and environmental consents. They would also need access to skilled labour and, in the case of newcomers to glass wool manufacture, to technology.

There have been no increases in capacity through either of the latter two routes since the 1980s. Instead, manufacturers have adopted the first course of action and gradually increased their utilization of capacity.

5.21 We were told that in 2004, for the first time in at least ten years, UK capacity for the production of mineral wool is being used at, or close to, full capacity. Current utilization figures are shown in Appendix H, and indicate that all manufacturers are operating at over 90 per cent of capacity, in some cases well over 90 per cent. The more detailed data by product in Appendix H shows that while there remains some spare capacity in blowing wool and in speciality applications, 100 per cent of capacity for rolls and slabs is currently in use. If recent trends in demand and capacity utilization continue, demand may shortly also exceed capacity for blowing wool, though it has not yet done so. Paragraphs 5.41 to 5.44 discuss the implications of this transition from a position of excess capacity to one of excess demand.

5.22 Glass wool capacity utilization has increased sharply over the past five years. Knauf's utilization has risen from [X] to [X] per cent, despite an [X] per cent rise in capacity, and BGI's utilization has risen from [X] to [X] per cent. Superglass's utilization has stayed fairly close to full capacity, reflecting its policy of exporting to maintain plant throughput, but its capacity has increased by [X] per cent. For stone wool, Knauf's utilization has risen sharply because capacity at Queensferry has reduced; Rockwool's utilization has stayed fairly constant while capacity has increased by [X] per cent.

### *Prospects for capacity evolution*

5.23 In response to current demand forecasts, manufacturers told us that they have plans for capacity expansion. We were told that:

- Superglass has the opportunity, subject to the availability of investment funds, to increase production by 10,000 tonnes a year (around 20 per cent) by adding a fiberiser to each of its glass wool lines. We were told that this is the quickest capacity expansion option available to any manufacturer (and one of the cheapest).
- Knauf has publicly announced plans for increases of 50 per cent in stone wool capacity at Queensferry by 2005 and a further expansion of 55,000 tonnes of glass wool capacity, which we understand to be at an existing location, by mid-2007<sup>23</sup> ([X]). Knauf has also announced plans for a new EPS plant at St Helens.
- BGI has plans for a [X] per cent increase in glass wool capacity at Runcorn, though this is yet to receive BGI board and parent company approval. If such approval is forthcoming the new capacity could be in production by mid-2006.
- Rockwool has publicly announced plans for a 50 per cent increase in stone wool capacity at Pencoed in early 2007.

These plans are summarized in Appendix H, and our projection of overall glass wool capacity based on them is in Table 3. We were also told by BGI that expansion by investing in a new plant is under consideration but approval to proceed has not yet been obtained. We consider this possibility to be markedly less certain than those mentioned above given its early stage of consideration and have excluded it from Table 4; though we discuss it further in paragraphs 5.25 and 7.46.<sup>24</sup>

TABLE 3 UK glass wool capacity: projections to 2009

	<i>Glass wool capacity ('000 tpa)</i>						
	2003	2004	2005	2006	2007	2008	2009
Total capacity	162.0	166.8	175.1	190.4	230.8	261.2	264.2
Cumulative increase from 2004 (%)			+5	+14	+38	+56	+58

Source: CC analysis based on data from manufacturers.

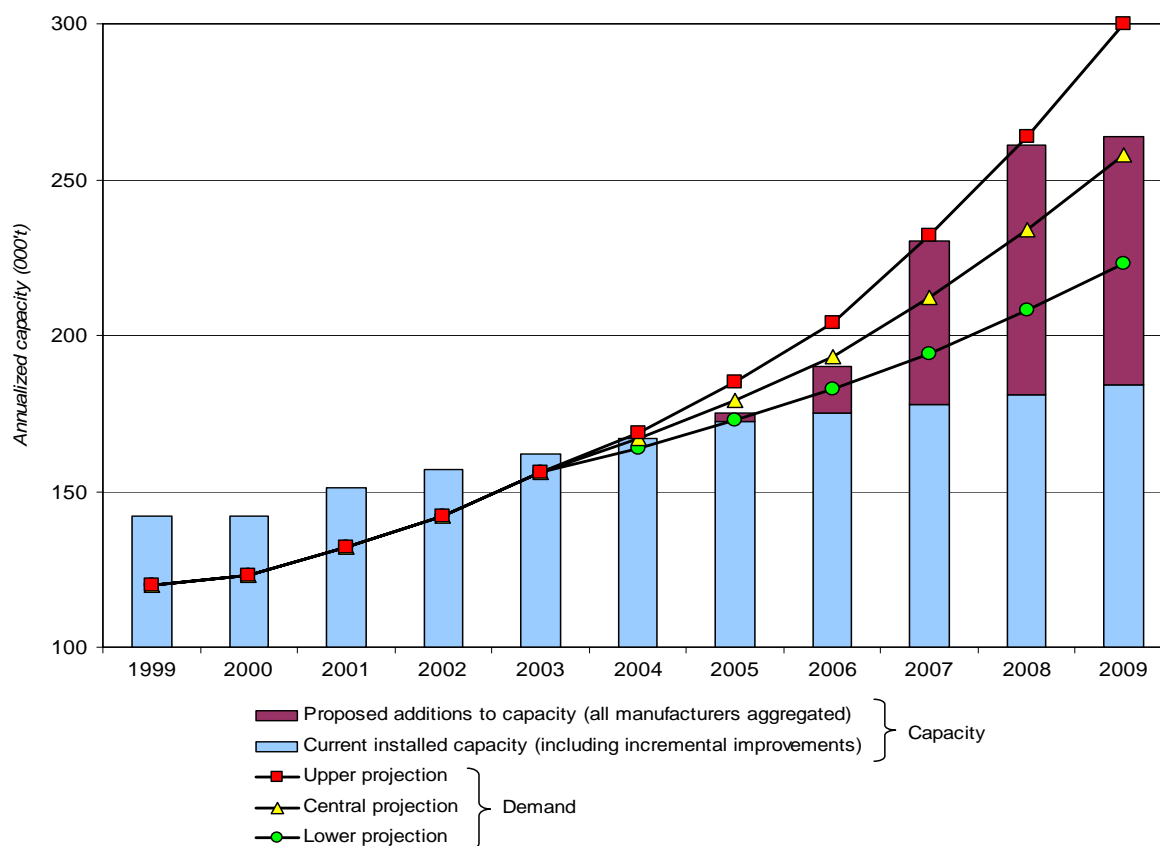
5.24 In addition to major one-off investment, there is also likely to be continued improvement in capacity as a result of eliminating bottlenecks, improvements in technology and minor investment. Paragraph 5.20 indicated that this has amounted to an increase of around 5 per cent a year since 2001. However, it is possible that the bulk of such improvements have now been achieved, and the rate may be lower in the future (we have assumed further improvements of 2 per cent in Table 3). We have summarized our estimates of the likely balance of demand and capacity in Figure 1.

<sup>23</sup>Knauf's public announcement refers to this increase coming on line 'during the second half of 2006'. We have taken a more conservative estimate based on other evidence given to us by Knauf.

<sup>24</sup>Were BGI to expect demand to follow the path in our upper projection, we think it would be more likely to pursue this option.

FIGURE 1

Summary of glass wool demand and capacity, 1999 to 2009



Source: CC analysis based on data from manufacturers.

5.25 We interpreted this data as follows:

- Until 2002, capacity consistently exceeded demand by around 10 per cent.
- In 2003 and 2004, capacity and demand overall came roughly into balance (with implications for competition which we discuss below).
- In 2005, demand on the upper or central projection exceeds capacity; on the lower projection demand and capacity are roughly in balance.
- In 2006, demand on the upper and central projections continues to exceed capacity; only on the lower projection do the increases in capacity at this stage start to create spare capacity in the market.
- In 2007, additions to capacity bring demand and capacity approximately back into balance on the upper demand projection; on the central and lower projections capacity comes to exceed demand.
- In 2008 and 2009, there is spare capacity at the sort of levels seen up to 2002 in all but the upper demand projection, and we have no reason to suppose that this

pattern would not continue.<sup>25</sup> We note that were BGI to build a new plant its capacity would be likely to eliminate excess demand in 2008 and 2009 even on the upper demand projection.

5.26 It appears that, in the absence of a significant increase in imports or substitution of stone wool<sup>26</sup> for glass wool where that is possible:

- Demand looks likely to exceed capacity until the effects of the major planned Knauf and BGI capacity expansions start to be felt in 2007.<sup>27</sup> Planned Superglass capacity expansion in the short term may serve to ensure that demand does not substantially outstrip capacity, but seems unlikely to create substantial spare capacity in the market.
- The capacity expansions planned for 2006 and 2007 serve either to bring the industry back close to balance, or to introduce some surplus capacity into the industry, depending on which demand projection is preferred.

We therefore expect that the market is likely to return to a position where capacity exceeds demand, probably at some point in 2007.

### **Imports and exports**

5.27 Reliable import and export statistics are difficult to obtain. Analysis of data from the parties and from HM Customs and Excise suggests that imports have not exceeded 8 per cent of total UK demand for mineral wool in the last five years. The transport cost and other disadvantages faced by imports are referred to in paragraph 4.49. In addition we were told that consistency and security of supply had been a cause of concern for potential importers. We heard that UK manufacturers and distributors had increased their efforts to source mineral wool from outside the UK in response to current capacity constraints, and there is some evidence of import levels increasing in 2003.<sup>28</sup> However, we have seen no evidence that the significant increases in price for some products seen in the course of 2004 have resulted in significantly increased levels of independent imports.

5.28 Knauf and Superglass both export glass wool, [X]. Superglass told us that it had historically sought to use exports to keep its plant operating at full capacity. BGI exports [X] to its sister company in Ireland. Exports of glass wool by manufacturers have fallen from approximately 15 per cent of production in 1999 to approximately 8 per cent of production in 2003 as UK demand has risen close to capacity. Both Knauf and Rockwool export volumes of stone wool equivalent to about [X] per cent of total production.

### **Entry**

5.29 We considered the prospects that substantial entry into the relevant markets might create additional capacity in the foreseeable future, or that the threat of entry might

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<sup>25</sup>Knauf argued that the period of spare capacity might be limited and that after 2009 demand might once again exceed supply. While it is possible that there may be some short-lived periods in future when demand again exceeds supply, we do not think that the contention that demand would exceed supply for any protracted period without manufacturers responding by adding additional capacity is credible

<sup>26</sup>Rockwool's increases in capacity might provide it with an incentive to seek to sell more stone wool into these markets; our assessment of Rockwool's position is in paragraph 7.19.

<sup>27</sup>Demand for rolls and slabs already exceeds capacity; paragraph 5.18 indicates that it is likely that demand for blowing wool will exceed capacity shortly.

<sup>28</sup>Knauf told us that there was considerable mothballed capacity available in Continental Europe, but we have seen no evidence of plans to recommission plant in order to supply markets in Great Britain.

represent a competitive constraint in the market. Knauf told us that entry was possible for any UK-based building materials supplier or any overseas insulation manufacturer, and that if the current excess of demand over supply persisted for any length of time, entry was very likely. However, we were told that there had been no new entrant into the insulation market globally for many years, and we think the most likely possible entrants would be insulation manufacturers not currently present in the UK. These might include Uralita, a Spanish building materials company which produces glass wool insulation products. Uralita told us that it was currently exporting [redacted] glass wool insulation to the UK. We are not aware of any other likely entrants (though Knauf told us of a number of possible entrants from overseas).

- 5.30 We identified a number of significant barriers to entry that such entrants are likely to face. The likely costs associated with building a new plant are identified in paragraph 5.20. To make such an investment, a potential entrant would need to believe that it would be possible to build significant market share quickly, to absorb the output. This would require a new entrant to establish routes to market, presumably by securing contracts with major distributors (all of whom already have contracts with incumbents). This would require significant marketing investment to establish a reputation and an initial customer base. It would also require either a willingness to import, with the additional transport costs that implies, to service customers in advance of new capacity becoming available, or a willingness to sustain losses in early years resulting from underutilized capacity. All this would need to be achieved in the presence of established incumbents who could be expected to defend their market shares vigorously.
- 5.31 These considerations lead us to believe that any potential entrant to the UK market would seek to purchase an existing manufacturer (with existing manufacturing facilities, reputation and routes to market) rather than seek to build a new manufacturing plant itself. Given the barriers to entry identified above, we do not think that the threat of entry by means of building a new plant represents an effective competitive constraint on the UK market.

### ***Competition in mineral wool markets***

- 5.32 Against the background of the supply and demand position set out above—broadly, a history of excess capacity over demand which has only recently been reversed—we now assess the nature and extent of current competition. The analysis that follows applies equally to all the relevant markets we identified; any which is specific to one or more market is identified.
- 5.33 The bulk of the data we have refers to the position prior to 2004, which we describe as the ‘spare capacity regime’. We assess this first, noting that through most of this period there was appreciable spare capacity in the market (Figure 1 illustrates that capacity utilization was generally below 90 per cent). We then turn (see paragraphs 5.41 to 5.46) to the consequences of the current position of excess demand for rolls and slabs (though not for blowing wool) which has developed in the last 12 months, and which we term the ‘excess demand regime’.

#### *The spare capacity regime*

- 5.34 Mineral wool manufacturers issue price lists for their products to their customers, but actual prices paid by the customers (which we term ‘realized prices’) are very different from these list prices. Customers negotiate very substantial rebates and discounts from the list prices of up to [redacted] per cent. Manufacturers have attempted to reduce the gap between list price and realized prices by lowering both list prices and

discounts, but they told us that their customers have historically preferred to negotiate on discounts because visible manufacturers' list price rises give them a tool to use in negotiation with their own customers.

5.35 Customers told us that realized prices are not transparent, and that they do not know what their competitors are paying. This lack of transparency gives manufacturers some scope to set different prices to different customers for the same product. Our analysis of the data on prices charged by manufacturers to different customers shows that the differences can be at least 30 to 40 per cent for the same product. [X] Because prices are only partially visible downstream, we would expect that appreciable price differentials might persist between different groups of customers according to whether they compete or not downstream—for example, between DIY stores (which sell loft insulation to individuals) specialist insulation distributors (which sell to specialist contractors/builders) and builders merchants (which sell mainly to small generalist contractors). The main parties told us that discounts and rebates do not depend primarily on the customer type, but mainly on the size of the customer and its skill in negotiating prices. Manufacturers also told us that discounts were used as a means of attracting strategically important customers (or persuading them to switch supplier). Our analysis of prices showed that, although volumes purchased appear to be one explanation for the differences in prices paid for some products, they are by no means the sole explanatory factor for differences in prices.

5.36 Manufacturers periodically raise their list prices. This appears to have been an annual event in recent years, and has almost always been led by Knauf, which has announced a price increase effective two to three months from the date of announcement. Other manufacturers have typically followed suit, announcing almost identical price rises shortly afterwards. Tables 4 and 5 illustrate this pattern.

TABLE 4 Timing of list price increases by Knauf and Superglass, 1999 to 2004

<i>Superglass</i>		<i>Knauf</i>	
<i>Date of increase</i>	<i>% increase</i>	<i>Date of increase</i>	<i>% increase</i>
Apr 99	6	Apr 99	6
Apr 00	4	Apr 00	4
Feb 01	8	Feb 01	8
Feb 02	7	Apr 02	8
Jan 03	8	Jan 03	8
Feb 04	8	Feb 04	8
Jun 04	20	Jun 04	20

Source: CC, based on data provided by Knauf and Superglass.

TABLE 5 Timings of the 2004 list price increases

	<i>Feb 2004 increase</i>			<i>June 2004 increase</i>		
	<i>Date of letter</i>	<i>Date of implementation</i>	<i>% increase</i>	<i>Date of letter</i>	<i>Date of implementation</i>	<i>% increase</i>
Superglass	9 Dec 03	1 Feb 04	8	4 May 04	1 Jun 04	20*
Knauf	31 Oct 03	1 Feb 04	8	25 Apr 04	1 Jun 04	20*
BGI	25 Nov 03	2 Feb 04	8	30 Apr 04	31 May 04	20*
Rockwool	N/A	2 Feb 04	4	13 May 04	21 Jun 04	4–18†

Source: CC, based on data provided by Knauf, Superglass, BGI and Rockwool.

\*With some exceptions.

†Depending on the product.

Note: N/A = not applicable.

- 5.37 However, data from the parties and from BGI shows that changes in realized prices paid bear little relationship to list price increases. Average prices vary considerably from month to month (which may reflect changes in product mix), but until 2003 the realized prices of most products were falling slightly, even though list prices have been increasing. In general, blowing wool prices have been the steadiest, but there have been declines of between [redacted] and [redacted] per cent in the realized price of loft roll between 1996 and 2003. Charts illustrating these trends are in Appendix I.
- 5.38 [redacted] explained that when list price increases were announced, rival manufacturers would target customers they thought likely to switch supplier. They had a powerful incentive to do so as long as they had spare capacity in their plants, because increasing throughput lowered their unit costs. In practice, actual switching or threats to switch supplier by some customers had resulted in list price increases not being translated into increases in average realized prices. Customers confirmed this broad pattern. The parties provided evidence of actual switching which suggested that a significant proportion (up to [redacted] per cent a year) of their business had been won or lost over the last four years. We suspect that this understates the extent of switching. Half of the distributors that responded to our customer questionnaire source material from more than one manufacturer. Data from the parties suggested that 30 per cent of blowing wool installers also sourced from more than one manufacturer. Both groups could easily shift the balance of their purchases between manufacturers in a way that would not be identified from this data.
- 5.39 The parties suggested that they were not, in fact, close competitors. Knauf told us that it believed it competed more directly with BGI than with Superglass. It provided data showing that it had lost more business to BGI than to Superglass, but that it had gained more business from Superglass than from BGI in recent years. The data from Superglass and BGI did not confirm this pattern. Overall, the data on switching provided by glass wool manufacturers suggested that Knauf, Superglass and BGI were close competitors but that very little switching outside this group (for example, to stone wool or EPS beads) occurred. Moreover, the extent to which customers switched between manufacturers is consistent with manufacturers' market shares (ie there is a higher probability of switching to a manufacturer with a higher market share). This suggests that customers play off all three of the main manufacturers against each other. We saw little evidence that direct customers switch to different insulating products: there were almost no instances of switching by direct customers from glass wool to stone wool (or the reverse), and we heard of none from plastic materials to glass wool (or the reverse), though the parties told us that this probably reflected the fact that many customers multi-source so an overall shift in the balance of their purchases might not be visible (see paragraph 5.38).
- 5.40 The evidence of relatively high levels of customer switching between glass wool manufacturers, coupled with somewhat volatile (and generally decreasing) prices suggests that, in the spare capacity regime (which has prevailed for at least the last ten years), the process by which realized prices are set is quite different from that by which list prices are set. Attempts by glass wool manufacturers to increase prices to their customers have been defeated in the past in negotiations by many customers who switched or threatened to switch their business following list price increases. Data from main and third parties on individual negotiations bear this out. However, because of the lack of transparency in prices among customers and the fact that prices are negotiated individually, those customers who did not switch or threaten to switch are unlikely to benefit from the bargaining skills of the others; hence the existence of large price differentials between different customers for similar products.

## *The excess demand regime*

- 5.41 The pattern of competition appears to have shifted markedly in 2004, as demand has reached and exceeded capacity for some products. List prices were increased by up to 8 per cent for most products in February and by a further 20 per cent for rolls and slabs in June. In both cases Knauf was first to announce changes and the other manufacturers quickly followed suit (see Table 5). In contrast to the pattern of pricing in the spare capacity regime, these list price rises have, we were told, been almost fully reflected in rises in realized prices. A further 8 per cent list price increase for blowing wool (for which there is some spare capacity), also announced by Knauf in June 2004, however, has not. Knauf told us that this was because Rockwool had indicated that it would not raise prices, and Knauf was obliged to withdraw its price rise for fear of widespread switching to stone blowing wool. Neither Superglass nor BGI increased their blowing wool prices at that time. This pattern suggests that the main reason for the list price rises for rolls and slabs being translated into realized price rises was the existence of excess demand: manufacturers unable to supply the material required had no incentive to compete for customers dissatisfied by price rises.
- 5.42 The position of excess demand over capacity has had other consequences. Manufacturers appear to have largely stopped exporting other than to the Republic of Ireland. Delivery times have increased. Some manufacturers have restricted supplies of some products, notably loft rolls, with customers receiving an allocation based on the previous year's volumes. Given increases in demand, in many cases customers' allocation has been less than they would have wanted. There have also been some changes to terms of contracts between manufacturers and their customers in recent months, including:
- Knauf has increased the costs of delivering half loads and delivering direct to site;
  - Knauf has introduced longer, but more tightly packed, loft rolls, which has benefits for some customers but which has necessitated the introduction of a shelf life for the product; and
  - BGI has discontinued its economy line of loft roll priced for the contracting market, obliging customers to buy a higher priced product for the same application.

Manufacturers told us that these were either changes made in the normal course of business (in some cases introduced following consultation with customers), or rational responses to the current capacity position, but some smaller installers told us that they had the effect of raising prices to those who used smaller quantities of product. Most obviously, the expansion plans developed by all the manufacturers (see paragraph 5.23) are also a response to the current capacity constraints.

- 5.43 It is clear that following the move to an excess demand regime in early 2004, some of the competitive pressures described in paragraphs 5.34 to 5.40 no longer exist, or at least have temporarily abated, particularly in the market for rolls. Some customers and installers have complained about the consequences of this, and some have made allegations of coordinated behaviour, and have associated those developments with the merger. Knauf told us that, in its view, many of the complaints of coordination and fears about the merger expressed by third parties have been prompted as much by current circumstances as by the likely impact of the proposed merger.

- 5.44 The full consequences of a shift to an excess demand pricing regime have probably yet to be seen. We have seen evidence that manufacturers' direct customers have so far borne the 2004 increases in the price of rolls and slabs, at least in part. However, as indicated in paragraph 2.19, customers compete downstream for the resale of insulation products to contractors and individuals. Even if direct customers do not switch to other materials or reduce purchases in response to a price rise of this magnitude, their customers (end users of the product) might. Faced with an increase in the price of glass wool from UK manufacturers, end-users could do one of the following:
- Switch to other insulating materials (such as foam products) for their insulation needs.
  - Seek to import glass wool insulating materials.
  - Stop purchasing insulating materials.
  - Bear the price increase.
- 5.45 Our analysis in section 4 shows that end-users are unlikely to switch materials for a small price increase, but it is possible that the substantial increases seen in 2004 may cause some switching, and possibly accelerate trends to the use of other insulation materials. We note, however, that recent increases in oil prices will be likely to have a greater impact on the price of plastic insulation materials derived from petroleum than on mineral wool insulation products, which could reinforce the price disadvantages of plastic materials.
- 5.46 Whether end-users will reduce their purchases depends on their sensitivity to insulation material price rises. Knauf told us that many downstream customers were sensitive to price changes, and that this imposed a constraint on pricing. Sensitivity to price changes seemed to us to be likely to vary for different categories of end-user. We recognize that end-customers are likely to demonstrate some sensitivity to price changes. We think this would be most likely to manifest itself through seeking to switch supplier in response to any price rise, and is thus only likely to be an effective constraint in the spare capacity regime where switching is possible. We think that it is unlikely to be sufficient to impose any major constraint on price, at least for as long as excess demand persists. However, some end users may reduce demand in the face of increasing prices, thus reducing the excess of demand over capacity and recreating switching opportunities.

### *Conclusions on current competition*

- 5.47 Through our analysis of demand, capacity and the history of pricing and competitive behaviour, we identified two very different patterns of competition in mineral wool markets:
- *The spare capacity regime*, in which plants operate at significantly below full capacity, and as a consequence, manufacturers have the incentive to compete on price in order to use the full capacity available to them and thus minimize unit costs. This is described in paragraphs 5.34 to 5.40 and has been the prevailing pattern for many years up to around the end of 2003.
  - *The excess demand regime*, in which plants operate at or close to full capacity, and capacity constraints inhibit the potential for price competition. This is described in paragraphs 5.41 to 5.46 and appears to have become the prevail-

ing pattern, at least for glass wool loft insulation rolls and cavity wall slabs, early in 2004.

- 5.48 Our assessment of demand and capacity in the future suggests that the excess demand regime seems likely to persist for loft rolls at least until early 2007 (as manufacturers intend that significant new glass wool capacity will become available by mid-2007), and is likely to exist in blowing wool for at least some of that period. Thereafter, we expect that capacity will once again exceed demand (absent any changes caused by the merger) at some point in 2007, and that the rate of increase of demand will slow, though projections are inevitably less reliable further into the future. We describe our assessment of the impact of the merger on the pattern of demand and capacity, and the likely consequences for competition, in section 7.

## 6. Counterfactual

- 6.1 In order to assess the effect of the merger on competition in the relevant markets, we need to identify what is likely to happen in the absence of the merger (the counterfactual). We therefore considered what might happen to Superglass, and the likely consequences for expansion of capacity at the Stirling plant and for the future of Superglass as a competitive force, if the merger did not go ahead.

- 6.2 The options for Superglass in the absence of the merger fall into three broad categories:

- trade sale;
- sale to another financial buyer; or
- continuation under the same ownership.

These are analysed in more detail in Appendix J.

- 6.3 It seems to us likely that there would be interest in buying Superglass. However, [REDACTED], we cannot form an expectation that Superglass would be sold to a purchaser other than Knauf in the near future. Were Superglass to be sold to a trade purchaser other than Knauf, funds would almost certainly be made available for capacity expansion, possibly not immediately. If no such sale were to take place, it is possible, although we cannot form an expectation, that even under current ownership further investment in capacity might be made, though the extent and timing is uncertain.

- 6.4 However, even if no investment were to be forthcoming, Superglass can be expected to remain an effective competitor for some time to come. Knauf told us that if Superglass were unable to access substantial investment funds, it might be unable to keep up with industry developments ([REDACTED]<sup>29</sup>) which would impair its ability to compete. However, we note that Superglass has competed vigorously and successfully for some years without significant new equity investment, and we have seen no evidence to suggest that Superglass would decline significantly as a competitor in the short to medium term. Were it starved of investment funds for any protracted period, however, its strength as a competitor could decline somewhat ([REDACTED]).

- 6.5 In summary, we believe that in the absence of the merger the minimum that we can expect is that in the short to medium term Superglass will remain an independent and competitive force in the market, as it is at present. We think that in the longer term it

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<sup>29</sup>[REDACTED]

may begin to decline somewhat as a competitive force due to lack of investment. However, we do not expect this decline to be sudden. It is against this pattern of competition that we will assess the competitive effects of the merger.

- 6.6 Although this is the counterfactual that we adopt in our analysis, we believe that if Superglass were bought by any trade buyer other than Knauf, Superglass would be a stronger independent competitor than it is now in the longer term, and potentially earlier if significant investment funds were to be available.

## **7. Effect of the merger**

- 7.1 If the merger proceeds, an independent competitor will be eliminated and the number of competitors will be reduced from three to two in the loft roll market and from four to three in the blowing wool market. Moreover, the merged entity will have more than 80 per cent ([X] per cent) of the loft roll market, and roughly two-thirds ([X] per cent) of the blowing wool market, but less than 20 per cent of the slab market. Its closest competitor will have market shares of no more than 20 per cent in all three markets ([X] per cent, [X] per cent and less than [X] per cent respectively).
- 7.2 Under the counterfactual that Superglass remains independent were the merger not to happen, these markets would have suppliers of more comparable size. Rather than more than 80 per cent ([X] per cent), roughly two-thirds ([X] per cent) and less than 20 per cent, Knauf would only have roughly two-thirds ([X] per cent), roughly half ([X] per cent) and less than 20 per cent ([X] per cent), with the remainder more or less evenly split between its competitors (Superglass and BGI in the loft roll market; Superglass, BGI and Rockwool in the blowing wool market). We note that of all possible combinations in this market, the proposed merger is the one which produces the greatest disparities in market shares.
- 7.3 In our view neither the share of the slab market, nor the advantage over its competitors in that market, that Knauf would acquire by the merger give rise to serious competition concerns. Nor have we seen any other evidence that leads us to believe that the merger will have an anti-competitive outcome in the slab market. We therefore do not consider the slab market further.
- 7.4 The loft roll market is currently characterized by excess demand, the blowing wool market by excess capacity. The future pattern of demand we expect in each case was described in paragraphs 5.2 to 5.9. We think that demand is likely also to exceed capacity for blowing wool in the near future (see paragraph 5.21), but we think that once planned increases to capacity are implemented by Knauf and others (in 2006 and 2007), capacity will once again meet or even exceed demand for both loft rolls and blowing wool at some point in 2007 (see paragraph 5.26). We note that the first of the expected increases in capacity (the expansion of the Stirling factory) and the largest (the addition of 55,000 tonnes at an existing location) both add to Knauf's share of overall capacity in glass wool production, which rises to over 80 per cent. We assess the effect of the merger on competition in the markets for loft rolls and blowing wool together.
- 7.5 We assess the impact of the merger initially on pricing. We consider first the period when demand exceeds capacity (which we expect to last until early 2007) and then the period when capacity once again exceeds demand, which we expect will occur at some point in 2007. The potential impact of the merger on the likelihood and timing of the return to spare capacity is then addressed in paragraphs 7.34 to 7.48.

7.6 Paragraph 7.1 indicates the very substantial, and significantly increased, market shares which Knauf would have as a result of the merger. We think that market shares are a good indicator of market power in the relevant economic markets that we have defined, because:

- the threat of entry is low;
- we have seen no evidence of significant buyer power beyond that which would normally be available in a competitive market (where buyers can switch between different existing suppliers);<sup>30</sup>
- competitive constraints from products outside the market are weak;
- the different products in the markets for loft roll and for blowing wool are relatively homogeneous; and
- the existence of capacity constraints means that firms are limited in their ability to expand their market shares by their share of existing capacity. Investment in new capacity is a lengthy and expensive process and can only be effected in large increments. At present all producers are at capacity for loft rolls, so current market shares reflect production capacities. There is some spare capacity for blowing wool, but it appears to be distributed broadly in proportion to market shares, which are therefore likely to reflect shares of production capacity.

We have seen no evidence of any other factors outside the markets for loft rolls or blowing wool that might lead us to think that the analysis of the effect of the merger on pricing and capacity described below is incomplete.

## **Pricing**

### *The excess demand regime*

7.7 Knauf told us that while excess demand persists the merger can have little effect on competition in the loft roll and blowing wool markets. We accept that Knauf will be in a position to continue its role of price leader, and recognize that it is likely that other participants in the market will follow list price rises and will not generally offer lower realized prices as long as they do not have excess capacity to fill.

7.8 However, in periods where demand exceeds capacity, even though manufacturers cannot increase their total volume sales, there is still scope for competition between them for the most profitable customers (that is, those willing to pay the highest prices in relation to the cost of serving them). We considered, therefore, whether the merger will, in periods when demand exceeds capacity, enable Knauf to raise prices more to certain customers than would otherwise have been the case.

7.9 This effect depends on the existence of customers willing to pay higher prices than others with similar characteristics, and on the enhanced ability of the merged entity to charge higher prices to those customers.

7.10 We believe that different end users of insulation products (householders and managers of government schemes) vary in their willingness to pay higher prices (see

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<sup>30</sup>Knauf told us that it thought that pressure from buyers which had characterized the spare capacity regime represented buyer power. We think this pressure was brought to bear as a result of buyers' ability to switch in a competitive market, rather than through the other aspects of buyer power set out in our guidance (see CC2, paragraphs 3.58 to 3.59).

paragraph 5.46), and we know that direct customers (distributors, builders merchants and others) also vary in their willingness to pay, as shown by the existing differences in price to these customers (see paragraph 5.35). In periods when glass wool products are under allocation, as now, at least some customers who are unable to buy as much as they require are likely to be willing to pay a higher price than others in order to secure increased supplies, and the differences in the prices that direct customers are willing to pay is therefore likely to increase. Knauf will be able to identify customers willing to pay more for insulation products, since customers effectively reveal their propensity to pay more or to switch some of their purchases to other manufacturers<sup>31</sup> during negotiations with suppliers or by their response to proposed price increases.

- 7.11 Even where all manufacturers are selling to the limits of their capacity, as in the loft roll market at present, the more profitable customers may avoid an increase in price by credibly threatening to switch some of their purchases to other suppliers. Competitors are likely to be willing to acquire the more profitable customers, even if this means losing some less profitable existing customers. The threat of switching, even if not carried out, is therefore a constraint on Knauf. The possibilities of switching will be reduced by the merger, through the reduction in the number of competitors from three to two (in the loft roll market) and from four to three (in the blowing wool market), and through the increase in Knauf's share of capacity (and the corresponding decrease in its competitors' share of capacity). These developments imply that a smaller proportion of Knauf's customers will have an alternative to which they could realistically switch. Furthermore, the options for customers of other manufacturers (who would be displaced if some of that group did switch) would also be reduced.
- 7.12 In addition, the merger will increase the information available to Knauf on the extent of dual sourcing by existing customers between Knauf and Superglass and differences in prices paid, thereby revealing which customers might be willing to pay more to secure the supplies they want and which will not. The merger will therefore increase Knauf's ability to charge higher prices on marginal sales to those customers.
- 7.13 Knauf told us that where demand currently exceeds capacity, it has allocated limited supply among all customers and has not sought to allocate supply solely to the most profitable. We think that, as we indicated in paragraph 5.44, the full consequences of a shift to an excess of demand over capacity have probably yet to be seen, and that it is in Knauf's longer-term interest to behave as we have described. Knauf further told us that in practice it would not want to anger existing customers, nor incur the costs of obtaining new customers and losing existing ones, by behaving as described. We think this argument overstates the level of customer loyalty and the barriers to switching in this market, and we do not think that these considerations would prevent Knauf from raising prices. We note that they have not prevented Knauf from raising prices by more than 20 per cent in 2004 in conditions where demand has exceeded capacity.
- 7.14 We therefore expect that, in periods when demand exceeds capacity, the merger will enable Knauf to raise prices more to certain customers than would otherwise have been the case. Knauf told us that there would be no appreciable information gain as a result of the merger which would enable it to differentiate between customers in its

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<sup>31</sup>We noted the extent of multi-sourcing in paragraph 5.38. Customers who multi-source would be more likely to change the balance of purchases from different suppliers than to switch the whole of their business.

pricing. We think that this argument implies that Knauf is currently differentiating prices to the maximum extent possible, which we consider unlikely.

- 7.15 We conclude that should the merger proceed it may be expected to result in a substantial lessening of competition (SLC) in both the loft roll market and the blowing wool market in periods when demand exceeds capacity. We expect that the merger would give rise to an immediate SLC in the loft roll market, in which demand currently exceeds capacity and we expect it to continue to do so until a point in 2007. We expect the merger to give rise to an SLC in the blowing wool market from the point at which demand exceeds capacity in that market (which we expect shortly), to the point in 2007 at which capacity once again exceeds demand.

### *The return to spare capacity*

- 7.16 We also considered the likely impact of the merger on price competition when there is, once again, excess capacity in the market. This is true for blowing wool at present, though we expect not for very long (see paragraph 5.21). We expect it to be the case again for both loft rolls and blowing wool once the additional capacity investments described in paragraph 5.23 (Knauf's expansions of capacity at Stirling and an existing location, and BGI's at Runcorn) have been made. We expect capacity once again to exceed demand in the course of 2007, but we note that this could be earlier if demand grows more slowly than we expect. By 2008 we expect there to be over 250,000 tonnes a year of glass wool capacity on line in the UK (of which over 80 per cent will belong to Knauf if the merger proceeds).
- 7.17 In this environment, Knauf would, through the acquisition of Superglass, have increased its market share by [X] per cent in the loft roll market and by [X] per cent in the blowing wool market, removed one of its two principal competitors and acquired both the existing Superglass capacity and the immediate ability to increase its capacity by 10,000 tonnes a year at the Stirling plant, an increase which would be likely to be quickly translated into a further increase in its market shares.
- 7.18 In our view, an increase in market share to over 80 per cent ([X] per cent) and roughly two-thirds ([X] per cent) in the loft roll and blowing wool markets (and the equivalent increases in Knauf's share of capacity in each of these markets) would have a significant effect on Knauf's incentives. At such levels of market and capacity share Knauf would be in a position to choose between two strategies. It could choose to compete on price (in order to increase its market share further, align its production as closely as possible with its production capacity, and therefore reduce its unit costs). Alternatively it could choose to set higher prices in the relevant markets in Great Britain (which we refer to as domestic markets), perhaps seeking to export to overseas markets in order to fill capacity but tolerating less than full utilization if necessary. By limiting overall supply to domestic markets, this strategy would allow prices to remain at the levels similar to those which currently characterize the excess demand regime.
- 7.19 We expect that Knauf would find it more profitable to maintain sales to domestic markets below production capacity if by doing so it could maintain prices at higher levels than if it produced at full capacity and sold all of its output in domestic markets.<sup>32</sup> Given its likely size, this option would be more profitable for Knauf than to seek, by competing on price, to capture a greater share of the market and sell to the full capacity limits of its production (so reducing unit costs). The tables in Appendix K

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<sup>32</sup>We note that list prices for loft rolls have risen by 30 per cent in 2004 so far and realized prices appear to have started to rise in line with these.

(the figures are illustrative and are not drawn directly from information provided by the parties) show that this strategy can be profitable at a market share of around 60 per cent (less than the share of the blowing wool market Knauf will hold following the merger). Appendix K also shows that it is always more profitable still where Knauf's total share of capacity is over 80 per cent (as it will be in the loft roll market as a result of the merger). In essence, under this strategy the revenue foregone from sales diverted from the UK market (or from capacity less than fully utilized) is more than made up from the revenue per unit gained from existing sales. The larger Knauf's share of the market, the larger is the increase in revenue from existing sales and, therefore, the more profitable restricting sales in domestic markets will be.

- 7.20 Knauf's incentive to restrict output destined for domestic markets is greater the smaller the production capacities of its competitors. In the absence of Superglass, Knauf's only competitor in loft rolls would be BGI, with a share of less than 20 per cent ([X] per cent). In that situation, Knauf would have to restrict sales into UK markets (and thus sacrifice market share) only to the point where that competitor's limited capacity (and therefore ability to compete) was exhausted. With two competitors sharing one-third of the market (the current position in loft rolls, and, following our conclusion in paragraph 6.5, the appropriate counterfactual<sup>33</sup>), Knauf would have to restrict output by more in proportion to its total production to have the same effect on price, conceding more of the market and incurring higher unit costs in consequence. This means, of course, that the strategy of restricting sales or output would be less profitable if its rivals collectively had a larger market share. Thus we believe the incentive on Knauf to restrict output destined for domestic markets and maintain high prices is substantially increased by the removal of Superglass.<sup>34</sup>
- 7.21 In blowing wool, there would be more capacity in hands other than Knauf's, but the same basic argument applies, as Appendix K illustrates. In blowing wool, as with loft rolls, the increase in market share and the absence of Superglass as a competitor to Knauf significantly increase Knauf's incentive to restrict output and therefore to raise prices above the competitive level.
- 7.22 Knauf argued that the position following the merger in blowing wool was similar to the position before the merger in loft rolls, and that this was not uncompetitive. We disagree, and think there are two important differences. First, while the market shares of the smaller players are similar in the two situations, their motivation is quite different. Blowing wool represents only a small proportion ([X] per cent) of BGI's output by value and BGI told us [X]. For Rockwool, blowing wool is an even smaller proportion ([X] per cent) of its business. Rockwool told us that it regarded blowing wool as more important than loft insulation—it is a better substitute for glass wool in this application and suffers less from the disadvantage of high transport costs in relation to its value. Rockwool might be thought to have a greater incentive to fill its new capacity by supplying more blowing wool, especially if blowing wool prices were to rise as we expect. However, Rockwool is currently importing [X] tonnes of blowing wool a year, and we would expect Rockwool to use any new blowing wool capacity initially to replace these imports. Moreover, we expect there still to be more profitable uses for stone wool, so although Rockwool's incentives may change, we do not think that they would do so to the extent of invalidating our conclusion. Superglass, by contrast, is an active and vigorous competitor in the market via Insta at present and, in line with our counterfactual, could be expected to remain so.

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<sup>33</sup>In the blowing wool market, three competitors would remain, sharing half the market between them.

<sup>34</sup>Knauf argued that it would be illogical for it to build more capacity (as current plans suggest) if it did not intend to use it. We note that even if it were unable to export output not sold in Great Britain, the effects described would require Knauf to tolerate only limited underutilization of the new capacity.

- 7.23 Second, following the merger Knauf would be the exclusive supplier of glass wool to three of the five system designers<sup>35</sup> in the market (including the only two which are currently independent of manufacturers). Given the existence of switching costs for installers in this market (which inhibit somewhat their ability to alter consumption patterns in response to a price increase), we think there is plenty of scope in the blowing wool market for Knauf to take advantage of the position conferred by the merger as described in paragraphs 7.18 to 7.20, just as there is in the loft roll market.
- 7.24 Knauf told us that the position in the market for blowing wool was different in a further respect, because competition between system designers for installers' business would continue, and in particular that Knauf would continue to compete with Insta and 1<sup>st</sup> Insulation. We do not accept this argument. Following the merger Knauf would supply nearly three-quarters of the blowing wool market and would be in a position to continue its position of list price leadership. We believe that Insta's ability to act as an independent force in the market would be severely constrained by the fact that:
- it will have a [redacted]-year mutually exclusive supply agreement with Knauf for blowing wool from the Stirling factory; the agreement allows Knauf to increase prices by industry averages (over which it will, as described above, have considerable influence);
  - neither BGI nor Rockwool could, until output from their new capacity investments becomes available, provide enough blowing wool of any kind to win Insta's business.
- 7.25 Knauf drew our attention to Insta's view that the merger was 'not a bad thing', and asserted that Knauf would have no incentive to discriminate against Insta. We agree that Knauf would have no incentive to price higher to Insta than to its own in house systems designer. Rather, we think that Knauf would exercise market power by increasing prices to both; both would then be likely to pass on price increases to their customers, and neither systems designer would be disadvantaged.
- 7.26 The other independent, 1<sup>st</sup> Insulation, is much the smallest of the system designers (it has less than 10 per cent of the market) and buys its glass blowing wool from Knauf already (Knauf described it as a 'significant customer'). It too would struggle to find alternative sources of supply after the merger (1<sup>st</sup> Insulation told us [redacted]) and would thus be inhibited from competing vigorously with Knauf's systems design business. We do not think the continued separate ownership of Insta and 1<sup>st</sup> Insulation among systems designers enables them to act as a downstream competitive constraint on the merged entity, given the market position of Knauf in blowing wool manufacture.
- 7.27 We also considered the impact of the merger on the position of BGI. Following the merger, if BGI had no spare capacity it could be expected to follow Knauf's price lead. If BGI had spare capacity it would have to choose either to set prices with a view to capturing market share, or at least the most attractive business, from Knauf (selling a little more at a lower price) or to follow Knauf's price leadership in the expectation that it could still sell close to the limits of its production capacity at a higher price. We think that BGI would realize that direct price competition would be costly for both parties and would follow Knauf's price leadership, charging prices at the level set by Knauf, and where this left it with spare capacity, seeking to devote as much of it as possible to higher margin business and, where necessary, seeking to

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<sup>35</sup>Through its direct sales to its own system designer and 1<sup>st</sup> Insulation, and its contract with Insta described in paragraph 3.4.

export the balance. We note that were BGI to follow this strategy Knauf would also benefit, and prices to customers would be higher than if BGI chose to compete head to head. This approach seems to us likely to be both more profitable for BGI and more consistent with [§].

- 7.28 This set of incentives for BGI also seems distinctly different from the circumstances which would exist without the merger. If Superglass remained independent, we expect that, in a situation where it has excess capacity, it would remain an active competitor on price as it has been in recent years.<sup>36</sup> In the absence of the merger, the incentive on BGI to follow Knauf's price lead would be less because of the risk that it might lose business to Superglass (if only to the point where Superglass's capacity was exhausted). Indeed, in the absence of the merger, BGI might also have an incentive to price more aggressively to try to win business from Superglass (especially if BGI thought that over time Superglass would become a weaker competitor).
- 7.29 There is a further possible reason why we think that BGI would be unlikely to engage in aggressive price competition with Knauf in a market in which Knauf would hold such a substantial market share. BGI's parents and Knauf Group companies compete in a number of other UK, European and international markets, both for insulation and for other products (for example, plasterboard in the UK and elsewhere). In most cases BPB or the relevant Saint-Gobain company is the market leader and the Knauf Group company the smaller competitor. In these circumstances of multi-market contact, BGI might regard initiating vigorous price competition in one market as strategically unwise because of the risk of retaliation in other product markets or geographies. We note that an independent Superglass is not subject to the same constraint. Knauf and BGI both emphatically denied that this pattern of multi market contact had any effect on their current behaviour or on their incentives to compete in future.<sup>37</sup>
- 7.30 We recognize that Rockwool is also a close competitor in the market for blowing wool. However, we do not believe that this makes a fundamental difference to the dynamics described above. Rockwool has traditionally regarded blowing wool as less profitable for it than other lines of business, and the incentives on it to compete vigorously on price seem no greater than those on BGI (see paragraph 7.22). We do not think that the competitive constraint from other sources (for example, from EPS beads on the blowing wool market) is strong enough to outweigh the effects we have described.
- 7.31 We therefore expect that where there is spare capacity in the market (a situation which we expect to arise again at some point in 2007 for loft rolls and blowing wool alike, and to continue thereafter<sup>38</sup>), the merger will reduce the likelihood of the pattern of competition which has characterized the spare capacity regime to date reasserting itself. The merger will increase Knauf's incentive to maintain prices at or near the levels possible where demand exceeds capacity, and leave BGI and other competitors with clear incentives not to initiate vigorous price competition, even if they were to have spare capacity. As there is currently spare capacity in blowing wool, we expect the merger will have an immediate effect in that market as described in paragraphs 7.18 to 7.20 as long as that spare capacity persists.

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<sup>36</sup>Knauf told us that Superglass's ability to compete would be constrained by the proportion of its output committed to Insta and Encon. However, we would expect it to compete actively (as hitherto) with the remaining [§] of its capacity.

<sup>37</sup>BGI also stressed that as a fully-functioning joint venture it is operationally independent of its parents.

<sup>38</sup>We indicated in the footnote to paragraph 5.25 our view that, while it is possible that there may be some short-lived periods in future when demand again exceeds supply, we do not think that the contention that demand would exceed supply for any protracted period is credible.

- 7.32 We therefore conclude that we expect the merger to give rise to an SLC in periods when capacity exceeds demand in the loft roll and blowing wool markets.
- 7.33 We think that the key element of the findings in paragraphs 7.14 and 7.31 is the combination of the reduction of choice for customers (from three to two and from four to three competitors in the two markets) with the position of Knauf as price leader, obtaining an overwhelmingly large share of productive capacity and hence of the market. Although we think that the incentives on the other manufacturers to initiate vigorous competition are decreased by the merger, we note that regardless of their behaviour, Knauf's market share in both markets, but particularly the size of its share in the loft roll market, will enable it to act unilaterally in the way described in paragraph 7.19. Similarly, our conclusion does not depend on the analysis of multi-market contact in paragraph 7.29.

### **Capacity**

- 7.34 As we have seen, pricing in this market is heavily influenced by capacity; when there is excess demand customers pay substantially higher prices. We therefore also considered whether the merger would have any impact on the level of capacity in the market. If the merger were to reduce the likelihood of new capacity becoming available, or were to delay it such that the period of the excess demand regime were to be extended, we would expect it to have an adverse effect on customers. Since it is clearly in the interests of all producers to prolong the excess demand regime, we considered whether, following the merger, Knauf would be more likely to manage its capacity investments in order to ensure this than it would in the absence of the merger.
- 7.35 Knauf told us that the additional capacity that the market needed, and that was available quickly and at modest cost at the Stirling factory, would be unlikely to become available as quickly, if at all, in any foreseeable circumstances other than the purchase by Knauf of Superglass. Knauf asserted that the merger was therefore pro-competitive. We accept that the only likely source of increased capacity in the market ahead of the increases planned for 2006 to 2007 is at Stirling. We also accept that in the absence of the merger this increase in capacity is unlikely to happen as quickly, [X] (see paragraph 6.3 and Appendix J).
- 7.36 However, it is not clear to us that the expansion of capacity at the Stirling plant (approximately 10,000 tonnes a year in a market of 170,000 tonnes<sup>39</sup>) would, on its own, be sufficient even to bring supply and demand into balance. If the central demand projection proves accurate, it will not. Moreover, simply bringing supply and demand into balance without creating excess capacity seems unlikely to be enough to have an impact on the pricing regime.<sup>40</sup> And since we expect significant additional capacity to start to become available from 2006, any such impact would be short lived (a maximum of around 18 months). We are therefore not convinced by Knauf's argument that bringing this capacity on stream quickly would enhance competition in the market. Indeed, any increase in capacity would reinforce Knauf's overwhelming share of available capacity and thus its market power, rather than serving to enhance competition in the market.

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<sup>39</sup>Since some capacity is only capable of producing blowing wool, total potential loft roll capacity is somewhat less—Knauf estimated it at about 140,000 tonnes a year.

<sup>40</sup>Figure 1 suggests, based on our assumptions about demand growth, that capacity in 2005 and 2006 is still unlikely to exceed demand by an appreciable margin even with the Stirling plant operating at the enhanced level. Indeed, the position in 2005 and 2006, even with the additional capacity at Stirling added, seems likely to resemble the position in 2004 (with demand exceeding capacity and realized prices reflecting that), rather than the position in 2002 (when the level of excess capacity was sufficient to impose a constraint on prices).

- 7.37 We also considered the effects of the merger on the likelihood of the expansions of capacity planned for 2006 to 2007 coming to fruition. If the merger were to have the effect of preventing or delaying planned increases in capacity, that would prolong the period for which demand exceeds capacity in which, as we have seen, customers pay higher prices. We consider the effect of the merger on the incentives for each manufacturer in turn.
- 7.38 The merger removes the threat that an independent Superglass might expand capacity (though in line with our counterfactual in section 6 we do not think [REDACTED]).
- 7.39 Following the merger, Knauf will have an incentive to ensure that the market does not return to a situation where there is sufficient excess capacity to act as a constraint on prices. We considered whether this incentive might encourage Knauf either to delay its major capacity investment planned for 2007 at an existing location, or to hasten the closure of existing capacity in the longer term.
- 7.40 It might be thought that Knauf would have the incentive to delay the capacity expansion at an existing location in order to avoid the risk of creating excess capacity in the market. However, we think that Knauf's incentive to delay the [REDACTED] investment would be weak. As the largest projected expansion of capacity, it has the potential to enable Knauf to take advantage of the current high levels of demand, and we think that gives Knauf an incentive to move quickly to capture as much of the opportunity as possible. [REDACTED]. We do not think that in practice the merger will have any effect on the timing or nature of the [REDACTED] investment.
- 7.41 [REDACTED]
- 7.42 [REDACTED]
- 7.43 [REDACTED] We also recognize that Knauf will face a similar decision at Stirling around 2012. The Stirling plant is also old and, Knauf told us, not ideally situated for serving the British market. However, these decisions are too far in the future and affected by too many other factors for us to be able to form an expectation that the merger will have a significant effect on either.
- 7.44 BGI told us that its current strategy is to grow its business, but to do so as far as possible [REDACTED]. Significant expansion of capacity in the market does not appear to be consistent with this strategy.
- 7.45 BGI's plans for expansion at Runcorn and, potentially, elsewhere, are referred to in paragraph 5.20. In our view, expansion at Runcorn could proceed without risk of creating chronic excess capacity, and the business case for BGI to proceed with that expansion may well look attractive. We do not think the merger makes much difference to BGI's consideration of this investment.
- 7.46 Knauf could be inhibited from ensuring that supply falls short of demand as described in paragraph 7.17 if BGI (as the only other significant glass wool manufacturer) were to invest in additional capacity beyond current plans in a way which would introduce significant excess capacity back into the market and enable BGI to challenge Knauf's market leadership. We think it unlikely that BGI will pursue further investment on a greenfield site unless it expects demand to be at the upper end of possible projections (see paragraph 5.23). In the absence of the merger, however, BGI might feel that the opportunity to challenge Knauf's market leadership by competing head to head with Superglass justified the risk of bringing on additional greenfield capacity. BGI might be further encouraged to invest if it shared our conclusion in paragraph 6.5 that there is some prospect of an independent Superglass declining in strength as a

competitor in the longer term. Following the merger, the prospect of competing from a position of weakness against a market leader of Knauf's strength would be much less attractive. However, we think that the chance of BGI making such an investment if demand follows our central projection is so low anyway that the fact that the merger may reduce it further is not material.

7.47 Given that most stone wool is not used in markets relevant to this inquiry, we do not think that the merger makes any appreciable difference to Rockwool's capacity expansion plans.

7.48 To conclude, we do not expect the merger to have any effect on manufacturers' announced plans for capacity expansion, nor do we expect it to hasten the withdrawal of any capacity from the market or to deter the addition of new capacity. However, we note that were it to do any of these, there would be an additional adverse effect on customers beyond those identified earlier.

### **Assessment**

7.49 In sum, we expect that as long as demand exceeds capacity in either market, the merger will enable Knauf to raise prices more to certain customers than would otherwise be the case. In circumstances where capacity exceeds demand in either market, we expect the merger to increase Knauf's incentive and ability to maintain prices at the levels possible where demand exceeds capacity, and above those we expect under the counterfactual. The merger will also leave BGI and other competitors with clear incentives, even if they were to have spare capacity, not to initiate vigorous price competition. We therefore expect that manufacturers' selling prices in the loft roll and blowing wool markets in Great Britain following the merger will be higher than they would be in the absence of the merger.

7.50 This assessment is based on a number of expectations. In all cases, if the most likely alternative to our expectation were to prevail we believe that the adverse effect of the merger on customers would be no less than described in paragraph 7.49, and could be worse. Specifically:

- were demand to grow more slowly than we expect or additional capacity to be brought on stream more quickly than we expect (and therefore were capacity to exceed demand more quickly than we expect) the adverse impact of the merger described in paragraph 7.31 would be felt earlier than 2007;
- were the merger to cause new capacity to become available more slowly (see paragraphs 7.40, 7.45 and 7.47) the excess demand regime (characterized by high prices for customers and the adverse effects described in paragraph 7.14) would continue for longer.

Moreover, were another trade purchaser to buy Superglass (which we consider to be the likeliest alternative to our chosen counterfactual) Superglass would be a stronger competitor than we have assumed in our counterfactual, so the comparison with the merger is more stark.

7.51 We note that if, as a result of the merger, manufacturers' selling prices of glass wool loft rolls alone were to be, say, 20 per cent higher than in the absence of the merger,<sup>41</sup> customers would be paying around £10 million a year more.

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<sup>41</sup>We note that list prices for loft rolls are currently 30 per cent above the levels which prevailed before demand exceeded capacity and that realized prices appear to have started to rise in line with the increases in list prices.

- 7.52 In line with our guidance and given the nature of some of the third party evidence we heard (see paragraph 5.43), we considered whether the merger would maintain or exacerbate any existing coordinated effects or increase the likelihood of coordinated effects in the relevant markets. However, having found that we expect the merger to have unilateral effects (specifically, the patterns of price leadership and price following described in paragraph 7.31 and the adverse effect of higher prices to customers) we did not pursue the issue of coordinated effects further.
- 7.53 Our guidance indicates that there are other benefits of competition which might be affected by a merger, notably the existence of choice for customers, pressure to improve product or service quality (the example of palletizing delivery was cited by Knauf) and pressure to innovate to gain advantage. We heard no evidence that any of these are particularly significant factors in competition in this market, nor did we hear any evidence that choice of products, quality or innovation were threatened by the merger. We certainly do not think that any such effects are likely to be as significant as the effects on price which we identify in paragraph 7.49.
- 7.54 Knauf told us that by rationalizing its and Superglass's transport networks, it could potentially save 15 per cent of current vehicle miles, with resulting savings in transport costs (and environmental benefits). We have no reason to doubt this estimate. However, since the saving will accrue to the market leader, we think that it will not enhance rivalry in the market. We therefore did not take account of it in our assessment of the competitive effects of the merger.

## **8. Conclusion**

- 8.1 We conclude that the proposed acquisition constitutes arrangements in progress or contemplation which, if carried into effect, will result in the creation of a relevant merger situation; and that the creation of that situation may be expected to result in a number of substantial lessenings of competition (described in paragraphs 7.15 and 7.32) within the markets for supply of glass wool loft insulation rolls and glass and stone blowing wool for cavity wall insulation in Great Britain, both in circumstances where demand exceeds capacity and in circumstances where capacity exceeds demand.

## **9. Remedies**

- 9.1 Having determined that the merger gives rise to an SLC in the loft roll and blowing wool markets, we now turn to remedies.
- 9.2 Section 36 of the Act requires us to consider three questions:
- (a) whether action should be taken by the CC for the purpose of remedying, mitigating or preventing the SLC concerned or any adverse effect which may be expected to result;
  - (b) whether the CC should recommend the taking of action by others (eg regulators, government departments); and
  - (c) in either case, if action should be taken, what action should be taken and what is to be remedied, mitigated or prevented.

In this case the primary remedy options appear to be actions for the CC rather than for other bodies.

### ***Relevant customer benefits***

- 9.3 In accordance with our guidance, we considered whether there were any relevant customer benefits of the merger which we may take into account in our consideration of remedies.
- 9.4 Knauf told us that the expansion of capacity at the Stirling factory was the only likely source of increased capacity in the market before the expansions scheduled for 2006 and 2007, and that in the absence of the merger it would only be brought on more slowly. Knauf argued that the availability of additional capacity would have a positive impact on competition, and that it would thus represent a relevant customer benefit.
- 9.5 We accept that this additional capacity is unlikely to become available as quickly if the merger does not take place (see paragraph 6.3). However, we considered the likely impact on competition of this additional capacity in paragraph 7.36, and concluded that:
- it is not clear to us that the expansion of capacity at the Stirling plant would, on its own, be sufficient to bring supply and demand into balance (if the central demand projection proves accurate, it will not);
  - even if it did, simply bringing supply and demand into balance without creating excess capacity seems unlikely to be enough to have an impact on the pricing regime; and
  - even if it did have an impact, that impact would be short lived.
- 9.6 Given the nature of the SLC which we have found, we believe that it is unlikely that any significant benefits from the Stirling capacity expansion would be passed on to customers. Rather, we expect that the capacity expansion would serve further to increase Knauf's share of available capacity and thus its ability to sustain higher prices where capacity exceeds demand as described in paragraphs 7.18 to 7.20. We would expect Knauf to use it for its own, rather than customers' advantage. Thus, while we recognize that this expansion does represent a modest increase in supply, we do not think that it can be regarded as a significant source of relevant customer benefits.

### ***Remedy options***

- 9.7 In our notice of possible remedies published on 7 October 2004 we suggested that a prohibition of the merger was likely to be the most appropriate remedy. We believe that it would prevent the adverse effects of the SLCs from arising. However, we also considered two kinds of alternative remedy:
- alternative structural remedies (divestments); and
  - behavioural remedies (given that the SLC we identified bore largely on price we looked primarily at remedies which would constrain prices).

We consider each in turn.

### ***Divestments***

- 9.8 We thought it unlikely that a divestment of any asset comprising less than a factory would be effective in addressing the SLC. The merged entity would have only three

factories (other than the Stirling plant) which could conceivably be divested—the stone wool plant at Queensferry and the glass wool plants at Ravenhead (St Helens) and at Pontyfelin. We considered the prospects for requiring a divestment of each of the three plants in turn:

- The Queensferry plant makes only stone wool; divesting it would therefore not address the identified SLC in loft rolls at all and would only have a limited impact on the SLC in blowing wool.
- The Ravenhead plant does not currently operate as a free standing business, [§]. Moreover, it is larger than the Stirling plant and Knauf told us that it is the only one configured to manufacture pipe sections. We therefore thought that requiring a divestment of Ravenhead, even if it proved possible, may be more intrusive than blocking the merger.
- The Pontyfelin site is Knauf’s largest and has significantly greater capacity than the Stirling plant, [§]. As such, divestiture of Pontyfelin would be disproportionate compared to blocking the merger.

9.9 We concluded that available divestment remedies were either disproportionate (in the sense of being more intrusive or costly than prohibiting the merger) or would not effectively address the SLC. Knauf broadly accepted this conclusion.

### *Behavioural remedies*

9.10 We also considered whether behavioural remedies might be effective in remedying the SLC and be more proportionate than prohibiting the merger. Given that we expect the principal effects of the merger to be on price,<sup>42</sup> we looked principally at mechanisms for controlling price. It might be relatively easy to control list prices, but in order for the adverse effects of the SLC on customers to be prevented it would be necessary to control realized prices. This would require either that realized prices themselves be controlled (say by entitling customers to buy on no worse terms than at present), or that a control should apply both to list prices and to the levels of discounts and rebates offered.

9.11 However, we think that in this case price controls are unlikely to be effective or practical. This is a market in which realized prices are not transparent. Moreover, price and non-price terms of contracts (for example, delivery or credit terms) vary considerably between customers and over time. The size and nature of any given customer’s orders also vary over time. Any price control would need to be accompanied by ancillary undertakings on such issues as continuing supply of price controlled products and delivery terms, to prevent it from being circumvented through changes to terms other than prices.<sup>43</sup> There are many customers and no history of regulation in the industry, still less an existing sectoral regulator or other body with detailed knowledge of the sector which would readily be able to monitor any kind of price control regime and thus limit the incremental costs of monitoring and enforcing compliance. These characteristics make it most unlikely that a regime could be developed which was simple, effective and could not be easily circumvented.

9.12 Current prices in the loft roll market are at historically high levels, reflecting an imbalance of demand and capacity which has no recent precedent. It does not seem sensible to cap prices at levels which reflect these unusual recent developments. But

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<sup>42</sup>Through the reduction in the number of competitors, the overwhelmingly large market share of the merged entity and hence the reduction in the ability of customers to switch suppliers—see section 7.

<sup>43</sup>We identified a number of changes to terms of contracts which have occurred recently in paragraph 5.42

it would be hard to find an appropriate base point from which to control prices which would not either institutionalize high prices or penalize Knauf. Moreover, prices have adjusted in the past to the interaction of demand and capacity. We would expect that, in a competitive market, prices would again readjust following the return to spare capacity in 2007. However, designing a price control mechanism to replicate the dynamic operation of the price mechanism in response to demand and capacity developments seems to us to be impractical. Knauf told us that its costs were greatly influenced by fuel and other input costs which have been volatile in the past and that any price control regime would need to be capable of reacting quickly to input price spikes in order to avoid being highly damaging to Knauf's business. It seems to us unlikely that an appropriate and workable index could be found to enable the regular adjustment of prices to reflect this combination of factors.

- 9.13 Even if it proved possible to design a price control mechanism which was flexible enough to protect customers from unwarranted price rises and to reflect changes both in input costs and in the circumstances of supply and demand, such a control would be extremely intrusive, controlling almost every aspect of Knauf's price setting process and the relationship between Knauf and its customers. Given that there is no obvious development or identifiable point in time that we can currently foresee which could trigger the end of any price control, both the costs and the intrusion represented by such a remedy could persist indefinitely.
- 9.14 Even if it were possible to overcome these practical difficulties, a price control regime would have undesirable characteristics. Prices which could not react to shifts in demand and supply might not act as an appropriate signal to market participants, and might discourage potential entry or the development of new capacity, to the detriment of customers.
- 9.15 Given the importance of the balance of capacity and demand to price levels, we also considered whether requiring commitments from the merged entity to maintain specified levels of capacity, utilization or output might remedy the adverse effects of the SLC. However, we note that requiring the merged entity to expand capacity would risk entrenching its share of total capacity and thus its market power. Requiring it to maintain a specified level of utilization or output is fraught with definitional and technical problems (it is hard to see how a satisfactory definition of capacity could be reached which could adequately take account of legitimate variations caused by breakdowns, maintenance etc). Account would also need to be taken of the potential for diversion of capacity through exports. Any such requirement would therefore be very complex and compliance would be very difficult to monitor. Moreover, it is far from clear, given the nature of the SLC we have found, that it would have the desired effect of moderating prices for customers.
- 9.16 Knauf proposed two other remedies:
- The first involved adjusting the terms of Knauf's contract with Insta [X]. Furthermore, it would have no effect on the adverse effects in the loft roll market. We therefore did not consider it further.
  - The second involved a mechanism for monitoring prices and enabling the OFT to take action if, on the basis of the information gathered, it believed that the rules on abuse of a dominant market position contained in Chapter II of the Competition Act 1998 had been infringed. This formed part of Knauf's late proposal and is discussed in paragraph 9.19.
- 9.17 Towards the end of our inquiry, Knauf made a short submission setting out a package of remedies designed to address separately the SLCs that we have

identified in the excess demand and excess capacity regimes. Under this proposal: [REDACTED]

- 9.18 We considered this proposal carefully. However, we are not satisfied that, even if [REDACTED] feasible, they would eliminate the SLC that we have identified in the excess demand regime. [REDACTED]<sup>44</sup> Further, considerable practical difficulties, [REDACTED] remain to be addressed. Knauf's proposal did not itself provide a practical basis for overcoming these difficulties, nor did it persuade us that these difficulties could be overcome. We think that the [REDACTED] proposed by Knauf would not be an effective remedy for the adverse effects of the SLC that we have identified where demand exceeds capacity.
- 9.19 Moreover, we do not think that Knauf's price monitoring proposal would be adequate to remedy the longer-term adverse effects on customers once capacity again exceeds demand. Knauf argued that a monitoring remedy would increase the transparency of Knauf's pricing, and would facilitate the examination of Knauf's activities by the OFT for the purposes of prohibiting the abuse of a dominant position under Chapter II of the Competition Act 1998. We perceive two difficulties with this suggestion. First, the information provided to the OFT would have to be extremely detailed for the OFT to be able to identify possible contraventions of the Chapter II prohibition. In view of the variety of realized prices and other terms as noted in paragraph 9.11 it is likely to be difficult to detect possible contraventions even with transparency of pricing information. These features would make the monitoring regime costly, uncertain and burdensome, both for Knauf and for the OFT. Second, even if these practical problems could be overcome, we cannot be confident that the adverse effects we have identified would necessarily be found to contravene Chapter II. We cannot therefore have confidence that this proposal would effectively remedy the adverse effects of the SLC we have identified where capacity exceeds demand.
- 9.20 We therefore rejected Knauf's proposal on the grounds that it would not effectively remedy the SLCs we have found, which derive from the merger's elimination of an independent competitor and its creation of a market leader with a market share at least three times that of its nearest competitor in each market (see paragraph 7.1).
- 9.21 We conclude that there is no behavioural remedy which is both practicable and capable of remedying the adverse effects of the SLC, and that the only effective remedy is to prohibit the merger.

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<sup>44</sup>This remedy might be more effective in the context of blowing wool, where there are only two customers, than in loft rolls.