

AGGREGATES, CEMENT AND READY-MIX CONCRETE MARKET INVESTIGATION

Updated Statement of Issues

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Background

1. We published our statement of issues in relation to the aggregates, cement and ready-mix concrete (RMX) market investigation on 8 March 2012.¹ In that statement we set out the issues which appeared to us at that early stage of the investigation to be relevant to our decision as to whether any feature, or combination of features, of the reference markets prevents, restricts or distorts competition. To focus the analysis, we identified a number of hypotheses (or theories of harm) that described how a possible market characteristic (or characteristics) could give rise to an adverse effect on competition (AEC).
2. The purpose of this document is to update the statement of issues, to indicate:
 - (a) the evidence that has been received;
 - (b) the analysis that we have undertaken to date and the further analysis that we are proposing; and
 - (c) given the evidence we have received and the analysis we have undertaken, the issues on which we are likely to focus as our investigation moves towards provisional findings, as well as the issues which might be of less relevance.
3. We have not yet drawn any conclusion on any aspect of whether or not there is an AEC in any of the reference markets.

Progress of the investigation

4. We have gathered information relating to aggregates, cement and RMX from producers, customers and a range of other interested parties in England, Wales and Scotland.² We have received views and submissions from producers, customers, trade associations, government departments, agencies and regulators, among others. We have held hearings with a number of key parties, including the five construction product 'Majors' in Great Britain (GB), ie Aggregate Industries UK Limited (Aggregate Industries),³ Cemex UK Operations Limited (Cemex), Hanson, Lafarge Aggregates Limited and Lafarge Cement UK Limited (together Lafarge) and Tarmac

¹ On 18 January 2010 the Office of Fair Trading (OFT) referred the supply or acquisition of aggregates, cement and RMX to the Competition Commission (CC) for investigation. The reference was made under section 131 of the Enterprise Act 2002 (the Act).

² In accordance with section 133(2) and (3)(a) and (b) of the Act, in its terms of reference for this investigation, the OFT required the CC to confine its investigation to the effects of features of such market or markets for aggregates, cement and RMX as exist in connection with the supply or acquisition of such goods or services in Great Britain.

³ Aggregate Industries, unlike the other Majors, does not produce cement in GB. References in this document to the Majors' cement operations in GB therefore do not apply to Aggregate Industries. Aggregate Industries is owned by a major European cement producer, Holcim Ltd. Aggregate Industries sources cement and cementitious products (see footnote 16) for its downstream operations (eg RMX) from the GB cement producers and imports cement from a Holcim Group cement works almost exclusively for its own internal use.

Group Limited (Tarmac), and have held other hearings in connection with detailed case studies exploring market conditions for aggregates supply in specific areas of GB.

5. As described in a statement published on our website on 16 May 2012, we have taken steps to keep the European Commission Directorate General for Competition (DG Comp) informed about the issues we are considering and our progress, given that DG Comp is currently investigating possible infringements of Article 101(1) of the Treaty on the Functioning of the European Union by manufacturers of cement, aggregates and RMX.
6. The evidence we have obtained is being carefully studied and various pieces of analysis are under way or near completion. Some of these pieces of analysis cover more than one of the reference products, including:
 - (a) an analysis of barriers to entry for aggregates, cement and RMX;
 - (b) an analysis of the profitability of the Majors'⁴ aggregates, cement and RMX operations;
 - (c) an analysis of the Majors' margins and cost structures for aggregates, cement and RMX production;
 - (d) an analysis of price announcement letters⁵ for aggregates and cement;
 - (e) an analysis of internal documents supplied by the Majors;
 - (f) an analysis of vertical effects, including the impact of vertical integration on competition for the supply of the reference products and in particular on the likelihood of coordination in the cement market; and
 - (g) a review of the impact on competition of public policies and regulation affecting aggregates and cement production.
7. The following additional pieces of analysis are under way for aggregates:
 - (a) case studies exploring market conditions for aggregates supply in some local areas (as described in a statement published on our website on 29 May 2012⁶); and
 - (b) a price-concentration analysis⁷ (PCA) and an entry-and-exit analysis⁸ (EEA).
8. The following additional pieces of analysis are under way for cement:
 - (a) an analysis of cement cross-sales between the Majors;

⁴ The CC's draft [Guidelines for Market Investigations](#), published in June 2012 ('the proposed Guidelines'), explain that the CC generally considers the profitability of firms or groups of firms which represent a substantial part of the market. We consider that the five Majors together represent a substantial part of the market in relation to each reference product.

⁵ These are generic letters sent out by cement suppliers, aggregates suppliers and RMX suppliers (among others) to their customers on a periodic basis announcing forthcoming changes to prices. The announced changes to price are then used as the starting point for negotiations with customers as to actual changes in price.

⁶ www.competition-commission.org.uk/assets/competitioncommission/docs/2012/aggregates-cement-and-ready-mix-concrete/120529_notice_of_intention_to_carry_out_case_studies.pdf.

⁷ A price-concentration analysis examines the relationship (if any) between the price for a good in an area and the strength of competition to supply that good in that area.

⁸ An entry-and-exit analysis examines how prices may change with the entry or exit of a competitor in a local area.

- (b) an analysis of the circumstances surrounding a sudden and very significant change in the pattern of cement cross-sales between two particular Majors in early 2009;
 - (c) an analysis of cement imports; and
 - (d) an analysis of the competitive conditions for the supply of pulverized fly ash (PFA) and ground granulated blast-furnace slag (GGBS), two key materials that can be added to ground clinker⁹ to produce different types of cement.
9. We have begun to publish working papers detailing the analysis that has been undertaken.¹⁰ Our analysis is continuing and may extend further than the pieces of analysis described above. For example, we will need to form a view on the implications for our investigation of any divestiture of cement, aggregates and RMX operations currently being undertaken by Tarmac and Lafarge as a merger remedy following the CC's [Anglo American/Lafarge final report](#).
10. Summaries of hearings with main and third parties and submissions are in the process of being published on our website.¹¹ We will shortly be holding further hearings with the Majors.
11. We now set out our current thinking on the theories of harm identified in the issues statement. Before we consider each individual theory, we set out our views at this stage on market definition, to provide a framework for our discussion of the theories of harm.

Market definition

12. We have examined the scope of the product and geographic markets for the reference products, in order to understand the extent of substitution between different products and how this may vary by customer or application. The main sources of evidence available to us at this stage are submissions from parties, responses to our information requests including internal documents, evidence from hearings and evidence from the Anglo/Lafarge merger inquiry (including the results of a GfK survey of customers purchasing the reference products and competitors supplying aggregates and RMX).
13. Our preliminary observations about market definition based on the evidence we have seen so far are set out in the following paragraphs.

Aggregates

14. In relation to the product markets for aggregates:
- It appears that different grades (ie particle sizes) of aggregates are in the same product market because of the high degree of supply-side substitutability between different grades. Quarries produce multiple grades of aggregates and finer grades of aggregates can be produced by crushing and screening coarser grades.

⁹ Clinker is the product that emerges from a cement kiln that is then ground to a fine powder to create cement.

¹⁰ See www.competition-commission.org.uk/our-work/aggregates-cement-ready-mix-concrete/analysis/working-papers.

¹¹ See www.competition-commission.org.uk/our-work/aggregates-cement-ready-mix-concrete/evidence/summaries-of-hearings-held-with-parties.

- Specialist aggregates (for example, rail ballast and high-purity limestone used for its chemical properties) seem to be in different markets from each other and from aggregates used for construction purposes, since there is no demand-side or supply-side substitutability between these types of aggregates.
- We have examined in some detail the substitutability between aggregates produced from crushed rock, and aggregates produced from sand and gravel (S&G). Both these types of aggregates can in broad terms be used for general construction applications and RMX and concrete block production—the use of one rather than the other in these applications appears to be largely influenced by the geology of GB and the local availability of these materials. For asphalt production, it appears that sand and gravel aggregates are generally not suitable.
- We have also examined in some detail the substitutability between primary aggregates¹² and secondary/recycled aggregates.¹³ Secondary and recycled aggregates appear to be imperfect substitutes for primary aggregates because they cannot be used to replace primary aggregates in all applications. For low-specification construction uses, there is a substantial degree of substitutability. For the production of asphalt, there also appears to be a substantial degree of substitutability, although the figures may be inflated by the inclusion of asphalt planings.¹⁴ For RMX and concrete block production there seems to be very little scope for substitution.
- At this stage of the investigation, we have adopted on a preliminary basis a relevant product market for all construction aggregates, including recycled and secondary aggregates. Our competitive assessment of this market will take into account the fact that:
 - S&G aggregates are likely to be a close substitute for crushed rock aggregates for RMX and concrete block production (where both are available), but are not a good substitute for crushed rock aggregates for use in asphalt applications, and may only be a partial substitute in general construction applications.
 - Recycled and secondary aggregates are likely to be a close substitute to primary aggregates for low-specification construction applications and possibly for asphalt production, but they are unlikely to be a close substitute for RMX and concrete block production.

15. In relation to the geographic market for aggregates:

- There appears to be a broad consensus among producers and customers that the markets for construction aggregates are local.
- A market definition based on a radius of about 30 miles¹⁵ from the point at which the construction aggregates are produced (or from rail- or water-linked depots where they are stored) may be appropriate for construction aggregates. Quarries that are rail- or water-linked may compete over greater distances related to the location of the depots to which they are linked.

¹² Primary aggregates are quarried from the land or dredged from the sea. Primary aggregates dredged from the sea are known as marine aggregates.

¹³ Secondary aggregates are produced as the by-products of other industrial or mineral activities. Recycled aggregates are derived from sources of suitable recycled material such as demolition sites and construction waste.

¹⁴ Asphalt planings arise from road surfacing works, when the top layer of the road surface is scraped away. The commercial case for recycling asphalt planings may be driven by their bitumen content rather than their aggregates content so the scope for increasing use of recycled/secondary aggregates in asphalt may be less than suggested by the data on usage.

¹⁵ At this stage of our analysis, we have been using straight-line distances as a proxy for distances by road.

- We have undertaken further analysis to calculate the appropriate size of the catchment areas to use for construction aggregates in our competitive assessment (see paragraph 25 below).

Cement

16. In relation to cement, at this stage there appears to be broad agreement among parties regarding the following elements of product and geographic market definition:
- CEM I, CEM II and CEM III¹⁶ seem to be in the same relevant product market. Although these different types of grey cement have different properties, there is a degree of both demand-side substitution and supply-side substitution between them.
 - Bagged cement and bulk cement can be defined as separate markets because, whilst there is a degree of supply-side substitutability, they are bought by different types of customer for different uses (ie there is no demand-side substitutability).
 - Both imported and GB-produced cement are able to meet the same cement product specifications, such that both imported cement and GB-produced cement are in the same relevant product market.
 - In terms of the scope of the relevant geographic market, our competitive assessment will focus on the supply of cement to GB customers. Relevant geographic markets are likely to be at least regional in scope and we may look at competitive conditions on a regional basis as well as looking at GB as a whole.
17. Further, our preliminary view is that we should take into account aspects of the supply of PFA and GGBS as part of our analysis of competition in the market for cement, given that PFA and GGBS are key inputs into the production of CEM II and CEM III respectively in GB.

RMX

18. Although there are many different specifications of RMX, corresponding to changes in the relative proportions of the key ingredients, it is our understanding that any RMX plant can (subject to any limit on the number of storage bays or silos for different raw materials) typically produce a full range of standard RMX mixes, and switching between these specifications takes place on a daily basis. Therefore, it is our preliminary view that all specifications of RMX are in the same relevant product market.
19. In addition, in relation to the relevant product market for RMX:
- The evidence suggests at this stage that concrete produced in volumetric trucks¹⁷ is a substitute for RMX from fixed plants for relatively small projects, but less so for larger projects.

¹⁶ CEM I, CEM II and CEM III are different types of grey cement. CEM I is made from ground cement clinker and a small percentage of gypsum to control the material's setting time when mixed with water. CEM II contains between 6 and 35 per cent PFA (a by-product of coal-fired electricity generation), limestone or GGBS (a by-product of the blast furnaces used to make iron). CEM III contains between 36 and 95 per cent GGBS.

¹⁷A volumetric truck is a vehicle which carries aggregates, cement and water in separate compartments to be mixed into concrete at the customer's site.

- The internal documents provided to us during our investigation suggest that volumetric trucks are perceived as a competitive threat by some producers of RMX from fixed plants.
 - Survey evidence shows that many RMX customers have used volumetric trucks in the past.
 - Site plants¹⁸ appear to be suitable only for very large projects.
20. We propose to include both volumetric trucks and site plants within our definition of the relevant product market for RMX. Our initial view is that volumetric trucks and site plants will be more of a competitive constraint for certain types of projects (ie relatively small projects in the case of volumetric trucks, and very large projects in the case of site plants) than for others.
21. In relation to geographic market definition for RMX, there appears to be broad consensus at this stage that the markets for RMX are local because RMX usually needs to be used within about 2 hours of it being produced (after which time it sets). The majority of customers are therefore typically within about 8 to 10 miles of the RMX plants supplying them.

Theories of harm

Theory of harm 1: High levels of concentration and barriers to entry mean that the suppliers can exercise unilateral market power

22. As we noted in our issues statement, competition between firms may be subdued in a concentrated market. Depending on the relevant market conditions, this may be a factor that could ultimately contribute to a finding of an AEC in that market. However, concentration will cause less concern if entry into the market—or expansion by existing players in the market—would undermine any attempt by a market participant (acting on its own) to increase its prices or worsen some other aspect of its offering to customers.
23. In the following paragraphs, we set out our preliminary views regarding concentration, barriers to entry and the possibility of unilateral market power in the aggregates, cement and RMX markets.

Aggregates

Concentration

24. As set out in paragraph 15, it appears at this stage that markets for aggregates are local. Therefore it is concentration in these local markets that will be relevant in considering whether there is an AEC as a result of unilateral market power in relation to aggregates.
25. We have undertaken a ‘catchment area’ analysis for the supply of construction aggregates. We looked at the distance from primary aggregates production sites (or depots) within which 80 per cent of external delivered sales from that site are made (which we refer to as the 80 per cent catchment area). We found that the 80 per cent catchment area had a radius of up to around 20 miles in urban areas and up to

¹⁸ An RMX plant located at the customer’s site.

around 28 miles in non-urban areas.¹⁹ Lower-value aggregates, such as those used for fills and sub-bases, tended to be delivered over even shorter distances (up to around 17 miles in urban areas and 23 miles in non-urban areas). We have used these catchment areas as proxies for the size of the local markets for aggregates in our price-concentration analysis and our entry-and-exit analysis (see paragraphs 29 to 32 below).

26. Our preliminary work on local aggregates markets indicated that over 90 per cent of job sites where aggregates were purchased and delivered in 2011 had a choice of more than five suppliers within the 80 per cent catchment distances around those sites. Therefore, on the basis of this high-level data, it appears that most aggregates customers have some degree of choice of suppliers. However, when we considered market shares around job sites rather than simply the number of competitors, we found that in the catchment areas around 8 per cent of job sites, the largest company had a market share (by 2011 sales volume) of more than 50 per cent,²⁰ and that the four largest companies collectively had a market share of more than 90 per cent²¹ in the catchment areas around 18 per cent of job sites. These figures indicate a high degree of concentration in some local aggregates markets.

Barriers to entry

27. We have examined the extent of barriers to entry and expansion in aggregates supply. We noted that there were several different ways in which a new aggregates supplier could enter the market, for example through establishing:
- a greenfield site for primary aggregates;
 - a marine dredging operation;
 - a recycled or secondary aggregates business; and/or
 - an aggregates importing operation.
28. Our preliminary views on barriers to entry into aggregates markets are that:
- The availability of primary aggregates resources does not appear to be a barrier to entry in general, although we note that not all types of aggregates occur in all parts of the country.
 - The length of the planning process for new primary aggregates sites limits the competition faced over the medium term from such sites by existing producers of primary aggregates.
 - The cost of developing a new site for producing primary aggregates can be considerable but does not appear to be prohibitive, particularly if land and mineral rights are leased.
 - Expanding an existing primary aggregates site, either by increasing its output or by extending the site, is likely to be easier, faster and cheaper than developing a

¹⁹ This is based on our analysis of the catchment areas of the three Majors for which we had the necessary data to perform the calculations. In the remainder of the document, unless stated otherwise, '80 per cent catchment area' refers to areas with radii of 20 or 28 miles around a production site or a customer job site, depending on whether the site is located in an urban area or a non-urban area.

²⁰ This is the 'one firm concentration ratio' or CR1.

²¹ This is the 'four firm concentration ratio' or CR4.

new site because the planning process will be simpler and much of the required equipment will already be in place. This gives existing producers an incumbency advantage over new entrants.

- There are barriers to entry via a new marine dredging operation as a result of licensing and capital outlay considerations.
- We are aware of some importation of specialist, higher-value aggregates and limited examples of the importation of construction aggregates which are commercially feasible as a result of specific geographical conditions. However, in general, because construction aggregates are a heavy, low-value product, importation seems unlikely to be a significant constraint on existing construction aggregates suppliers.
- There are lower barriers to entry via a new recycled aggregates operation than for entry via primary aggregates production. However, limits on the availability of material for recycling, and the lack of substitutability of recycled aggregates for primary aggregates across some key applications (such as the production of RMX and the production of concrete blocks), may limit the constraint posed by this form of entry.
- The availability of secondary aggregates is likely to depend mainly on demand for the primary products from which they are derived. As a result of the landfill tax²² and the opportunity to realize at least some value from secondary material by selling it, it seems likely to us that all streams of such material which can be exploited commercially as secondary aggregates are likely to be on the market already. Taking these factors together, the possibility of new entry into secondary aggregates production did not appear to be likely to be a significant constraint on producers of aggregates in general.

Price-concentration analysis and entry-and-exit analysis

29. We conducted an econometric analysis of the relationships between the prices of aggregates and the extent of competition in local construction aggregates markets in GB, using the catchment areas discussed in paragraph 25. We investigated whether there was, on average across GB, any relationship between the prices paid for specific categories of aggregates products and the extent of competition in each local market. The aim of this PCA was to assess whether, and how, the relationship between prices and the extent of competition varied by type of competitor, taking into account the size of plants and their proximity to the customer, and the identity of competitors. In this analysis we looked at the areas around 'job sites' (ie the locations where aggregates are used) rather than at the areas around the locations where aggregates are produced (eg quarries), on the grounds that this more accurately reflected the choices available to customers when deciding from which company to purchase their aggregates.
30. Our PCA has thus far produced mixed results, but generally the effects of increased competition on price, where they exist, appear relatively small. In broad terms:
 - The presence nearby of non-Major firms appears to have either no effect on the Majors' pricing, or a positive price effect (ie the presence of independents is

²² The landfill tax is a tax levied on waste producers for each tonne of waste disposed in landfills. The standard rate is currently £64 per tonne for 2011/12, although exemptions apply to waste which is sorted for recycling.

associated with higher prices in a local market). This suggests that non-Major competitors do not constrain the Majors' prices.

- The presence nearby of other Majors has positive effects on Majors' pricing in some cases and negative effects in other cases (a negative effect means that the presence of other Majors is associated with lower prices in a local market). However, these price effects tend to be relatively small (about 1 to 2 per cent of the purchase price).
 - There is little evidence from our PCA that a greater number of recycled aggregates plants in an area imposes stronger constraints on primary aggregates prices.²³
 - Our PCA does, however, show that quantity discounts appear to be important in explaining variations in prices that customers pay. We found that larger customers pay lower prices.
31. We investigated the impact on prices of the entry and exit of competing plants near customers' job sites by conducting an EEA. In a competitive market, with all else equal, entry would generally be expected to result in prices falling, whereas exit could be expected to result in prices rising. However, the impact on prices could be expected to differ depending on the strength of the constraint posed by the plant entering or exiting the market, and therefore with this analysis we attempted to understand whether the impact of entry and exit depended on the identity of the owner of the entering or exiting plant and the plant's proximity to the customer. At this stage, we have found little evidence that entry or exit of plants has an effect on prices.
32. With respect to both our PCA and our EEA, we note that the average effects that we observed may hide local or regional variability in competitive constraints, to the extent that they exist.

Profitability

33. We are undertaking a profitability analysis of each Major's aggregates, cement and RMX operations. Profitability analysis can be a useful indicator of competitive conditions in a market, and can cast light (among other things) on whether prices may be above competitive levels as well as entry conditions, the effect on the market of large external shocks and the relative efficiency of companies in the market.
34. We have already produced preliminary profitability analyses based on the financial data provided to us by each Major, adjusted, in as far as the data allows, to be consistent with our published approach to profitability assessment in this investigation.²⁴ In the case of aggregates we plan, once we have gathered additional information, to adjust the gross carrying value²⁵ of the Major's mineral-bearing land to reflect the purchasing power of the original investment in such land and to adjust, if necessary,

²³ Although there are some statistically significant price effects from additional recycled aggregates plants near job sites, these price effects are small and often positive (ie more recycled aggregates plants are associated with higher prices on average). We note, however, that the PCA produces average results across local markets, and that the available data on recycled aggregates plants may not be comprehensive.

²⁴ www.competition-commission.org.uk/assets/competitioncommission/docs/2012/aggregates-cement-and-ready-mix-concrete/profitability_approach_housestyled_excised.pdf.

²⁵ The carrying value for mineral-bearing land can either be its historical cost or a historically revalued amount. Gross asset values will need to be depreciated/impaired in line with normal accounting practice.

internal revenues²⁶ and sales to other Majors to reflect market prices where this is not already the case. We intend to publish the results of our profitability analysis prepared in line with the published approach in due course.²⁷

35. Our preliminary profitability analysis of the Majors' aggregates operations across GB suggests that returns on capital employed²⁸ have been low to modest across these businesses over the last five years, with the exception of one company which appears to have had significantly higher returns than the others. Each Major has experienced a substantial decline in its returns following the slump in demand from 2008 onwards. Although returns recovered in 2010 and even more so in 2011, they have not returned to 2007 levels. We note that, if profits were higher in some areas than in others, this would not be apparent from our GB-wide profitability analysis.
36. Our analysis of the Majors' profit margins for their aggregates operations (where data was available) indicated that, with the exception of one Major, margins on internal sales (ie aggregates sold to their own downstream businesses) were significantly higher than on external sales. We intend to examine further the reasons for this.

Case studies

37. As explained in paragraph 7, we have undertaken case studies of market conditions for aggregates supply in two local areas, South Wales and the west of East Anglia (Cambridgeshire, Hertfordshire and Bedfordshire).²⁹ We have obtained and reviewed a large number of the Majors' internal documents relating to their aggregates operations in these case study areas. We have also undertaken a number of case study telephone interviews with customers and non-Major aggregates suppliers in these case study areas.
38. Whilst the case study interviews suggested that the presence of independent aggregates producers generates downward pricing pressure and that consolidation of aggregates producers has diminished local competition, taken as a whole, the case study documents and the case study interviews do not appear to suggest that unilateral market power is a problem in either of these two areas.³⁰

Construction aggregates—preliminary view on unilateral market power

39. Indications from our analysis to date are that any concerns about the ability of companies to exercise unilateral power in relation to construction aggregates may be confined to a limited number of local markets (or, where applicable, to individual rail-linked quarries and the local markets surrounding the depots fed by those quarries).

Specialist aggregates

40. We have not received specific submissions regarding competition issues in the markets for specialist aggregates, although we have noted the analysis of the rail ballast and high-purity limestone markets contained in the CC's final report into the

²⁶ Internal revenues are generated from the sale of products by a company's upstream operations (in this case, aggregates and cement) to its own downstream operations (in this case, RMX).

²⁷ Any publication of these results will be subject to redaction of confidential material.

²⁸ Return on capital employed is a measure of profitability. For this purpose it is measured as the operational profit for a period divided by the value of the operational net assets relevant to the same period expressed as a percentage.

²⁹ These two areas were selected because they appeared to be characterized by a high degree of concentration in the supply of aggregates.

³⁰ Our view on the case studies evidence in the context of possible coordination in aggregates supply is set out in paragraph 79.

Anglo American/Lafarge joint venture. We have not yet conducted any further analysis of these markets, but we intend to do so prior to publication of our provisional findings.

Cement

Concentration

41. There are four cement producers in GB and about 10 cement importers. The company with the largest share of the market had a share (by sales volume) in 2011 of between 30 and 40 per cent and the four largest companies collectively had a share of between 80 and 90 per cent, indicating that the market is concentrated. As set out in paragraph 16, cement appears to be a relatively homogeneous product, which may mean that there are some limits on the ability of any particular company in the market to exercise unilateral market power. On the other hand, there are limits to each producer's ability to expand production above its existing capacity and moreover, the locations of the GB producers' plants and the cement importers' terminals around the country, coupled with the costs of haulage, may indicate that there are regional considerations that should be taken into account in our analysis. Our preliminary analysis has indicated that all four of the domestic cement producers have existing customers in most counties in GB but that there are some counties in more remote areas where only two or three of the domestic producers have existing customers.

Barriers to entry

42. We have examined the extent of barriers to entry and expansion in cement supply. We noted that there were several different ways in which a new cement supplier could enter the market, for example through establishing:
- a new cement plant;
 - a new grinding mill; and/or
 - a new cement importing operation.
43. Our view at this stage is that there are significant barriers to entering the GB cement market by building a new cement plant. These barriers include the large capital cost of building a plant (£150³¹–£400 million), the fact that most, if not all, of this cost would be sunk, the planning process and uncertainties over the future cost implications of emissions regulations.
44. At the moment, it is our understanding that there are no major barriers to the domestic producers expanding cement production above current levels within the current individual capacities of their existing cement plants in GB. We consider that, coupled with weak demand in the market at the moment and no significant upturn in demand forecast,³² the ease with which most of the incumbents would be able to increase output within existing capacity in response to new entry³³ will act as an additional strategic barrier to entry. We noted, however, that there could be considerable costs and other barriers to increasing production at an existing cement plant above its current capacity limit. These would depend on the precise circumstances at each

³¹ We note that the cost of replacing an existing plant on the same site could be less than this.

³² We note that cement demand may increase in future.

³³ According to the figures set out in [Appendix K to the CC's Anglo American/Lafarge final report](#).

cement plant, but could include the need for significant capital investment and appropriate planning permissions, and the status of any additional capacity under emissions regulations. The domestic producers could also expand existing cement production above their current capacity limits by bringing mothballed capacity back into production, where they have such capacity. The cost to do so would depend on the condition of the mothballed facilities and the circumstances at the cement plant concerned.

45. Our preliminary view is that there are also significant barriers to entering the GB cement market by importing clinker and building a new grinding mill in GB. Whilst the capital cost of a grinding mill is lower than that of a cement plant, it is still considerable (up to around £50 million). In addition, a grinding mill would require a reliable source of imported clinker. Imported clinker would face the same transport cost penalties as imported cement (see paragraph 47).
46. As with expansion of cement production at the existing GB cement plants (see paragraph 44), it is our current understanding that there would be few barriers to the expansion of cement production at the existing GB grinding mills within their current capacity limits, provided sufficient clinker were available. However, considerable barriers could exist (depending on the precise circumstances of each grinding mill) to expanding cement production above the current capacity limit of any particular mill, including the capital cost and the need for appropriate planning permissions.
47. Whilst the cost of establishing a new cement-importing operation would be likely to be lower than the costs of a new cement plant or grinding mill, the analysis we have undertaken at this stage indicates that the GB producers have a substantial cost advantage at the margins over cement importers in competing for additional customers over and above each GB producer's existing customer base. This advantage arises from the fact that the average variable ex-works cost for GB-produced cement is significantly lower than the average variable cost of importing cement. In addition, the GB producers have planned, and in some cases taken, specific steps to undermine the viability of independent cement importers, which would create additional risk for any potential entrant considering setting up a new cement import operation (see paragraph 86).
48. There appear to be few barriers to the expansion of cement imports within the capacity limits of the existing cement import terminals. Expanding the volume of cement imports at any particular terminal beyond that terminal's current capacity would require some capital investment (although this would be likely to be much less significant than in the case of expansion of a cement plant or grinding mill) and would depend on the availability of space at suitable ports. However, all such additional cement brought into GB by an existing importer would face the same cost disadvantage as cement imported by a new entrant (see paragraph 47).

Profitability

49. We are undertaking a profitability analysis of the four GB cement producers' cement operations. As with our profitability analysis of the Majors' aggregates operations (see paragraph 34), we have already produced a preliminary analysis based on the financial data provided to us so far by each producer. We have adjusted this data, in so far as the data allows, to be consistent with our published approach to profitability assessment. In the case of cement, we plan, once we have gathered additional information from the producers, to adjust the carrying value of the producers' cement

assets to reflect their current value to the business³⁴ and to adjust, if necessary, internal revenues and sales to other Majors to reflect market prices where this is not already the case.

50. Our preliminary profitability analysis of the four GB producers' cement operations indicates, albeit on a historical cost basis,³⁵ that:
- three of the four GB producers are making large returns on capital employed; and
 - these returns have persisted—and even in some cases grown—in the face of the significant slump in demand for cement since 2008.
51. Our analysis of the profit margins of the four GB cement producers' cement operations shows that three of the four GB producers have very similar margins, which have been stable over time despite the significant decrease in demand since 2008. The fourth GB producer's margins are higher than the other three producers' margins, and appear to have followed a different trend over time.

Cement—preliminary view on unilateral market power

52. In our view, the evidence and analysis available at this stage of our investigation regarding market concentration, barriers to entry, profitability (calculated on a preliminary basis) and trends in margins over time indicate that competition in the cement market may not be working effectively. We therefore intend to continue analysing the possible existence and exercise of unilateral market power in this market. However, other explanations may also be consistent with this evidence (see paragraphs 81 to 99).

Pulverized fly ash and ground granulated blast-furnace slag

53. We have reviewed competitive conditions for the supply of PFA and GGBS in GB, given that PFA and GGBS can substitute for a proportion of ground clinker in the manufacture of cement (see footnote 15). At this stage we have noted that:
- The main driver for the production of blended cements, ie cements made with PFA (CEM II) and GGBS (CEM III), is cost, in that PFA and GGBS are cheaper than clinker.³⁶ Blended cements require less clinker per tonne of cement produced.
 - In regard to the production of CEM II and CEM III, GGBS can be added to ground clinker in considerably higher proportions than PFA because of its chemical properties. Further, we understand that PFA tends to be of more variable quality than GGBS and that, unlike GGBS, its production is seasonal, being highest in winter when construction demand is lowest. Together, these factors suggest that GGBS and PFA may not be perfect substitutes for each other and therefore that GGBS should to an extent be considered separately from PFA.
 - Whilst there are several competing suppliers of GB-produced PFA, we found that, as a result of certain exclusive contractual arrangements, Hanson is the only sup-

³⁴ The value to a business of its cement assets (assuming they are worth replacing) will be the cost of replacing them with new ones of the same service capability and adjusting such cost for any differences both in the quality of output and in operating costs—this is known as their modern equivalent asset value.

³⁵ Each of the cement-producing Majors reports its cement assets valued on a historical cost basis rather than on a current valuation basis.

³⁶ Blended cements also have a lower carbon footprint than CEM I.

plier of GB-produced GGBS. We will consider whether these arrangements are justified on efficiency grounds.

- Although some GGBS is imported into GB, total imports are low in proportion to total sales of GGBS in GB, and there is evidence that it faces a transport cost penalty similar to that faced by imported cement (see paragraph 47).
- Other competition regulators elsewhere in Europe have taken action in relation to exclusive arrangements for the supply of GGBS.

54. In light of this evidence, at this stage of the investigation we remain concerned about the impact that aspects of the supply of GGBS in GB may have on the GB cement market.

RMX

Concentration

55. As set out in paragraph 21, it appears at this stage that markets for RMX are local. Therefore it is concentration in these local markets that will be relevant in considering whether there is an AEC as a result of unilateral market power in relation to RMX.

56. At this point in our investigation, we have not analysed local RMX markets in detail. However, to understand in general terms the possible extent of concentration in RMX production in different parts of GB, we have examined shares of production at county level.³⁷ In 2010, the highest RMX share held by any Major in a county was 56 per cent. Not all Majors had RMX operations in all counties, and two Majors had no RMX operations in over a third of counties. Several non-Major RMX producers had shares of production in individual counties in the range of 22 to 42 per cent. However, we noted that the larger non-Major producers tended not to be present (or to have only a small share of production) in those counties where total RMX production was high.

57. As with aggregates (see paragraph 39), it appears that any concerns about the ability of companies to exercise unilateral power in relation to RMX are likely to be confined to a limited number of local markets. However, we will also consider whether customers requiring large volumes of RMX may have a more limited choice of RMX supplier than may be indicated by simply considering shares of RMX production locally.

Barriers to entry

58. We have analysed possible barriers to entering the RMX market, whether via fixed plants or via volumetric trucks.

59. Our preliminary view is that the capital cost of entry and the need for planning permission are unlikely to act as significant barriers to entry. Further, there do not appear to be economies of scale at plant level (or arising from multi-plant operations) sufficient to deter entry.

60. However, cement is a vital ingredient of RMX, and some parties have told us that the cement market structure in GB (in terms of its concentration and the fact that all GB cement producers also have large RMX businesses) would deter entry. We consider this under Theory of Harm 3 (see paragraphs 114 to 116).

³⁷There are a total of 64 counties in GB. Local markets for RMX would be likely to be smaller than these counties.

61. At this stage, we consider that there are likely to be few barriers to expanding the output of an RMX plant within its existing capacity. We note that most RMX plants in GB are currently operating well below their maximum capacity.

Profitability

62. We are undertaking a profitability analysis of the Majors' RMX operations. As with our profitability analyses of aggregates (see paragraph 34) and cement (see paragraph 49), we have produced a preliminary analysis based on the financial data provided to us so far by each Major. We have adjusted this data, in so far as the data allows, to be consistent with our published approach to profitability assessment. In the case of RMX, we plan, once we have gathered additional information from the Majors, to adjust, as necessary, the carrying value of the Major's RMX assets to reflect their current value to the business and to adjust, if necessary, internal costs to reflect market prices.
63. Our preliminary profitability analysis of the Majors' RMX operations suggests that the generally large returns on capital employed in 2007 have deteriorated a great deal since that time.
64. Our analysis of the Majors' profit margins for their RMX operations showed that there is considerable variability in these margins over time, and between the Majors.
65. The prices at which the Majors' RMX businesses purchase cement and aggregates, both from their own upstream operations (known as transfer prices) and from other companies, will have a significant effect on the apparent profitability of their RMX businesses, and the margins being made. We therefore plan to analyse these prices in more detail to establish the underlying profitability of the Majors in this area.

RMX—preliminary view on unilateral market power

66. Given the indications that the extent of concentration in local markets for RMX may be limited, the apparent lack of substantial barriers to entry (other than those possibly arising from vertical integration into RMX from aggregates and cement, which we will continue to analyse) and the ease with which existing suppliers of RMX could expand their output, our current view is that unilateral market power in relation to the supply of RMX is unlikely. However, we continue to have some concerns about whether competitive conditions may be different for customers requiring very large quantities of RMX, for example there may be fewer suppliers with the necessary capability (such as having several RMX plants in close proximity to the project) to supply such customers.

Theory of harm 2: Coordination between producers reduces or prevents competition

67. Coordination may arise when companies in a market recognize that competing with rivals in order to win customers may lead to similar reactions from rivals either in the same or a different market, with the net result of lower profitability for all. The CC's draft Market Guidelines³⁸ state in paragraph 225 that 'Any coordination typically involves repeated interaction, aimed at increasing or protecting profits, between firms

³⁸At the time of writing, a public consultation on the CC's draft Market Guidelines has recently closed but the final version of the CC's Market Guidelines has yet to be published. The consultation draft of the Market Guidelines is available on the CC's website at:

www.competition-commission.org.uk/assets/competitioncommission/docs/2012/consultations/market_guidelines_main_text.pdf.

in the market ... It can be explicit or tacit ...'. The draft Market Guidelines go on to state in paragraph 232 that 'All forms of coordination may reduce strategic uncertainty among competitors to the detriment of their customers and, depending on the degree, may result in an AEC'.

68. The draft Market Guidelines explain in paragraph 233 under the heading 'Conducive market characteristics' that:

A market must exhibit certain characteristics for coordination to be possible:

- Firms need to be able to agree and monitor the terms of coordination or, in the case of tacit coordination, have sufficient awareness of each other and be able to anticipate each other's reactions.³⁹
- Coordination needs to be internally sustainable among the coordinating group—ie firms have to find it in their individual interests to adhere to the coordinated outcome; the firms must lack an incentive, or have a positive disincentive, to compete because they appreciate how each other will react. However, coordination does not need to be perfect or continuous to fulfil this criterion.
- Coordination needs to be externally sustainable, in that coordination is unlikely to be undermined by competition from outside the coordinating group or from the reactions of customers.

69. Paragraph 233 of the draft Market Guidelines sets out similar considerations to those in the so-called 'Airtours conditions',⁴⁰ developed in the context of assessing the scope for coordinated effects in merger inquiries. We will factor these considerations into our investigation into coordination. We also consider it important to describe and analyse all relevant factors that may assist us in correctly characterizing the nature of competition for the reference products, whether or not they fall within the structure implied by paragraph 233. We will therefore organize our assessment of coordination by first considering whether there are aspects of the market structure and the product itself that may make the market susceptible to coordination. We will then present evidence from market outcomes about the effectiveness of competition in the market and we will explore companies' behaviour in the market.

70. Our assessment of whether coordination may be a feature of the aggregates, cement and RMX markets that prevents, restricts or distorts competition involves the analysis of many different aspects of these markets at the same time. Our analysis is more advanced in some areas than in others at this point in our investigation. In the following paragraphs, we set out the current status of our analysis of this theory of harm in relation to each of the reference products. We also note that there is a significant degree of integration and multi-market contact between the operators of cement, aggregates and RMX businesses in GB and that it may be necessary to consider some aspects of the markets for these products together in order to arrive at a full understanding of competition in this sector.

³⁹ In other words, there needs to be a 'focal point' for coordination, such as prices or market share.

⁴⁰ *Case T-342/99 Airtours plc v. Commission* [2002] ECR II-5761.

Aggregates

Aspects of market structure and the product

71. There are some structural features of aggregates supply in GB that may be conducive to coordination. These include:
- concentration in the supply of aggregates at a national level, with the five Majors collectively supplying 74 per cent of aggregates in GB in 2011;
 - a high share of the market held by the five GB Majors in some local aggregates markets; our preliminary work indicates that in 45 per cent of the catchment areas around job sites where aggregates were purchased in 2011, the Majors collectively held a market share of 75 per cent or more;
 - structural links between the Major aggregates suppliers, including joint ventures and membership of a common trade association (the Mineral Products Association⁴¹ (MPA)); and
 - barriers to entry into aggregates supply (see paragraphs 27 and 28) may be sufficiently high that entry would be unlikely to undermine any coordination between the existing aggregates suppliers should the other conditions for coordination be met in particular local markets.
72. In addition, although there are many different sub-types of aggregates, within each sub-type the aggregates produced by different suppliers are largely homogeneous from a product perspective.
73. Aggregates markets are, however, local (see paragraph 15), which means that there is geographical differentiation between aggregates produced at different locations. There are also a large number of non-Major aggregates suppliers across GB, supplying a fragmented customer base (ie there are a large number of different suppliers and customers). Customers tend to purchase aggregates on a project-by-project basis, and prices are negotiated bilaterally. Together, these factors may mean that prices, supplier–customer relationships and total aggregates output are not particularly transparent in any given local aggregates market.
74. Competitive conditions (eg the number and nature of competitors) may vary from one local area to another. This may make it difficult for any group of suppliers to maintain a single model of coordination across the country.

Market outcomes

75. The results of our preliminary profitability analysis of the Majors' aggregates operations (see paragraph 35) are not particularly suggestive of widespread coordination in local aggregates markets, given that the Majors appear (with one exception) to be only achieving low to modest returns from these operations. However, as also set out in paragraph 35, our profitability analysis has been carried out on a GB-wide basis and profits could be higher in some areas than in others.
76. As set out in paragraph 36, our analysis of the Majors' profit margins for their aggregates operations (where data was available) has highlighted that, with the exception

⁴¹ The Minerals Products Association is a trade association for the UK aggregates, asphalt, cement, concrete, lime, mortar and silica sand industries.

of one Major, margins on internal sales are significantly higher than on external sales. We intend to investigate this further.

77. The results of our PCA and EEA analyses on local aggregates markets in GB are set out in paragraphs 29 to 32. The following aspects of these results are consistent with coordination in at least some local aggregates markets (although other explanations are also possible):

- non-Major competitors do not constrain the Majors' prices for aggregates;
- the presence of other Majors in a local market is only associated with lower prices in that market in some cases, and, even then, these price effects are small;
- the presence of other Majors (and one Major in particular) is sometimes associated with higher prices in a local market; and
- entry and exit of aggregates sites has little effect on prices.

Conduct

78. We have considered whether the aggregates price announcement letters sent out by the Majors (and other aggregates suppliers) might play a part in sustaining coordination among aggregates suppliers. According to our analysis of the Majors' price announcement letters for aggregates, announcements usually take place once a year (around January) but can also happen more frequently within a year (eg in April and/or in June). The letters are usually sent by suppliers about a month before the price increase is intended to become effective. There is no single overall pattern to the Majors' announcements. However:

- We have observed parallelism in the dates of the announcements. Whilst some of this parallelism may be the result of similar annual price review processes and increases in the aggregates levy⁴² (which would be common across suppliers), this is not always the case.
- On many occasions, two particular Majors have been the first to announce price increases and the other Majors subsequently announce slightly higher increases.
- There are, however, some cases of the late-announcing Majors undercutting the price increases announced by the first two Majors.
- In almost all the cases that we analysed, the Majors were able to increase the average price of aggregates following a price increase announcement, although the actual increase was usually lower than that announced. In some cases, the actual price increase was more than half the announced price increase.

79. As noted in paragraph 37, we have undertaken case studies of market conditions for aggregates supply in two local areas (South Wales and the west of East Anglia), involving a review of a large number of the Majors' internal documents relating to their aggregates activities in these case study areas and interviews with customers and non-Major aggregates suppliers in these areas. The internal documents indicate

⁴² The aggregates levy was introduced by the UK Government in 2002 with the aim of compensating for the environmental impact of the extraction of primary aggregates, and introducing a pricing incentive to encourage the use of secondary and recycled aggregates. It is currently set at £2 per tonne on primary aggregates, with secondary and recycled aggregates being exempt.

that there are multiple contacts between the Majors across the local aggregates markets in question, together with site-sharing arrangements and cross-supply agreements. The documents and the interviews also suggest that there is a degree of transparency with respect to prices in these markets, with suppliers able to obtain information from customers about competitors' prices (or from competitors directly where there is a cross-supply agreement in place). However, taken together, the case study documents and the case study interviews generally support the case that both Major and non-Major aggregates suppliers are competing with each other in these areas to gain market share and/or to persuade competitors' customers to switch suppliers. Therefore, whilst we are continuing to investigate the nature of an aggregates cross-supply agreement between two of the Majors that was mentioned in these documents (and we also intend to explore whether similar agreements may be more widespread in the industry), we will not be undertaking further case studies in additional geographic areas at this stage.

Preliminary view

80. At this stage of our investigation, we note that there are some aspects of the supply of aggregates in GB that may increase the possibility of coordination in at least some local markets. However, the variation in competitive conditions from one local area to another, the results from our aggregates case studies work and the Majors' relatively modest (in general) returns on their aggregates operations mean that we are less concerned about coordination in relation to the supply of aggregates than in relation to cement (see paragraph 99). We continue to have concerns about the role aggregates may play when considering vertical effects (see paragraphs 102 to 117).

Cement

Aspects of market structure and the product

81. The GB cement industry appears to have several structural features that may be conducive to coordination. These include:
- a high degree of concentration (see paragraph 41), with only four GB cement producers;
 - structural links between the GB cement producers in the form of joint ventures with each other (although many of these relate to aggregates) and membership of the same trade association, the MPA; and
 - sufficiently high barriers to entry (see paragraphs 42 to 48) that entry would be unlikely to undermine any coordination.
82. The GB cement market does not appear to be particularly complex. Cement is a relatively homogeneous product and the geographic areas over which cement can be transported are quite large. There are only ten plants producing cement in GB. This lack of complexity means that the number of variables on which cement producers would need to have a common understanding in order to arrive at a coordinated outcome in the market is likely to be small.
83. Our analysis indicates that, despite some differences in the supply of raw inputs, there is a considerable degree of symmetry in the cost structures of the four GB cement producers and that the extent of this symmetry has been relatively constant over time. Similarities in cost structures are a factor that may facilitate coordination

by increasing transparency in the market and by contributing to the alignment of the GB producers' incentives to coordinate.

84. We noted that, in the CC's Anglo/Lafarge final report, the CC analysed possible focal points for coordination in the GB cement market⁴³ and the market and production shares of the GB cement producers over time.⁴⁴ Taking into account the evidence and analysis in that report combined with additional evidence we have collected during our investigation so far,⁴⁵ we consider that the main focal points for coordination are more likely to be one or more of shares of production, shares of sales and/or wins and losses of customers rather than prices, as prices are individually negotiated and not as transparent as volumes or shares. We also noted the view taken in the Anglo American/Lafarge final report that the degree of stability in shares of production over the period 2001 to 2010, at the time of large changes in demand, changes in ownership and significant excess capacity for cement production was consistent with coordination between at least some of the GB cement producers during that time. We have not yet considered the significance of trends in market and production shares in our investigation, but we intend to do so.
85. We noted that each cement producer has a high degree of transparency of its own share of cement production and sales as a result of figures for total UK production and sales published (with a one-month lag) by the MPA. Each cement producer is therefore able to infer how other cement producers are behaving, including their pricing activity, by monitoring its own shares of production and sales. Coupled with monitoring of gains and losses of individual cement customers (and high levels of transparency as to which rivals those customers were being gained from or lost to⁴⁶), each cement producer would have a good understanding of whether rivals were adhering to—or deviating from—any understanding (tacit or otherwise) regarding shares of production or sales.⁴⁷
86. We have considered whether imported cement might undermine any coordination that might otherwise exist in the GB cement market. Our views at this stage in our investigation are that, whilst there is evidence that the GB producers regard imported cement as a competitive threat, the ability of cement imports to undermine any coordination may be limited because:
- as set out in paragraph 47, the GB cement producers have a substantial cost advantage at the margins over cement importers in competing for customers at the margins;
 - the higher costs faced by cement importers creates incentives for them to price their cement just below the price of GB-produced cement;
 - the majority of imported cement is sold within a limited distance of the terminal through which it is imported, meaning that there are some areas of GB in which it is possible that imported cement may not compete as effectively with GB-produced cement as in other areas; and

⁴³ Anglo American/Lafarge final report, paragraphs 6.148–6.153.

⁴⁴ Anglo American/Lafarge final report, paragraphs 6.112–6.119.

⁴⁵ This evidence includes what cement suppliers and customers have told us about how cement is purchased, as well as internal documents from the Majors indicating some of the parameters of their cement businesses that they monitor.

⁴⁶ This high degree of transparency of customer–supplier relationships is a result of cement customers tending to (a) be regular purchasers buying cement for use at fixed delivery points and (b) purchase from a single source at any given site in most cases.

⁴⁷ Anglo American/Lafarge final report, paragraphs 6.149–6.153.

- the GB cement producers consider, and in some cases take, specific steps to undermine the viability of imported cement, such as applying pressure to cut off cement supplies to independent importers, purchasing of import terminals and targeting lower-priced cement selectively at customers of cement importers.

Market outcomes

87. As set out in paragraph 50, our preliminary profitability analysis of the four GB producers' cement operations suggests, albeit on an HCA⁴⁸ basis, that three of the four producers are making large returns on the capital employed in their GB cement operations, and that these large returns have persisted, and in some cases have grown, despite the significant downturn in demand for cement since 2007. As set out in paragraph 51, our analysis of the profit margins of the four GB producers' cement operations shows that three of the producers have margins within a narrow range which have been stable despite the significant decrease in demand for cement since 2007. Taken together, these market outcomes indicate that competition may not be working effectively in this market.

Conduct

88. We have considered whether the cement price announcement letters sent out by the four GB producers might play a part in sustaining coordination in the cement market. The four GB cement producers (Cemex, Hanson, Lafarge and Tarmac)—and some other cement suppliers in GB—regularly send out generic letters to their customers informing them of cement price increases. These letters are usually sent out at least once a year, at least a month before the date of the planned increase. We have found that:
- the four GB producers generally announced similar price increases in fairly close succession;
 - one particular producer was often the first to announce a price increase, with the other GB producers generally following with the same, or higher, announced increases; and
 - in most cases, the four GB producers were able to increase the average price paid by their customers following a price increase announcement, although announced price increases have not been as successfully translated into actual price increases in recent years as in 2008 and 2009.
89. The four GB producers provided various explanations for sending out these generic price announcement letters, including that they acted as a starting point for negotiations with customers and that they provided some information to customers for their business planning processes. Whilst these letters may fulfil these purposes, we remain concerned about the effects of these letters in a market where prices are agreed through confidential bilateral negotiations.
90. Our preliminary view as a result of our analysis of the four GB producers' cement price announcement letters is that it is unlikely that these letters act as the single focal point for any coordination in the cement market, since announced price increases do not translate systematically into actual price increases and because

⁴⁸ HCA stands for historical cost accounting, a system of accounting which values assets and liabilities at their historical cost, or, in some cases, at a historically revalued amount.

actual price increases do not appear always to be transparent to other producers (which would make it difficult for other producers to monitor these prices). Rather, we consider that it is possible that the price announcement letters could be used to signal between the four GB producers the timing, direction and approximate magnitude of changes in cement prices that they are each seeking.

91. We explored the extent of any correlation between the GB cement producers' prices, and we compared the GB producers' prices with those of the cement importers for which we had data. Because the four GB producers frequently justify their price increases to customers by citing increases in their underlying costs, we also analysed the extent to which changes in the GB cement producers' prices were related to changes in their variable costs.
92. We have found that:
- The GB cement producers' prices were highly correlated with one another. This is consistent both with a high degree of competition between them and with dampened competition between them.
 - The GB cement producers' prices were highly correlated with the prices of the cement importers for which we had data. This could be consistent with intense competition between the GB cement producers and importers, particularly if they faced common costs (which at this stage we do not think is the case—see paragraph 47). This could also be consistent with dampened competition if the pricing behaviour of cement importers is to price under the pricing umbrella of the GB producers.
 - Common movements in the GB cement producers' prices were not fully explained by changes in their variable costs.
93. We have analysed the extent to which the Majors buy cement from and sell cement to each other (known as 'cross-sales'). As part of this work, we have also examined the prices at which these cross-sales are made. We have found that:
- There have been significant cross-sales of cement between the Majors historically.
 - There has been a shift in the Majors' purchases of cement from each other over the period from 2007 to 2011, with greater self-supply except in some areas. The persistence of cross-sales in some areas may in part be explained by logistical considerations (ie the proximity of a Major's cement works to another Major's RMX or concrete block business) which mean that cross-sales are more commercially viable in those areas than elsewhere.
 - There can be significant variation in the prices charged by a given Major to the other Majors, with one Major in particular often paying lower prices than the other Majors.
 - Taking into account differences in volumes purchases and delivery distances, the Majors often pay higher prices than non-Majors for cement (see also paragraph 65).
94. At this stage, it appears that, whilst cross-sales between the Majors have declined in recent years, they continue to take place in the cement market. It appears that the current pattern of cross-sales may at least in part be consistent with the Majors seeking to make logistical savings. However, we noted that cross-sales have been

more extensive in the past, and there is a possibility that, if cement demand were to increase in the future, cross-sales could become more widespread again. We consider it possible that cross-sales could facilitate coordination in several different ways:

- by increasing transparency of cement prices between the Majors: the price at which a Major agrees to purchase cement from (or sell cement to) another Major may act as a signal of the approximate prices that a Major charges independent customers (or its own downstream operations);
- by providing scope for small-scale repatriation⁴⁹ of cross-sales to be used as a signal between the Majors to indicate dissatisfaction with another Major's conduct, for example to indicate that deviation from a coordinated outcome has been detected;
- by providing scope (where there are significant cross-sales) for larger-scale repatriation to be used as a punishment mechanism,⁵⁰ so that there is less incentive to deviate from a coordinated outcome; and
- as a potential mechanism for side-payments between the members of any coordinating group, to maintain the stability of any coordination.

95. To further understand the role of cross-sales in the cement market, we examined in detail the events surrounding the internalization of a large volume of cement by one Major (A) from another Major (B) in late 2008/early 2009, as a result of a significant change in A's circumstances. We found that, despite this large switch in the pattern of cross-sales over a short period of time, the cement market shares held by A and B returned quickly to their pre-existing levels. This was achieved in the months immediately following the large internalization through a combination of B internalizing its purchases of cement from A, the other GB producers switching cement purchases from A to B and B winning non-Major cement customers from A.

96. We found that, whilst B internalized cement purchases from several cement producers, it preferentially internalized its cement purchases from A (ie it internalized all its cement purchases from A, whereas it only partly internalized its other cement purchases). Further, we found that B appeared to have targeted A's customers (out of proportion to A's share of the market) rather than trying to recover these volumes equally from all its rivals. Specifically targeting A's customers in this way may have been suboptimal for B, as B could instead have sought to gain customers—regardless of their existing supplier—which were most profitable for B to serve (eg customers closest to B's cement plants). At this stage, it appears that these events could indicate B retaliating against A (and/or B targeting only A's customers to avoid the risk of retaliation from the other cement producers) with stability of market shares as the goal.

97. According to our analysis of the internalization event in 2009, the average prices for cement charged by both A and B increased very substantially in early 2009 (and in fact announced price increases across the industry for 2009 were generally very high), although there was some erosion of A and B's average prices from around April 2009. This means that there is little direct evidence of a general 'price war' between A and B in early 2009, although it may also indicate that any such price-

⁴⁹ Repatriation is the bringing of volumes purchased from another producer back into in-house supply.

⁵⁰ We noted that there may be several punishment mechanisms, of which repatriation would only be one.

cutting behaviour can be targeted fairly precisely in the cement industry (ie only those customers targeted by B benefited from B's reaction to A's internalization).

98. As set out in paragraph 6, we have undertaken an analysis of internal documents provided to us by some of the Majors. Although most of these documents are several years old⁵¹ and some of the behaviour described could be considered normal business practice in many industries, we are concerned that the documents might nonetheless provide supporting evidence for our concerns about coordination in the cement market in the following areas among others:

- **Market share.** The documents indicate that most of the Majors have in the past closely monitored their own market share and that the preservation of market share has been a metric of business performance. Monitoring of customers and volumes won and lost has been undertaken, and this information has been used to adjust their monthly estimates of market share on an ongoing basis. We are considering whether market shares may be a focal point for coordination (see paragraph 84).
- **Pricing strategy.** The documents show that most of the Majors have in the past monitored very closely each other's cement pricing including price announcement letters. Often these letters were received by the RMX division of the Major concerned and were then, where relevant, onward circulated to colleagues in the cement division.
- **Cross-sales.** The documents show that cement cross-sales, where relevant, have in the past provided most Majors with a high degree of transparency of rivals' production capacity including future intentions, as well as rivals' cement pricing. Some links are made in the documents between the price a Major may pay for cement from another Major and the price at which the Major sells cement to that Major (ie there is an element of reciprocal pricing). The documents also indicate that cross-sales have in the past allowed a degree of leverage in commercial negotiations between the Majors in respect of both cement and RMX.
- **Imports.** The documents indicate a close monitoring in the past of cement importers and the costs of importing. The documents indicate that some of the Majors were aware of the potential constraint on their cement business from increased imports. In some instances, individual Majors have taken steps to reduce the constraint from individual importers.

Preliminary view

99. At this stage of our investigation, there appears to be some preliminary evidence, such as the high returns on capital employed—albeit on an HCA basis—for most GB cement producers, that competition is not working effectively in the GB cement market. Our preliminary view is that the evidence we have seen thus far, when taken together, is consistent with a degree of coordination between at least some of the GB cement producers, made possible by the structural susceptibility of the market to coordination (eg its concentration, its high barriers to entry and the higher costs of importing cement compared with producing cement in GB). The coordination appears to be enhanced by the behaviour of the companies in the market (eg the use of price announcement letters, cross-sales and targeted retaliation).

⁵¹ We are in the process of obtaining further more recent internal documents.

RMX

100. The supply of RMX in GB appears to have fewer structural features than in the case of aggregates or cement that might give rise to concerns about coordination. Although there is some evidence that the Majors may collectively hold a high market share in some local RMX markets,⁵² the lack of barriers to entry into RMX supply (see paragraphs 58 to 61) coupled with the complexity of maintaining coordination in multiple local RMX markets reduces our concerns about the possibility of coordination in RMX markets in isolation. We also note (as set out in paragraph 63) that the profitability of the Majors' RMX operations (calculated on a preliminary basis) has deteriorated a great deal since 2007 and that there is more variability in the profit margins of the Majors' RMX operations over time and between the Majors than in the case of cement (see paragraph 51), both of which further reduce our concerns about coordination in these markets. However, we intend to examine further the impact of prices paid for cement and aggregates on RMX profitability and margins.
101. We will continue to consider whether competitive conditions may be different for customers requiring large volumes of RMX compared with those for customers requiring smaller volumes (see paragraph 66). It is also possible that the extent of vertical integration into RMX of the GB cement producers may help support coordination (if it exists) in the cement market (see paragraph 117).

Theory of harm 3: Vertical integration and exclusionary behaviour

102. Aggregates and cement are key inputs into the supply of RMX. Some of the largest companies involved in these sectors are vertically integrated, and some have become more vertically integrated in recent years as a result of acquisitions.⁵³ Notably, the four GB cement producers also have significant aggregates and RMX operations. The four GB cement producers consume in the range of 15 to over 100 per cent⁵⁴ of their cement production (depending on the company) in their own RMX businesses (and, where relevant, their concrete product businesses). Together, in GB in 2011, these four cement producers held about 55 per cent share of supply of land-won aggregates and about 60 per cent share of supply of RMX. Other companies have both aggregates and RMX operations and may be involved in the importation of cement. Aggregate Industries in particular has significant aggregates and RMX operations in GB and is owned by a major European cement producer, Holcim Ltd.
103. We are in the process of exploring how vertical integration may affect competition in these markets. Our concerns about vertical integration currently include the possibility of unilateral foreclosure,⁵⁵ coordinated foreclosure, increased barriers to entry and the facilitation of coordination in the cement market. We will take into account the possible rivalry-enhancing benefits of vertical integration as well as possible adverse effects. Whilst we have received limited evidence to date regarding efficiencies arising from vertical integration, we will continue to consider any evidence relating to such efficiencies that we receive.

⁵²As explained in paragraph 56, at this stage of our investigation we have not analysed local RMX markets in detail. However, our analysis of the share of RMX production in 2010 in the 64 counties of GB has shown that (a) the Majors collectively had a share of 100 per cent of production in six counties; and (b) the Majors collectively had a share of more than 50 per cent of production in 51 counties.

⁵³Including: Lafarge S.A./Blue Circle (II) (2001), Heidelberg Cement/Hanson (2007) and Anglo American Plc/Lafarge S.A. (2012).

⁵⁴Where cement consumption is greater than cement production, this implies that the producer concerned must purchase cement externally for use in its downstream business.

⁵⁵Input foreclosure occurs when a supplier refuses to supply (or will only supply at a high price) an input to customers which use that input to compete with it in downstream markets.

Unilateral foreclosure

104. No parties alleged, and we have found no evidence so far, that the Majors are bundling cement with aggregates and/or RMX in a way that may distort competition in any of the reference markets.
105. However, some parties have made allegations that the vertical integration of the Majors from cement into RMX results in partial foreclosure of RMX competitors, for example through restricting the supply of cement to independent RMX producers and/or cross-subsidies from the Majors' cement businesses to their integrated RMX businesses, thereby creating a squeeze on the independent producers' margins.
106. We note that a vertically-integrated company would need to have significant market power in the supply of cement in order to foreclose the supply of cement in a particular market, and that any such market power might vary regionally, based on the location of the company's cement plants and those of its rivals. In addition, the vertically integrated company would also have to find it profitable to foreclose the supply of cement, ie the additional profits it could make in the RMX market would need to outweigh the profits it would lose as a result of forgone cement sales. Because margins for cement are considerably higher than those for RMX, the vertically-integrated company would need to capture a large proportion of the sales lost by the independent RMX producer as a result of higher cement prices to compensate it for the lost sales of cement to that producer (or, alternatively or in addition, margins for RMX would need to rise).
107. It may also be a profitable long-term tactic in some circumstances for a vertically-integrated producer to seek to squeeze the margins of RMX producers in order to prevent the growth of independent RMX producers and limit the likelihood of their potential entry upstream in cement.
108. Some vertically-integrated parties submitted that they lacked the ability and incentive to restrict the supply of cement to independent RMX producers and that vertical integration was not likely to have an adverse effect on competition. The arguments made included:
 - It was in their interests to supply independent RMX producers as this complemented their own business and increased cement sales.
 - Even if independent RMX producers were foreclosed, the threat of future potential entry or expansion would continue to constrain RMX prices. Our preliminary view on barriers to entry into the RMX market is set out in paragraphs 58 to 61.
 - Any observed fall in RMX prices compared with cement prices was not a consequence of foreclosure, rather it was instead likely to be due to market conditions, including intense competition between RMX producers who had excess capacity.
109. We recognize the possibility that a vertically-integrated company might choose to restrict the supply of cement to independent RMX producers in the pursuit of efficiencies which could be rivalry enhancing. For instance, in the face of depressed RMX demand a vertically-integrated company may choose to channel supply of cement to its own RMX plants to ensure that they are sufficiently utilized to remain efficient and/or economically viable. The overall impact of such a strategy would depend on the level of competition remaining in the RMX market and the efficiency implications of supplying greater volumes through a less dense RMX plant network.

110. We note that there is some evidence that is inconsistent with widespread foreclosure of independent RMX producers in recent years. Although a number of independent RMX producers have left the market since 2008, the market share of the remaining independents appears to have grown between 2008 and 2011.⁵⁶ Furthermore, the closure of RMX plants has not been restricted to independent operators, with the UK RMX plant networks of the Majors estimated to have reduced by between about 70 and 100 plants during 2007 to 2010.
111. In light of our work on the scope for unilateral foreclosure of cement as an input into RMX (as set out in paragraphs 104 to 109) and the data on the growth in the share of supply of RMX by independent producers, we do not at present intend to pursue this line of inquiry in the absence of new evidence.
112. We also looked at the possibility of unilateral foreclosure of aggregates as an input into RMX. We noted that the Majors supply a lower proportion of the aggregates used by independent RMX producers than in the case of cement. There also appeared, at this stage of our investigation, to be less concern among independent RMX producers about foreclosure of their aggregates supplies. We therefore do not currently propose to consider further the possibility of unilateral foreclosure of aggregates as an input into RMX in the absence of new evidence.

Foreclosure as a coordinated strategy

113. We have also considered whether an input foreclosure strategy for RMX would be viable if it were collectively adopted by cement (or aggregates) suppliers. The evidence described in paragraph 110 that appears inconsistent with unilateral foreclosure would similarly be inconsistent with a coordinated strategy of foreclosure. For analogous reasons to those set out in paragraphs 111 and 112 in relation to unilateral foreclosure, we are not at present intending to investigate coordinated foreclosure further in the absence of new evidence.

Effect of vertical integration on barriers to entry

114. As set out in paragraph 102, cement is a vital ingredient of RMX. Some parties have told us that the structure of the cement market in GB (in terms of its concentration and the fact that all GB cement producers also have large RMX businesses) would deter entry into the RMX market. In our view, if this is the case, the effect could work in two ways: first, by creating insecurity for a new entrant regarding its supplies of cement and the terms on which it might obtain cement from a supplier which is also a competitor in RMX, and secondly, if vertical integration into cement results in significant efficiencies in RMX production, making it more difficult for a non-integrated RMX producer to compete effectively. The scale of any barrier to entry into the RMX market resulting from concentration in the cement market and the Majors' vertical integration from cement into RMX may vary regionally, depending on the sources of cement and the extent of cement-RMX integration in each region.
115. We also noted that aggregates are the other key ingredient of RMX, and that the structure of the aggregates markets in GB (in terms of their concentration and the extent of vertical integration between aggregates production and RMX) may similarly have the potential to act as a barrier to entry into RMX production.

⁵⁶ When two large independent RMX producers (ie Brett and Breedon) are excluded from the figures, the market share of the remaining non-Major RMX suppliers has declined very marginally since 2009. There is also significant variation in changes in non-Major market shares between local areas.

116. Vertical integration from cement into RMX may also increase barriers to entry into or expansion of the supply of cement by reducing the potential customer base available to an importer or a new cement producer.

Facilitation of upstream coordination

117. The CC will consider whether vertical integration into RMX may facilitate coordination in the upstream markets, particularly in relation to cement. Our preliminary views on coordination in the aggregates and cement markets are set out in paragraph 80 and paragraph 99 respectively. At this stage, we have identified several ways in which vertical integration may make coordination in these markets more likely:
- Vertical integration may make it easier for upstream cement or aggregate producers to arrive at a coordinated strategy. The multiple points of contact at the different levels of the supply chain, including cross-sales of cement and aggregates to other vertically-integrated companies, may facilitate greater information exchange and increase their ability to monitor and signal terms of coordination. For example, the cement producers' RMX operations may provide the cement producers with additional information about cement sales, including deviation, compared with the cement producer having to rely on cement sales data alone. Where profits from deviating from a coordinated strategy are attained from supplying downstream RMX producers, profits from cheating would be lower in so far as a significant proportion of RMX plants are owned by rival cement producers.
 - Repatriation of cement volumes used for RMX production and previously purchased from rivals is potentially a cost-effective signalling or punishment mechanism.
 - A presence in both cement and RMX may also provide members of any coordinating group more options for punishing deviation. For instance, they may be able to punish deviations in the cement market through reducing the price of RMX, possibly only in specific local markets, so that punishment can be highly targeted.⁵⁷
 - If barriers to entry or expansion in the cement market are increased as a result of vertical integration from cement into RMX (see paragraph 116), this would have the effect of increasing the stability of any coordination in the market, by making it less likely that it would be undermined by the actions of a company external to the coordinating group.

Theory of harm 4: Policy and regulation

118. During the first stages of our investigation, we have attempted to gain an understanding of the key regulatory and policy issues affecting aggregates, cement and RMX. We have identified those aspects of regulation and policy which appear at this point to be more likely to give rise to competition concerns.

⁵⁷ We note, however, that such punishment may be less effective and less immediate than punishment in the cement market, because it will depend on the extent and speed at which a lower RMX price in a local market translates into increased cement sales, which in turn depends (among other things) on the degree of differentiation between RMX producers (in particular, location) and the speed and willingness of RMX customers to switch between RMX producers in response to changes in prices.

The planning system

119. Whilst we acknowledge the important functions of the planning system, our preliminary views regarding the impact of the planning system on competition for land-won primary aggregates are that:
- The planning system can give ‘incumbent’ producers (ie companies with existing operational sites) certain advantages by favouring extensions to existing quarries over applications for permission to work greenfield sites.
 - The use of ‘landbanks’⁵⁸ in the planning system could act as a barrier to entry while the landbank target is met in a particular local area if Mineral Planning Authorities treat the landbank target as a cap on the permissions that they will grant. Further, if this is the case, aggregates producers could maintain permitted reserves in the landbank with the aim of preventing a new entrant from gaining planning permission for another site in the same area. However, the new National Planning Policy Framework (NPPF)⁵⁹ and planning guidance issued by the Department for Communities and Local Government (DCLG) seek to address these concerns.⁶⁰ In addition, our analysis of aggregates landbank data indicates that aggregates producers’ shares of permitted reserves in landbanks are in most cases in proportion to their shares of supply of aggregates, whether analysed nationally or at a county level. Taken together, these factors suggest that planning policy concerning aggregates landbanks is unlikely to be distorting competition in local aggregates markets.
 - As set out in paragraph 28, the length of the planning process for new sites may act as a barrier to entry into the production of aggregates. If larger companies can absorb the costs and delays of the planning process more easily than smaller companies, this will tend to favour larger companies over smaller companies (and the same may apply to the licensing regime for marine aggregates). However, the possible advantages that large companies may have over smaller companies are not limited to the planning system, and result from the structure and size of market participants more generally.
 - Some of the detailed ways in which the aggregates planning system functions have the potential to increase market transparency between suppliers, for example through the exchange of information about supply or demand conditions in a local area. However, at this stage of our investigation, our examination of these aspects of the aggregates planning system indicates that it is unlikely that they facilitate the exchange of commercially sensitive information.
120. Other than the concern about the possible way in which the licensing regime for marine aggregates may favour larger companies as set out in the previous paragraph, we have not at this stage of our investigation identified any additional specific concerns regarding the planning system as it relates to marine, secondary or re-cycled aggregates.

⁵⁸ A landbank is defined as a stock of planning permissions for permitted reserves (measured in years). It is calculated by dividing the volume of existing permitted reserves by the average annual provision of aggregates in the area.

⁵⁹ The NPPF was published in March 2012 and sets out the Government’s planning policies and how they are expected to be applied by planning authorities.

⁶⁰ The NPPF states that landbanks bound up in a few sites should not be allowed to stifle competition in an area. Planning guidance issued by DCLG states that adequate or excess landbank should not be used as a reason for declining a planning application. In addition, planning authorities can prohibit the extraction of aggregates at sites where no development has taken place for at least two years: sites subject to such prohibition orders are not included in permitted reserves.

121. In paragraph 43, we have set out our preliminary view that the planning system may contribute to barriers to entry in cement production.

The aggregates levy

122. We noted that the introduction of the aggregates levy has increased the cost of primary aggregates production in comparison with secondary and recycled aggregates. We also noted that the effectiveness of the levy in further incentivizing the use of secondary and recycled aggregates (which is the main aim of the levy⁶¹) may be limited by both the availability of secondary and recycled aggregates and the extent of substitutability between primary aggregates on one hand and secondary and recycled aggregates on the other (see paragraph 14). However, our view at this stage is that the aggregates levy applies in the same way to all primary aggregates producers and does not introduce additional distortion into the market, other than—in line with the policy objectives—in favour of secondary and recycled aggregates. The fact that larger companies—or companies that are vertically integrated into other businesses—may be able to cover the costs of the aggregates levy more easily is not an issue that arises from the aggregates levy itself, but relates to the structure and size of market participants more generally (see also paragraph 119).

The EU Emissions Trading Scheme

123. It has been put to us that the Emissions Trading Scheme (ETS) ‘partial cessation rule’⁶² creates additional incentives for importers to bring cement into GB, so that cement producers in mainland Europe do not lose their free carbon allowance allocations as a result of reductions in local cement demand. While we understand that there may be an incentive under the ETS to produce more cement in order to continue to receive a full allocation of carbon allowances, we note that this is true for all cement producers, including domestic ones. Further, the additional incentives on importers as a result of the ETS partial cessation rule do not apply to all their cement plants across the board but only to those plants (a) whose geographic location makes them suitable for exporting to GB and (b) where production is near to the threshold of 50 per cent of historic activity levels. Taken together, these factors indicate to us that the additional incentives claimed in relation to cement imports into GB as a result of the ETS may be overstated.
124. We have seen evidence that the way carbon allowances are allocated to cement producers under the ETS, together with the partial cessation rule, create incentives for GB producers to allocate production between their plants in a less efficient way than would otherwise be the case, in order to retain in full their free allocations of carbon allowances. This is because, in a period of under-utilization of capacity, the ETS system may provide incentives to maintain at least 50 per cent utilization of all plants, rather than (say) mothballing one plant and using another at full capacity. This means that some less efficient plants may continue to operate when, absent the incentives generated by the ETS, they would not have done, and that economies of scale from concentrating production at fewer plants are not being realized. These inefficiencies could have the effect of increasing the cost of cement production and ultimately increasing the price consumers pay for cement. However, we are not currently

⁶¹ We noted that the landfill tax also provided a significant incentive to produce and supply recycled and secondary aggregates from suitable material.

⁶² Under the EU ETS, if a cement plant is closed permanently, then its carbon allowances are lost. In order to stop a producer continuing to run a cement plant with the bare minimum output purely in order to obtain its full carbon allowances for onward sale, a ‘partial closure’ rule applies under ETS Phase III such that, if a firm produces 50 per cent or less of its historic levels of clinker production at a plant, it receives only 50 per cent of its overall allowance for that plant in the following year.

mind to identify the incentives for inefficient production generated by the ETS as resulting in a distortion of competition between cement producers, and we do not currently intend to pursue this particular aspect of the ETS further.

125. Our view at this stage of our investigation is that the ETS creates a distortion in the relative costs of producing cement inside and outside the EU. Cement produced in GB (and the EU) may become more expensive relative to cement produced outside the EU where the ETS does not apply. However, based on the evidence available to us to date regarding cement production in GB and the origins of cement imported into GB, we do not believe the ETS is distorting competition in the GB cement market to a material extent.

Carbon Reduction Commitment,⁶³ Climate Change Agreements⁶⁴ and the Climate Change Levy⁶⁵

126. Our view at this stage is that these policies could have different impacts on different types of producers of the reference products, causing some differences in their cost bases and possibly some distortion in competition. We note that:
- The Carbon Reduction Commitment (CRC) does not apply to those carbon emissions already covered by the ETS (eg cement operations) but covers large aggregate sites.
 - If over 25 per cent of an organization's emissions are covered by Climate Change Agreements (CCAs) (which cover among others producers of cement, GGBS and lime but not producers of aggregates), it will be exempt from certain aspects of the CRC.
127. Our view at this stage is that this could result in different impacts on different types of producers of the reference products, for example an integrated aggregates and cement producer which had a CCA would be exempt from the CRC but a stand-alone aggregates company would have to comply with the CRC in full.

⁶³The Carbon Reduction Commitment Energy Efficiency Scheme is a UK scheme which started in April 2010 to encourage greater energy efficiency in larger organizations using more than 6,000MWh of electricity. It does not cover installations which are covered by the ETS, so cement producers are excluded from the scheme. The CRC operates as an emissions trading scheme whereby each organization is required to purchase allowances from the Government to cover its previous year's carbon emissions arising from energy consumption. However, if 25 per cent or more of an organization's emissions are covered by Climate Change Agreements, then it is exempt from the obligation to purchase allowances (this is known as the 'CCA exemption').

⁶⁴Climate Change Agreements are voluntary agreements between the Government and energy-intensive businesses. CCAs contain targets for improving the business's energy efficiency performance. Once these targets are met, the business will benefit from a discount on its Climate Change Levy.

⁶⁵The Climate Change Levy is a tax on the use of energy above a certain threshold in industry, commerce and the public sector.