



DETERMINATION OF MERGER NOTIFICATION M/06/087 – APPLIED MATERIALS/ BROOKS SOFTWARE

Section 21 of the Competition Act 2002

Proposed acquisition by Applied Materials Inc of certain assets of Brooks Automation Inc

Dated 06/02/07



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SECTION ONE: INTRODUCTION

The Notification

- 1.1 On 1 December 2006, the Competition Authority ("the Authority"), in accordance with Section 18(1)(a) of the Competition Act, 2002 ("the Act") was notified, on a mandatory basis, of a proposal whereby Applied Materials Inc. ("Applied Materials") would acquire the assets of Brooks Automation that constitute Brooks Automation's software business ("Brooks Software"). The proposal also involves the acquisition by Applied Materials of sole control of Brooks Automation (Canada) Inc., 1325949 Ontario Inc., Brooks Automation India Private Limited, and Brooks Automation (Malaysia) SdnBhd.

The Undertakings Involved

- 1.2 Applied Materials, the acquirer, is a publicly traded company listed on the Nasdaq stock exchange. Applied Materials develops equipment, services and software products for the fabrication of semiconductor chips, flat panels, solar photovoltaic cells, flexible electronics and energy efficient glass. Its products for semiconductor manufacturers include systems that perform most of the primary steps in the microchip fabrication process.
- 1.3 Applied Materials also develops, markets and supports automated factory level control solutions, including manufacturing execution systems ("MES") for semiconductor manufacturing facilities, and to a lesser extent the flat panel display sector, as well as diagnostic software for equipment process control.
- 1.4 Applied Materials' worldwide turnover for its 2005 financial year was approximately \$6.99 billion (€5.62 billion). Its turnover in the State for the same period was approximately €[.] million.
- 1.5 Applied Materials has two subsidiaries in Ireland: Applied Materials Ireland Limited; and, Metron Technology (Ireland) Limited.
- 1.6 Brooks Automation is a publicly traded company listed on the Nasdaq stock exchange. Brooks Automation serves the semiconductor and other complex manufacturing industries, including flat panel display, data storage, automotive, aerospace, defence, life sciences and medical device industries.
- 1.7 Brooks Software, the target business, develops, markets, supplies and supports software applications, services and solutions that support enterprise initiatives such as lean manufacturing, supply chain execution, and performance management for complex manufacturing. Brooks Software's worldwide turnover for its financial year ended 30 September 2006, was approximately \$[.] million (€[.] million). Its turnover in the State for the same period was approximately €[.] million.

The Transaction

- 1.8 The proposed transaction involves the acquisition by Applied Materials of the assets of Brooks Automation, namely those that are used in connection with Brooks Software's business, and all the shares of capital stock in Brooks Automation (Canada) Inc., 1325949 Ontario

Inc., Brooks Automation India Private Limited, and Brooks Automation (Malaysia) SdnBhd. Therefore the proposed transaction involves an acquisition of assets in respect of Brooks Software and an acquisition of sole control of Brooks Automation (Canada) Inc., 1325949 Ontario Inc., Brooks Automation India Private Limited, and Brooks Automation (Malaysia) SdnBhd, through the acquisition of all of the capital stock.

The Procedure

Phase 1: Preliminary Investigation

- 1.9 The Competition Authority was notified of the proposed transaction on 1 December 2006. Having considered the materials submitted with the notification, the Competition Authority was unable to form the view that the result of the proposed transaction would not be to substantially lessen competition in markets for goods and services in the State.
- 1.10 On 21 December 2006, the Competition Authority determined, in accordance with Section 21(2) of the Competition Act, 2002, to carry out a full investigation under Section 22 of the Competition Act, 2002

Phase 2: Full Investigation

- 1.11 During the course of the Phase 2 investigation the Competition Authority interviewed buyers of MES who are located in the State. Given that the users of MES software in the State are manufacturing facilities of US companies and that the decisions to purchase MES software for their Irish operations are taken in the US, the Authority also interviewed US based personnel of one of the MES users in the State.¹
- 1.12 The Authority requested and analysed data from the parties on 'contestable opportunities' for MES software.² The data related to all contestable opportunities for MES software for 200mm and 300mm semiconductor fabrication plants ("fabs") worldwide for the period 2000-2006. The Authority sought detailed information on various aspects of those contestable opportunities including;
- The semiconductor manufacturers that held the 'contestable opportunity', their county of origin and the location of the plant in question;
 - The MES supplier that was successful;
 - Whether Brooks Software or Applied Materials competed to supply to that semiconductor manufacturers;
 - Whether or not the semiconductor manufacturer operated previous generation fabs and, if so, who the MES supplier was; and,
 - The reason that the contestable opportunity arose.

¹ The decisions to purchase MES software for semiconductor fabrication plants located in Ireland are taken by the parent companies located in the United States.

² A contestable opportunity is a situation where a semiconductor manufacturer looks to the market for a new MES solution. This is a distinct concept from the economic term 'contestable market' which is referred to in paragraph 2.23 below.

Third Party Submissions

- 1.13 Having initiated a full investigation the Authority sought submissions from interested parties. One third party submission was received by the Competition Authority from an undertaking involved in the provision of automation software for the semiconductor industry and integration software for one of the MES products of the undertakings involved. Some issues raised by the third party are reflected in the theories of harm discussion in Section 2 below.

Discussions with other agencies

- 1.14 The transaction between Applied Materials and Brooks Automation was also notified to the relevant competition authorities in the US, Germany, China, Taiwan and Korea. In order to assist the Authority in its investigation of the notified transaction in the State, the undertakings involved signed waivers, dated 15 January 2007, that permitted the Authority to discuss the transaction with a US competition authority.³

³ The waivers relate to the confidentiality restrictions provided in Section 32(1) of the Act.

SECTION TWO: COMPETITIVE ANALYSIS

Introduction

- 2.1 The activities of the undertakings involved overlap in fault detection, statistical process control and MES. A description of each of these overlapping products as well as any competition concerns that may arise is presented below. There is no overlap in either fault detection or statistical process control. However there is overlap in MES software and it is this market that the analysis concentrates.

Fault Detection

- 2.2 Fault detection software detects problems in semiconductor fabrication equipment. Using data generated by the equipment, the software detects abnormalities in the status of the equipment or the processes running on it. A more capable product, which performs fault detection and classification, also classifies detected errors to assist technicians in identifying the root cause of a detected problem. Fault detection and classification software uses statistical methods to identify deviations from normal operating parameters for the equipment.
- 2.3 There is no overlap of activities of the undertakings involved in fault detection in the State. In 2006 Applied Materials generated only €[.] from licensing its fault detection product in Ireland. In the same period Brooks Software generated limited worldwide revenues from the supply of its fault detection solutions and none of this was generated in the State.

Statistical Process Control

- 2.4 Statistical process control software is used for monitoring and controlling a manufacturing process through statistical analysis. The software is used for measuring a process, identifying variances within the process to enable operators to achieve greater consistency, and to provide real time monitoring of the critical manufacturing process parameters, using sensors within the manufacturing equipment. Statistical process control compares process performance against a normal distribution based on historical information to identify variances and enable manufacturers to take corrective actions.
- 2.5 Neither of the undertakings involved are currently active in the supply of statistical process control systems in the State. Neither Applied Materials nor Brooks generated any revenues in the State in 2006 from the supply of statistical process control software.

Manufacturing execution software

- 2.6 MES software is deployed in an assortment of complex manufacturing environments such as semiconductor fabrication plants ("fabs"), flat panel display plants, automotive plants and life sciences manufacturing plants, among others. MES software is used in a semiconductor fab for tracking the movement of production wafers in a manufacturing facility. Specifically MES software is used to:
 - Track and trace products through the manufacturing process;
 - Control product routings and flows;

- Efficiently manage plant resources; and,
- Collate live data and produce statistics-based reports.

In addition MES can be implemented across multiple fabs, to assist in coordinating and synchronizing manufacturing activities spread across multiple sites.

- 2.7 Applied Materials focuses its MES activities on the semiconductor industry, while Brooks Software has substantial activities in the semiconductor and flat panel display industries as well as other manufacturing industries.
- 2.8 The greatest worldwide overlap of the activities of the undertakings involved, and the only overlap in the State, occurs in the supply of MES to the semiconductor industry.
- 2.9 Brooks Software and Applied Materials are the two suppliers of MES software players (see Table 2 below). Also operating are IBM and a fringe of other smaller producers some of whom are non semiconductor specific. Some semiconductor manufacturers produce MES in-house.
- 2.10 In the State there are two semiconductor manufacturing plants, Analog Devices have a plant in the Limerick and Intel have a plant in Leixlip. [...] supply MES software to Intel in Leixlip while [...] supply to Analog Devices in Limerick.
- 2.11 [...] won a worldwide contract to supply MES to Intel's 300 fabrication plants ("fabs") worldwide rather than just the Leixlip plant. [...] relationship with Analog Devices in Ireland is a 'legacy relationship' and relates to an older generation product that Brooks 'maintains' for Analog Devices. It did not receive any licensing fees for the product in the State 2006.
- 2.12 [...]. The only planned development of a new 'fab' in the State is by Intel at its Leixlip plant. The license for MES software at this plant was supplied by [...] in 2005.

MES – Market Characteristics

- 2.13 The lifespan of MES software is a function of the lifetime of a semiconductor fab which is in turn a function of the intervals between changes in production technology or industry 'inflection points'. The semiconductor industry experienced an inflection point in 2000 when the industry moved from 200mm to 300mm fabs. The next inflection point which is expected to be a transition to 450mm fabs is anticipated to occur post-2012.
- 2.14 The MES industry is also characterised by an 'incumbency effect' whereby manufacturers tend to retain their incumbent MES supplier when developing new fabs within a given technology levels (e.g., new 200mm fabs or new 300mm fabs). This is due to cost savings associated with the deployment of a consistent set of resources across multiple manufacturing sites such as staff training and plant level operational costs. It also facilitates the operation of 'virtual fabs', whereby detailed data is transferred across plants as partially manufactured products are shipped between locations.

- 2.15 The decision to use an MES system is taken by a semiconductor manufacturer on a global basis. In other words, when a buyer chooses an MES solution for a given plant technology (e.g., 300mm fabs), this solution will be deployed at any future plants commissioned regardless of location. Therefore the decision by semiconductor manufacturers located in Ireland to deploy an MES product in their Irish plants was taken outside of the State. Any decision to switch MES supplier would therefore be made on a global level outside of the State.
- 2.16 Suppliers of MES solutions compete with one another on a worldwide basis. The semiconductor manufacturers who purchase MES solutions compete with one another on a worldwide basis as do the purchasers of semiconductors (e.g., manufacturers of electronic durable goods, communications hardware, and electronic/ communications infrastructure etc.).

Competition in the MES Market

- 2.17 There are only a limited number of circumstances whereby a 'contestable opportunity' to supply MES software to semiconductor manufacturers arises. The most likely instance is when the industry moves to a new generation of manufacturing technology such as the recent move by Intel from 200mm to 300mm fabs. Nevertheless such instances are extremely rare with only 19 'contestable opportunities' for 300mm fabs occurring worldwide out of a total of 78 commissioned plants during the period 2000-2007.
- 2.18 Table 1 below summarises the number of contestable opportunities that arose during the period 2000-2007. The table also summarises the number of switches from the incumbent supplier that took place, the number of competitions won by incumbent suppliers and it identifies where the competition was held by a new entrant to the semiconductor industry.

**Table 1
Summary of Number of Contestable Opportunities, MES Software for 200mm and 300mm fabs, Worldwide, 2000-2007**

	200mm Fabs	300mm Fabs
Contestable opportunities	17	19
Opportunity awarded to 'incumbent supplier' ⁴	3	14
'Switches' from incumbent supplier	3	5
Contestable opportunity is for new entrant to semiconductor industry	11	0
Switches as a percentage of contestable opportunities	18%	26%

Source: Based on Competition Authority analysis of information supplied by the undertakings involved

- 2.19 A successful outcome from a contestable opportunity represents a significant source of revenue to the winner. Due to the incumbency

⁴ Incumbent refers to the supplier of MES to that customer's previous generation fabs (e.g., in the case of 300mm contestable opportunity an incumbent is the supplier to that customer's 200mm fab).

effect MES users also obtain new versions and upgrades (i.e., maintenance) from their MES supplier. This represents a continuous stream of revenue to the supplier. In addition that supplier can expect future sales from any new fabs of the same generation commissioned by that customer.

- 2.20 Applied Materials estimated that the value of winning a contested MES license represents approximately [5-15]% of its worldwide MES revenues from the sale of licenses, maintenance and services for that year. If the likelihood of future sales to new fabs of that client are taken into account that percentage could rise to [5-20]%. Competition for 'contestable opportunities' is therefore fierce. Customers are aware of this and to date have been able to exert considerable buyer power over their MES suppliers.
- 2.21 Competition appears to occur in this market by way of bidding processes. Where a genuine bidding market exists, the outcome of competition in the market is that the existence of two firms is enough to imply perfect competition, or in extreme circumstances that one firm is enough. However the existence of a genuine bidding market is quite rare and requires a number of criteria to be perfectly satisfied.⁵
- 2.22 In examining whether the characteristics of the MES market satisfy the requirements for the existence of a bidding market, the Authority reviewed the literature on bidding markets. In a paper on bidding markets prepared for the UK Competition Commission, Paul Klemperer listed 4 conditions that are consistent with settled economic theory that satisfy an 'ideal' bidding market.⁶ These are:
- Competition is winner takes all, so each supplier either wins all or none of the order;
 - Competition is lumpy, that is, each contest is large relative to a supplier's total sales in a period;
 - Competition begins afresh for each contract, and for each customer; and,
 - Entry of new suppliers into the market is easy.
- 2.23 Klemperer further notes that with two identical firms and where conditions 1 to 3 are satisfied the outcome will be the traditional Bertrand equilibrium of a competitive outcome. In other words prices will remain at the competitive level. This is because firms bid on prices and bid each other to the competitive level. If the fourth condition is also met we would have a perfectly contestable market in which the competitive outcome would exist with only one supplier.⁷
- 2.24 Competition in the MES market is a 'winner takes all' competition as semiconductor manufacturers only have one MES supplier. Given the infrequency of contestable opportunities and the value of success in a competition, estimated by Applied Materials to be approximately [5-15]% of its worldwide MES revenues, it appears that competition is

⁵ Markets are very often erroneously characterised as 'bidding markets' as a justification to limit antitrust scrutiny however where a market does not perfectly satisfy the criteria for the existence of a genuine bidding market

⁶Paul Klemperer, 2005, *Bidding Markets*, London: Competition Commission. This maybe accessed at www.competitioncommission.org.uk.

⁷ For a discussion on contestable markets see W. Baumol, J. Panzar and R. Willig, 1982, *Contestable Markets and the Theory of Industry Structure*, New York: Harcourt Brace Jovanovich.

certainly 'lumpy'. In respect of third condition, while an incumbency effect means that a semiconductor manufacturer will be unlikely to use anyone but his current MES supplier when developing new plants of the same technology, in those circumstances where semiconductors do look to market, i.e., when they move to a new technology MES fab, the evidence of switching suggests that competition does begin afresh at the contestable opportunity stage. Therefore the three conditions that satisfy a prediction of a competitive outcome are present.

- 2.25 Some competitors in the market, including [...], license their MES software bundled with other products and services. It is therefore difficult to estimate market shares based on revenues. Customers are also unable to accurately gauge the market participant's relative market position but have anecdotally suggested that the combined shares of the undertakings involved may be in the range of 60-70%. The Competition Authority has analysed contested bids of 300mm and 200mm fabs in the period 2000-2007 to capture a more accurate picture of the size of the market participants, the results of which are outlined in Table 2 below.

Table 2
Summary of Outcome of Contestable Opportunities, MES Software for 200mm and 300mm fabs, Worldwide, 2000-2007

	200mm Fabs	300mm Fabs
Number of contestable opportunities	17	19
Number awarded to Applied Materials	[.]	[.]
Number awarded to Brooks	[.]	[.]
Number awarded to IBM	[.]	[.]
Number awarded to 'other supplier'	[.] ⁸	[.] ⁹
Percentage won by the undertakings involved	[60-70]%	[50-60]%
Percentage won by IBM	[10-20]%	[30-40]%

Source: Based on Competition Authority analysis of information supplied by the undertakings involved.

- 2.26 Based on the number of contestable opportunities won by the undertakings concerned the merged entity may have a market share in the region of 50-70%. Given the likely share of the merged entity a HHI analysis would place this merger within Zone C of the Competition Authority's Mergers Guidelines. Zone C mergers occur in already highly concentrated markets and are more usually those that raise competitive concerns.

- 2.27 An analysis of the competitive effects in the MES market that may be caused by the merger is dealt below.

⁸ In only one of these two instances where an 'other' supplier won a contestable opportunity did either of the undertakings involved compete. The winner was [.] and the customer was [.]

⁹ In both instances the 'other' supplier was [.] and for its successful 200mm bid the customer was [.] However, the Authority has noted that neither [...] competed in either of the 300mm competitions. In addition [.] was the incumbent supplier in both competitions. These observations may suggest that the customer was in a separate 'niche' to the semiconductor manufacturers that [...] compete to supply to.

Competitive Analysis of the Effect of the Merger in the MES Market

- 2.28 Having established that the extent of the concentration arising from the merger may lead to competition concerns, in this section the Authority considers the issue of whether or not the merger will result in a substantial lessening of competition. Three alternative theories of harm are analysed;
- Increased prices to buyers of MES software;
 - Refusal to supply maintenance service to users of 'out of the box' MES software; and,
 - Increased prices for maintenance services for MES.
- 2.29 In examining each of these theories of harm the Competition Authority analyses whether the merged entity would have the incentive and ability to behave in accordance with the theory and if so whether such conduct would effect competition.

Increased Prices to Buyers of MES Software

- 2.30 There are a number of aspects of the MES market that, were it not a genuine bidding market, may give the merged entity the ability to raise the price of MES software to semiconductor manufacturers. Specifically, the merged entity may attempt to increase the price of its portfolio of MES products.¹⁰ These include:
- Low likelihood of new entry;
 - Limited constraints exerted on the merged entity by competitors other than IBM; and,
 - Limited constraints exerted by in-house development of MES.
- 2.31 Given the lifecycle of the product (MES software), the limited number of contestable opportunities that arise per annum, and the secrecy of bids, it is difficult to know what signals would indicate to potential entrants that the market is worth entering. It may be difficult for firms outside the market to observe price increases in the bidding processes. Further, given the specialist technical expertise needed to develop MES software, entrants may find it difficult to develop the necessary technical capacity to compete with the incumbents in the short run. Evidence from third parties has also suggested that spare capacity in terms of specialist staff capable of developing MES software may not exist and may not be available within the two year time horizon for analyzing the effects of the merger.
- 2.32 There is a fringe of other MES suppliers other than IBM who offer MES software to the semiconductor industry. However, only one of the fringe competitors has been successful in winning a contestable opportunity for a 200mm or 300mm fab during the period 2000-2006. AIM, a Korean company that has been marketing MES software since 2000 won [...] out of the 17 200mm opportunities and [...] of the 300mm contestable opportunities. However, all [...] of the contestable opportunities were for [the same semiconductor manufacturer].

¹⁰ Applied Materials owns Workstream (through acquisition of Consilium in 1999) and Fab300, which it developed. The acquisition would add PROMIS (which Brooks acquired through the acquisition of RPI Automation), FactoryWorks and 300Works to the Applied Materials portfolio.

- 2.33 Having analysed the 17 contestable opportunities for 200mm fabs and the 19 contestable opportunities for 300mm fabs since 2000, [...] is the only company outside of Applied Materials, Brooks Software and IBM that was successful. However, the undertakings involved only contested one of [the other semiconductor manufacturer's] [...] wins, which was for a 200mm fab, and there is no evidence of switching from one of the undertakings concerned to [...] at any of the contestable opportunities. It is therefore not clear to what extent the fringe of competitors outside of IBM exert a competitive constraint on the undertakings concerned.
- 2.34 Interviews with customers indicated that while in-house MES solutions are possible to develop, they require significant R&D investments and require a commitment from the semiconductor manufacturer to maintain and develop the product throughout its life-cycle. This lifetime commitment to develop and maintain the software diverts resources from the primary activity of a semiconductor manufacturer.
- 2.35 Both Intel and Analog stated that their policy is not to develop MES software. By developing an internal solution the semiconductor manufacturer would forego positive 'spillover' effects associated with other semiconductor manufacturers using the same product. Typically MES customers and suppliers work together to develop updates. Each update 'spills-over' to other manufacturer.
- 2.36 However despite the weak competitive constraints exerted by entry, competitors other than IBM and in-house production, given that the market has the characteristics of a genuine bidding market. Therefore the presence of two similar firms is sufficient to keep prices at the pre merger level.
- 2.37 That IBM will be similar to the merged entity and is bidding against it, is supported by clear evidence of the growing strength of IBM in the MES market. IBM entered after the merging parties and has been successful in taking business away from the merging parties. IBM won [...] out of 19 contestable opportunities for 300mm fabs since 2000. Furthermore out of the 5 'switches' that occurred for 300mm fabs (i.e., where an incumbent supplier did not win a contestable opportunity) [...] were won by IBM [...].
- 2.38 IBM's strong presence in the market, the history of switching [...] as well as the market satisfying the 3 conditions necessary for a 'pure' bidding market, all indicate that price increases will not occur as a result of the merger.
- 2.39 It is also relevant that the buyers of MES software are large multinational corporations, such as Intel, AMD¹¹ and Analog Devices who are able to exert significant buyer power on the suppliers.

Refusal to provide maintenance to users of 'out of the box' software

- 2.40 The traditional MES product is referred to as 'out of the box' software (also referred to as 'off the shelf' software). An 'out of the box' product, such as Brooks' "PROMIS" and Applied Materials' "Workstream", are products that are the same for every customer. The

¹¹ AMD, Intel's closest competitor in the supply of semiconductors to the computer industry uses an IBM MES solution for its 300mm fabs.

supplier will install it for the customer and maintain the product over the life cycle of the fab.

- 2.41 Recent innovations have seen the emergence of 'toolkit' software such as Brooks' "Fab300" and Applied Materials' "300Works". Toolkit software can be customised and adapted by the customer to suit its needs. Toolkit software therefore offers the customer greater flexibility by enabling the customer to programme the software to its unique needs.
- 2.42 Toolkit software is significantly more expensive than a comparable out of the box product. Given the portfolio of products which Applied would hold post-merger and the difference in relative values to it of selling a toolkit solution compared with an out of the box solution, it would have an incentive to discontinue maintaining some of the older out of the box products such as PROMIS in order to force semiconductor manufacturers to change to a toolkit product.
- 2.43 While PROMIS is one of the most widely used products on the market it is also one of the oldest and needs constant upgrading. The maintenance fees derived by Brooks from upgrading the product represent a stream of revenue. However, the value to the merged entity of forcing a customer to purchase a toolkit product far exceeds the value of this stream of revenue.
- 2.44 The merged entity's ability to behave in this manner is determined by the likely behaviour of the prospective customer. Evidence from buyers has indicated that they would be capable of developing the expertise to maintain the product in-house. Furthermore buyers have indicated to the Authority that their contracts with MES providers limit the scope for opportunistic behaviour by the MES provider including ceasing maintenance of 'out of the box' software.¹²
- 2.45 However, if maintenance for a product as wide-spread as PROMIS were to be unilaterally withdrawn by the merged entity there may not be sufficient capacity within or outside the industry in terms of technical expertise available to third party contractors or semiconductor manufactures in the short term. This is likely to raise the costs to a manufacturer associated with maintaining 'out of the box' software if support were systematically withdrawn by the supplier.
- 2.46 A semiconductor manufacturer would switch over to a 'toolkit' MES solution if the costs associated with doing so were less than the costs associated with developing sufficient internal capacity to maintain existing product in-house or the cost associated with contracting third parties to perform this function.
- 2.47 The Competition Authority's investigation has found that it is very costly and disruptive to change an MES solution. All fabs would need to have the new MES system installed and operations would need to be shut down while the fabs adapt to the new solution. Other costs include procurement, staff training and the need to integrate other

¹² See paragraph 32.49 below.

systems essential to the manufacturing process. Total economic costs could be as high as \$50 million.¹³

- 2.48 A semiconductor manufacturer would therefore find it more profitable to maintain the out of the box product in house which would constrain the ability of the merged entity to force it to change to the more expensive toolkit solution. Furthermore if were to attempt to so it would be forego a continuous stream of revenue.
- 2.49 In addition one of the buyers of MES software in the State stated that their MES contracts with their supplier have quality provisions, which including the provision of maintenance, which protect them for the duration of the contract. In previous merger determinations the Authority has viewed the existence of long term contracts that specify price and quality provisions, and that remain binding in the event of a change of ownership or corporate structure of one or both of the parties to the contract, as sufficient to constrain the behaviour of the merged entity post merger.¹⁴

Increased prices for maintenance services

- 2.50 While the merged entity may not have the ability to unilaterally withdraw maintenance of out of the box solutions it may seek to encourage manufacturers to upgrade to toolkit software by increasing its maintenance fees.
- 2.51 Discussions with buyers have indicated that some buyers have contracts that specify a schedule of prices for maintenance over the lifetime of the contract. As noted in paragraph 2.49 above, in previous merger determinations the Authority has viewed the existence of long term contracts that specify price and quality provisions, and that remain binding in the event of a change of ownership or corporate structure of one or both of the parties to the contract, as sufficient to constrain the behaviour of the merged entity post merger.
- 2.52 Whilst the Authority has been unable to determine if such price and quantity provisions exist in contacts with all customers of the undertakings involved, the merged entity's ability to raise the price of maintenance above the pre-merger level would be constrained by a number of other factors. First, semiconductor manufacturers could credibly maintain their 'out of the box software' in-house or contract third parties. Second, the threat that the semiconductor manufacturer would switch to an alternative supplier such as IBM when they next look to the market if their incumbent supplier were to seek to exert market power by increasing maintenance fees.
- 2.53 In sum the merged entity would not have the ability to increase the maintenance fees.

Conclusion

- 2.54 There is limited overlap of the MES activities of the undertakings involved in the State. [...]. Brooks' limited revenues in the State in 2006 of €[...] are derived from [...]. In addition it is unlikely that there

¹³ This estimate is based on evidence from a third party. The undertakings involved have not had an opportunity to express a view on this estimate.

¹⁴ See M/06/073, *Bord na Mona/ Edenderry Power*, available on www.tca.ie.

will be any contestable opportunities in the State over the next 2-3 years.

- 2.55 While the merged entity would have an incentive to harm competition, it would not have the ability to behave in a manner consistent with any of the theories of harm described above.
- 2.56 The global nature of the product means that the decision to use a particular MES supplier is taken outside of the State and on a worldwide basis and therefore only affects the State insofar as there happens to be manufacturing plants in the State. Furthermore given that these plants exist on the whole for the purpose of exporting, and also given the global nature of the downstream markets, it is difficult to demonstrate harm to consumers in the State.

SECTION 3: DETERMINATION

- 3.1 In the light of the foregoing conclusions, and having completed its full investigation in relation to the proposed transaction, the Competition Authority, in accordance with Section 22(3)(a) of the Competition Act 2002, has formed the view that the result of the proposed transaction by Applied Materials of Brooks Automation will not be to substantially lessen competition in markets for goods and services in the State and, consequently the Competition Authority hereby determines that the acquisition may be put into effect. Before making a determination in this matter, the Competition Authority, in accordance with Section 22(8) of the Competition Act 2002, considered whether any relevant international obligations of the State existed, concluding that there were none.

For the Competition Authority

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