

3 Planning

Introduction

3.1. In this chapter we examine AEA's planning arrangements including the effect of external factors and legal constraints (paragraphs 3.2 to 3.9), strategic planning (paragraphs 3.20 to 3.37) and medium-term planning at corporate and business level (paragraphs 3.38 to 3.54). We then review AEA's approach towards joint ventures and alliances (paragraphs 3.55 to 3.59). Our conclusions and recommendations are given at paragraphs 3.60 to 3.78.

The planning environment

3.2. There have been dramatic changes in the role that the Government has expected AEA to play in the last five or six years. These changes have their origin in a review of AEA carried out in 1984 by a DEN working group. This group's recommendations (the Manley Report) included establishing AEA as a trading fund which would operate on a more commercial basis, recasting the major Government R&D programmes on a customer/contractor basis, and transferring responsibility for the financing of some Government programmes to the ESI.

3.3. Since it began to operate on a trading fund basis in 1986 AEA has had to plan within a rapidly changing and uncertain environment. From 1986 to 1988 AEA began to take systematic steps towards a more commercial approach with the major emphasis during this period being on cost reduction within the existing structure (see Chapter 9). At the same time it became apparent that Government support for some programmes, for example the fast reactor programme, was likely to decline.

3.4. During 1988 the Government decided to reduce support for the major nuclear programmes more rapidly than previously envisaged. At the same time the impending privatisation of the ESI was thought likely to reduce AEA's traditional role in the development of nuclear power. The Government announcement of its intention to cease supporting the operation of the PFR in 1994 was expected to lead to further closures of major supporting facilities at Windscale, Harwell, Springfields and Dounreay. Changes in ESI funding arrangements together with the Government decision to reduce funding for work on thermal reactors led to the closure of the PLUTO materials testing reactor (MTR) at Harwell and to substantial reductions in the workload on other facilities at Windscale, Winfrith and Harwell. A similar Government cut-back led to the closure of the DIDO MTR at Harwell and of the remaining part of Springfields Laboratory. At the same time Government funding for the fusion programme was reduced.

3.5. In May 1990 it was decided to close the Steam Generating Heavy Water Reactor (SGHWR) at Winfrith with effect from March 1992. The closure date was subsequently brought forward by AEA to autumn 1990 when technical problems were discovered which required modifications to the plant in order to operate it to AEA standards; these modifications were judged by AEA to be uneconomic. Responsibility for the reactor safety programme was also transferred from DEN to the Health and Safety Executive (HSE) with effect from the 1990/91 financial year. As a result of this series of decisions AEA's planning process has been faced with the major challenge of developing a new role against a background of sharp reductions in its traditional business areas, and the threat of further potential reductions following the Government's review of nuclear power scheduled to take place in 1994.

The 'vires' constraints

3.6. The Authority's activities are regulated both by statute and by Ministerial directions. The key features of the statutory framework are:

- (a) The Authority can engage in any trading activity involving atomic energy and radioactive substances (except in relation to atomic weapons).
- (b) Outside the nuclear field the Authority may only conduct business in areas specified by ministerial requirements, and then only if they constitute 'R&D'. The Authority is prevented from engaging in routine or repetitive manufacturing or service business in non-nuclear areas (although exceptionally there is greater freedom in relation to waste disposal and treatment).
- (c) Following Ministerial direction the Authority may not build or operate nuclear reactors primarily for generating and selling electricity.
- (d) Even within the limits of its statutory powers the Authority's ability to engage in partnerships, shareholdings and other forms of commercial participation with other companies is in many cases constrained by the need to obtain the written approval of the Secretary of State.

3.7. There is an overriding condition that the Authority cannot do at one remove what it is not permitted to do itself. Subject to this the Authority can form or acquire subsidiaries including wholly-owned subsidiaries. Prior ministerial approval is required in the case of a proposed majority shareholding. Similar constraints apply to AEA's participation in partnerships and unincorporated joint ventures.

3.8. Over the years the Authority has developed a considerable body of inventions and know-how. AEA believes that much of this could be more fully exploited if the vires constraints were relaxed. It supplied us with some evidence to support this view, but considered that the limited available examples understated the full effect of the constraints because any project ideas which were likely to require extended powers to be exploited effectively were either not generated at all or dismissed at an early stage. AEA is concerned that the restrictions could become increasingly damaging to its ability to pursue attractive commercial prospects and to compete effectively.

3.9. Its vires constraints may also have a significant restrictive effect on AEA's ability to exploit its technology through joint ventures (see paragraph 3.55). This could apply particularly where a non-nuclear joint venture manufacturing company had exploited its first product based on AEA technology and subsequently needed to manufacture additional products to develop its business effectively.

Objectives and targets

3.10. In 1986 the traditional vote-funding arrangements for AEA were replaced by a more commercial approach which included the requirement to meet financial targets in the shape of a current cost accounting (CCA) rate of ROCE and an EFL, both set by the Secretary of State (see Chapter 4). Broad policy objectives are also specified in a letter to the AEA Chairman (see Appendix 1.3). No quantified targets are set by DEn as sponsor for AEA's performance in such areas as efficiency or quality of service, although as a customer it establishes its requirements through negotiating the Programme Letters.

3.11. Another aspect of target-setting by DEn is the Board members' bonus scheme (see Appendix 3.1). The bonus scheme has evolved each year to reflect the development of AEA and the financial information available. DEn's intention has been to relate the scheme to AEA's overall objectives and to other factors of importance to the health of the business. The bonus scheme formula for the current year includes components related to:

- (a) meeting the financial targets set by the Secretary of State;
- (b) the management of capital projects within budget and to time;
- (c) targets for sales to a specified group of customers;

- (d) profit targets for specified businesses;
- (e) the reduction in net expenditure by the site organisations; and
- (f) target current cost profit per employee.

These components differ from those for 1990/91 and will be amended for 1992/93.

3.12. Bonus payments in the current scheme are mainly triggered by the separate achievement of individual targets and are in general not conditional on the achievement of minimum standards in all important aspects of commercial performance. Although there is no evidence that this has happened it would be feasible to satisfy some of the bonus scheme requirements by taking action which was inconsistent with the broader objectives defined elsewhere by the Secretary of State. For example, sales targets could be achieved by accepting unprofitable orders or the EFL could be met by increasing credit levels or cutting essential capital programmes. This would, however, result in the targets for the following year being more difficult to achieve. In addition to setting objectives in its role as sponsor and sole owner DEn also influences the objectives of AEA as its major customer through the objectives specified for major R&D programmes.

3.13. The Secretary of State requires AEA to propose its own performance targets to complement the overall financial targets set by DEn. These targets are set internally by AEA in the form of letters from the Managing Directors of the two business groups to each of their business Chief Executives. The targets identified vary from business to business but typically include profit margin as a percentage of external sales, external turnover, overheads, work in progress, capital expenditure, value of contracts won and success rates in achieving contract milestones to time and cost.

3.14. AEA also publishes an internal Mission and Values Statement which is summarised at Appendix 3.2. This is not at all specific about how the aims are to be achieved and does not set any quantified goals and targets against which progress can be monitored.

The annual planning cycle

3.15. There is an annual planning cycle which results in a business plan for each business and site and a corporate plan, each plan covering a four-year period. The planning process is centred on the Medium Term Corporate Plan (MTCP) and leads through the development of the business plans to the annual budget and the annual AEA Corporate Plan. The main steps in preparing the MTCP are:

- the issuing of top-down guidance;
- the formulation of detailed plans by businesses, sites and CHQ;
- the submission of these plans to CHQ and top management review;
- revision and adjustment to provide the basis for the budget; and
- the preparation of the AEA Corporate Plan for review by the Secretary of State.

3.16. At the start of each planning round the corporate priorities are laid down in a guideline document. In addition to setting out the objectives of the process and providing detailed guidance on the overall strategic framework and on planning assumptions, this document specifies the timetable for the planning cycle and standard financial formats. The planning timetable for 1991/92 is shown in Table 3.1.

3.17. AEA told us that it aimed to focus its planning processes on the key real issues facing the organisation, in an attempt to prevent formal, mechanistic planning for its own sake. The detailed arrangements have varied therefore, from year to year, in response to developing objectives, changes in organisational structure and so on. But the basic processes provide a framework which persists from year to year.

TABLE 3.1 **Planning/budgeting timetable for 1991/92**

Mid-late August	Proposed plan formats circulated for comment and agreement
11 September	Business Secretaries' Group discussion
16 September	CESG meeting determines: (a) indicative expenditure guidelines for marketing and business development, IT and management systems, training and personnel, and employee communication; (b) indicative overall expenditure envelopes for corporate research (CR), applications development (AD) and new business investment projects (NBIP); and (c) indicative capital account investments in external investments and capital expenditure
20 September	CR/AD Group determines business-by-business indicative expenditure figures for CR and AD
20 September	CHQ issues guidance on the planning/budgeting process
7 October (or before)	Businesses provide sites with indicative manpower numbers, so that service providers can plan levels of service provision
During October	Businesses concentrate on market/sales/income planning and business/business interactions. Sites concentrate on service resource costing, liaison with Corporate Service Directors (CSDs)
During October	AEM/CESG considers initial reports on progress and issues
28 October	Sites provides businesses with per capita charges and unit service costs
During November	Businesses concentrate on financial planning; sites and businesses iterate
13 November	CERM provides an opportunity to review early progress with Chief Executives/Site Directors
25 November	Returns of intra-AEA transactions (not yet agreed between businesses/sites) submitted to CHQ
Early December	CHQ follows up major discrepancies on internal transactions
16 December	Sites and businesses submit plans to CHQ. Sites copy submissions to CSDs
20 December	1992/93 budget guidance issued (including formats)
10 January	AEM reviews overall picture, and determines: (a) approach to take in preparing AEA Corporate Plan; and (b) adjustments needed to Year 1 for budget purposes
14 January	CR/AD Group finalises CR and AD budget figures
17 January	CHQ issues overall budget targets
13-31 January	Business planning meetings with Managing Directors, businesses
7 February	Budget submissions
28 February	AEM considers 1992/93 budget proposals
12 March	AEA Board considers draft AEA Corporate Plan and 1992/93 budget
Late March-early April	CERM reviews outcome Formal targets issued
31 March	AEA Corporate Plan to DE

Source: AEA.

3.18. The planning cycle is of the standard type that would be expected in a company with product divisions. It should be noted though that AEA's businesses do not in general correspond to the normal concept of a 'strategic business unit', that is a part of the organisation supplying a small number of product/market segments. Some of AEA's businesses supply a wide range of products to many different markets. Although a few businesses have recognised the need to develop plans at division or product-group level, this is not formally provided for in the planning cycle and is left entirely to their discretion. The analysis of planning issues at product-group level, eg identifying specific competitors and determining which product/market segments to invest in, is not a mandatory part of the planning process, which is therefore best described as a mix of 'top-down' and 'middle-up' elements.

3.19. Planning for the corporate research and applications development (CRAD) programme is also updated annually (see Chapter 10). From 1990/91 the Underlying Research Programme was replaced by two categories of corporately-funded R&D: CR, aimed at the longer-term underpinning of AEA's technological base and at major technical innovations; and AD to cover more specific and immediate development work. Proposals for both categories are submitted by the businesses and the final programmes of work are evaluated by the DCR and agreed by the AEM.

Strategic planning

3.20. At two-yearly intervals since the trading fund was created (*viz* in 1986, 1988 and 1990) the senior management of AEA has carried out a strategic review. This is intended to set out the broad corporate strategy, provide the context for AEA's formal planning and establish the necessary link between objectives, strategy and plans.

3.21. The strategic reviews have differed according to the prevailing issues and problems. However, each has taken the form of the preparation of a series of discussion papers culminating in a two- to three-day off-site conference for AEA's top management. The outcome of each strategic review has been widely disseminated to employees in the form of a short summary of the conclusions.

The Strategic Initiative Project (SIP)

3.22. By mid-1988 it was apparent that a more detailed reappraisal of AEA's role and objectives was necessary. Government funding decisions were reducing support for AEA further and faster than either side had envisaged three years previously (see paragraph 3.4). At the suggestion of DEn and Her Majesty's Treasury (HMT), AEA sought competitive tenders from a number of leading management consultancy firms for a fundamental review of its objectives and strategy. The successful consultants formed a joint team with AEA staff and the resulting SIP had the objectives of assessing the business prospects for AEA, defining the merits of its available strategic options, and estimating their resource requirements. The SIP occupied much AEA senior management time throughout 1989.

3.23. The consultants identified a number of cultural, procedural and legal constraints in AEA's previous site-based structure which inhibited a more commercial approach. These included:

- consensus decision-making;
- a tendency to inter-site competition rather than co-ordinated business development;
- insufficient sensitivity to customers' needs;
- the continued use of non-commercial accounting and management information systems;
- weak communication of top management direction; and
- a general naïvety about competitive tactics.

3.24. The report on Phase 1 of the SIP was submitted in April 1989. Following the formal endorsement of the preferred strategy by the Board, it was submitted to DEn and subsequently discussed with and endorsed by the Secretary of State. The report presented three options for AEA's medium-term development:

- 'Cut to the Core': become a small public sector advisory body;
- 'Pushing the Limits': maximise commercial potential within the legal constraints; and

- 'Potential Unlocked': expand further by removing the legal constraints.

3.25. The 'Cut to the Core' option entailed reducing AEA's activities as rapidly as possible to those essential to support Government responsibilities for nuclear safety and policy. AEA would have remained permanently in the public sector as an advisory body, of less than one-third of its previous size. AEA would also have been responsible for essential nuclear R&D (particularly safety) and for decommissioning plants which had no further use. Its revenue would have been reduced by some two-thirds and its activities limited to those for, or mandated by, the Government. However, the cost of the residual commitments to decommissioning and to redundancy payments would have been high.

3.26. AEA rejected this option as it believed that a drastically slimmed down public sector advisory body could not have a stable medium- or long-term future. Explicitly adopting this strategy would, AEA considered, have led rapidly to a dispersal of expertise, talent and commitment. It would have been impossible to sustain a technically competent body of skills and thus to fulfil the intended role.

3.27. Under the second and preferred option, 'Pushing the Limits', AEA would maximise the commercial potential of its nuclear and non-nuclear capabilities while remaining subject to the existing legal constraints. It would become a more efficient, competitive and responsive supplier of technology to United Kingdom and international customers. AEA would need to focus on a small number of businesses in which it could offer distinctive technical solutions and services: four nuclear and four non-nuclear businesses were proposed. The role of the site management units would be adjusted to fit the needs of the businesses and their costs reduced substantially, while the relationship between DEn and AEA would be restructured on more commercial lines. AEA would become increasingly self-financing and might eventually have some potential for privatisation.

3.28. 'Pushing the Limits' required a fundamental reorientation of AEA's activities to distinguish clearly between commercial business and the management on behalf of the Government of the 'nuclear legacy' of past activities. All commercial R&D and service activities had to be divided into discrete business units designed to concentrate on clearly defined markets and to develop their maximum potential.

3.29. The third option, 'Potential Unlocked', envisaged AEA in due course taking this process one step further with the legal constraints removed. AEA would have become a supplier of a range of non-nuclear products and services in additional areas where it had a commercial advantage. This would have included forming partnerships and joint ventures with private sector companies which could complement AEA's capabilities in non-nuclear fields. This option could have been a more certain first step on the path towards privatisation.

3.30. Such an extension of AEA's role would have brought it into conflict with its vices constraints (see paragraph 3.6). Legislation would therefore have been required to extend its powers. There was thought to be little prospect of the necessary primary legislation being enacted within the medium term. More importantly the scale of change necessary to maximise the commercial potential even within the existing legislative constraints rendered any more ambitious strategy unrealistic at that time.

3.31. The SIP report thus presented AEA with one strategy which was not immediately accessible to it, and one which was so unambitious that no Board would be likely to accept it. This effectively left AEA with only one strategy: 'Pushing the Limits'. Its subsequent planning has been based on the implementation of this strategy.

Current AEA strategy

3.32. AEA told us that it saw four parts to its future role:

- (a) as a leading supplier of nuclear products and services;
- (b) using its skills and facilities to supply non-nuclear markets;
- (c) supplying markets related to energy, environmental protection and industrial safety; and

(d) becoming an internationally recognised centre of specialist technical skills.

3.33. AEA attaches great importance to retaining technical and organisational cohesiveness. It sees the nine businesses as a family operating under the AEA Technology umbrella rather than nine wholly separate companies held by 'AEA Technology Holdings'. It believes that this technical synergy and interdependence enables AEA businesses to exploit commercial opportunities more effectively by drawing on each other's capabilities. AEA also considers that the UKAEA brand name is of substantial value in assisting its businesses' overseas marketing.

3.34. AEA's longer-term strategy is to move from 'Pushing the Limits' to 'Potential Unlocked' to enable it to develop its commercial potential to the full. It told us that it believed that the key factors required to achieve this transition were:

- (a) moving closer to the market by having a greater direct involvement in the production and marketing of products, particularly in the non-nuclear sector;
- (b) forming partnerships and joint ventures with companies that had complementary manufacturing and marketing skills or would enable AEA to strengthen its position in the market;
- (c) acquiring other companies which would give AEA a competitive edge or access to new markets, for example overseas;
- (d) broadening and diversifying AEA's customer base, and aiming for commercially realistic terms of trading; and
- (e) expanding overseas trading and developing an international base.

3.35. AEA believes that its Nuclear Business Group must both retain a strong position in the United Kingdom and push very hard for growth in overseas markets. While the group's United Kingdom turnover is still substantial, it has declined sharply in recent years and is expected to decline further. AEA nevertheless sees the group as having a pivotal role in providing independent technical support to the United Kingdom nuclear industry and Government departments. It will seek to use this domestic base to underpin its drive to establish itself as an international supplier of services and consultancy. Its objective is to expand the proportion of overseas nuclear business by a factor of about three over the next few years.

3.36. AEA has identified the overriding priority for the Industrial Business Group as seeking vigorous growth in turnover and profits. Moving into and expanding overseas markets is again thought to be vital. AEA sees its established non-nuclear contracts with Government departments, HSE and the European Commission as the base for an expansion into international markets where it has a technological advantage.

3.37. The legacy of nuclear decommissioning and waste management liabilities is substantial, with an annual funding requirement for operational purposes currently equivalent to about one-quarter of AEA's turnover. This is set to increase further over the next few years. AEA believes that it is essential that this liability and the way it is dealt with is not allowed to distort AEA's commercial position. It is AEA's view, therefore, that the DRAWMOPS programme should be ring-fenced, with a clear separation between the liability on the one hand and the responsibility for carrying out the operational tasks it implies on the other. AEA believes that the liability should remain principally the responsibility of the Government and that the practical job of carrying out the programme should be conducted on a contractual basis with commercially realistic terms of trading.

The Medium Term Corporate Plan and AEA Corporate Plan

3.38. The MTCP is consolidated from the business plans produced by the businesses and sites, and, after adjustment for resource constraints, results in the AEA Corporate Plan which is submitted to DEN at the end of March each year. The AEA Corporate Plan thus has two roles: first, as an internal planning framework for implementing AEA's strategy, and secondly, as the basis for the discussion of future strategic issues with DEN and for the negotiation of the EFL.

3.39. Successive annual MTCP exercises since 1989 have concentrated on the fundamental reconstruction of both the organisation and its mode of operation implied by the new strategy. The revised AEA Corporate Plan prepared in June 1989 reported the outcome of the SIP, outlined the new business-led strategy and structure, and presented initial projections of both the restructuring costs and the trading results which the new strategy might imply.

3.40. A major proportion of management effort since then has been devoted to planning for the necessary changes and implementing the new structure. The key planning and implementation decisions have been directed towards:

- the definition of the new businesses and of a supporting sites organisation;
- the appointment of Chief Executives and senior managers to each new business/site/CHQ;
- the reallocation of every AEA employee, every AEA facility and every continuing business contract to a specific business/site/CHQ; and
- the re-examination of the business prospects of each part of AEA to validate the strategy and to provide a firm foundation for the future.

3.41. AEA considered that as its formal planning processes had focused on the new strategy, they had revealed encouraging evidence of profitable opportunities in many of its new business areas. A major theme of the business planning process was claimed to be a refocusing of marketing and business development activities away from R&D in favour of product and service provision. AEA reported that there were examples of consequential emerging opportunities in the safety and reliability and the environment markets and that the nuclear businesses were also pursuing good development prospects.

3.42. In the Revised 1989/1993 Corporate Plan produced after the SIP report AEA set itself a number of strategic goals:

- to build a number of sustainable, financially self-supporting businesses, each with a target revenue of at least £25 million per annum in the longer term;
- to reduce the existing cost base by at least £35 million by 1992/93;
- to achieve by 1992/93 profits before interest of at least £30 million per annum; and
- to acquire the necessary management and commercial skills.

3.43. AEA also set itself a target of obtaining half its total turnover (excluding DRAWMOPS) in the non-nuclear area. This required a major thrust into private sector and non-nuclear work led, generally, by some of the smaller business units. AEA also planned to increase the level of overseas turnover, projected to rise from £36.9 million in 1991/92 to £67.4 million in 1994/95.

3.44. The latest AEA Corporate Plan, sent to DEn in March 1991, is entitled 'Road to Success: Corporate Plan 1991 to 1995'. It assesses progress in terms of forward projections towards the goals discussed above. It projects substantial improvements in profitability over the period of the plan and forecasts that industrial business turnover will increase to compensate in part for reductions in nuclear business sales.

3.45. The plan includes outline four-year sales and financial projections broken down by business and sites. These are not, however, accompanied by any historical performance data against which the realism of the sales and financial projections can be assessed.

3.46. The plan provides a broad description of future activity but is very limited in its product detail and market analysis, which are assumed to be covered in plans at business level. It is therefore more appropriate as a vehicle for discussions with DEn than as an internal implementation plan, although it does provide an outline planning framework. A few key sensitivity cases are considered, for example the impact of the early closure of the PFR. There are, however, no full contingency plans for the other serious threats which AEA may face.

3.47. The plan includes an assessment of AEA's strengths, weaknesses, opportunities and threats. Although a number of serious weaknesses are identified, this analysis is not fully followed through to provide outlines of action plans to minimise the weaknesses. For example, the identified weaknesses include weak project management, limited business skills and 'too many of the wrong people'.

Planning at business level

3.48. The preparation of business plans at business and site level is integrated into the MTCP planning cycle. Comprehensive guidance is supplied by CHQ in September to businesses and sites on the areas to be covered in their plans, which are submitted to CHQ in late December. This guidance includes:

- an outline of the main topic areas to be addressed in the plans, such as the principal areas of business strategy, product and market positioning and development, cost trends, and competitor analyses;
- guidance on income to be received from other businesses and sites and pro formas to assist the agreement of intra-AEA transactions;
- the planning timetable (see Table 3.1);
- formats for the submission of financial projections;
- formats for the submission of detailed data on restructuring costs and 'line-by-line' guidance on their completion;
- guidance on manpower aspects;
- arrangements for *per diem* contracts; and
- details of Nuclear Installations Inspectorate (NII) licensing costs, corporate overheads and payments in lieu of business rates.

The guidance is circulated to the key planning staff in the businesses, sites and the CHQ team and copied to the AEM, business Chief Executives and Site Directors.

3.49. Businesses, sites and CHQ prepare their individual detailed plans to be submitted to CHQ late in December. The plan submissions are consolidated and analysed by CHQ late in December and early in January, and are evaluated against the initial framework of corporate objectives and strategy. The key features are then identified for discussion and resolution by the top management team.

3.50. As an example of the process we consider what happened in the 1990/91 planning cycle. The plan submissions from the businesses and sites were considered by CHQ to be generally encouraging, both in terms of the quality of the planning activities and with respect to the projected progress towards key business objectives. However, if they had been endorsed as they stood, these business plans would have led to a serious cash flow problem in the first year and to a breach of the EFL. Measures were therefore taken by the AEM to reduce planned cash outflows (especially on restructuring) without jeopardising overall commercial progress.

3.51. During January 1991 each business plan was reviewed in depth at the relevant business Board of Management meeting. This provided an opportunity to explore in detail how the overall changes required by the AEM could be implemented. The plans were then revised to resolve the cash flow crisis without serious damage to the commercial prospects (but at the cost of a significant worsening of the cash flow position in the following year). The AEM then endorsed the revised plans as the basis for the forthcoming budget, and for the AEA Corporate Plan to be submitted to DEn.

3.52. CHQ's own assessment for the AEM of the plans submitted by the businesses and sites acknowledged the variation in the quality and depth of the analysis, and although most plans were generally businesslike in their approach, some were distinctly sketchy. The main weaknesses tended to be in the depth

of analysis at the fundamental product-group level. It should be noted that some businesses, eg InTec, have a very large number of widely varied product groups. Few of the businesses seriously analysed the capabilities of each major competitor, or identified their own distinctive competitive competences.

3.53. Little thought was given to identifying the businesses' own management limitations (either in skills or capacity), how these should be remedied or compensated for, and how the parts of the businesses should be managed within their skills limitations. Where moves downstream into direct product and service provision were proposed, any analysis of the intended production/service delivery strategy, market positioning and the marketing strategy was very limited.

3.54. Most businesses have yet to develop a systematic analysis of their portfolio of products with a view to identifying the product/market segments with the most potential and those that should be run down or disposed of, and thereby achieving a sharp product/market focus as envisaged in the SIP report.

Emerging businesses, joint ventures and alliances

3.55. In addition to identifying four nuclear businesses and four non-nuclear businesses for AEA to concentrate on, the SIP report recommended that it should nurture a select group of emerging businesses which AEA could then add to its portfolio in the 1990s. The SIP report further recommended that AEA should create a number of independent `spin-off' businesses. Seven non-nuclear high-technology fields were suggested. In these technologies AEA's contract research had left it well positioned to develop products or services with strong growth potential. Since these products and services would draw on technologies shared with the main AEA businesses, the SIP report recommended that they should remain within AEA.

3.56. In other areas, such as power fluidics, the SIP report considered that the potential businesses should become freestanding. AEA's stake in these `spin-off' businesses could take the form of a combination of royalty payments and a share of the equity.

3.57. The AEA Corporate Plan identifies 21 existing and potential joint ventures and alliances. AEA is alert to further possibilities and envisages that between 10 and 20 per cent of its turnover could be associated with joint ventures within the next few years. Most of the potential emerging businesses and joint ventures are within InTec, which acquired any non-nuclear activity that was not appropriate elsewhere.

3.58. Many of the potential emerging businesses are also candidates to become joint ventures. Two business areas within InTec have been designated as AEA Ventures (Computational Fluid Dynamics and Power Fluidics).

3.59. AEA has recognised that suitable joint ventures and alliances may offer it the opportunity of gaining access to various combinations of industry and market knowledge, new markets, and more flexible management structures. It does, however, have limited experience of, or skills in, corporate venturing, although appropriate use is made of external consultants and professional advisers.

Conclusions and recommendations

Objectives and targets

3.60. The Secretary of State sets broad policy objectives for AEA, supplemented by specific financial targets covering the CCA rate of ROCE and the EFL. The Board members' bonus scheme is, however, related to a complex formula which includes additional single targets, some of which are not necessarily always aligned with the broad policy objectives. The setting of contract terms and programme objectives for Government-sponsored programmes requires a balance to be struck between DEn's need for value for money and AEA's ROCE target. This in turn means that DEn must assess the relative weight to be given to its two roles as AEA's sole shareholder and as its principal customer. As, in many product areas, AEA's power as a monopoly supplier is restricted by DEn's strong position as sole purchaser, this potential conflict applies to determining prices as well as to setting objectives (see Chapter 14).

3.61. The Secretary of State has encouraged AEA to set a range of internal targets for its businesses and these have included targets for their financial and sales performances and for their performance in achieving contract milestones to time and to cost. Despite some discussion of the issue between DEn and AEA it has, however, proved difficult to formulate formal targets for AEA's performance in areas such as efficiency or quality of service. We conclude that DEn has not set AEA any explicit targets for efficiency or for quality of service performance.

3.62. We recommend that DEn should ensure that the next AEA Corporate Plan includes specific, quantified, medium-term goals for AEA's efficiency and quality of service performance, together with dated short-term targets related to these goals.

3.63. A range of quantified targets is also included in the Board members' bonus scheme. These targets have been refined over the years to reflect the development of AEA and the available financial information. The majority of the targets in the 1991/92 bonus scheme are single targets related to various aspects of AEA's commercial performance which are of importance to its overall objectives and to the health of the business. An element of bonus is payable for each single target met even if other areas of performance are less satisfactory. Although there is no evidence that this has happened a bonus could be achieved by concentrating on some targets at the expense of other important factors, for example it would be possible to meet sales targets by accepting unprofitable orders or to satisfy the EFL target by increasing credit levels or underspending on essential capital expenditure. This would, however, result in the targets for the following year being more difficult to achieve. We conclude that the bonus scheme is over-simplistic in this regard as progress towards the achievement of AEA's overall objectives is dependent upon maintaining a minimum standard of performance in all areas which are important to the health of the business.

3.64. We recommend that when the Board members' bonus scheme is revised for 1993/94, any payments under the scheme should be conditional on a minimum standard of progress being made towards achieving each of the main targets in the AEA Corporate Plan. Payments should, however, be triggered only by the achievement or over-achievement of the target level of performance for each factor. We further recommend that each Board member's participation in the bonus payments should be conditional on the achievement of individual targets within his specific area of responsibility.

Product-group planning

3.65. Although some businesses develop plans for product groups, this is not formally provided for in AEA's planning cycle. As a result AEA fails to carry out adequate market and competitor analysis for some products (see Chapter 13), and to put sufficient weight on developing the best production or service delivery strategy for these products. We conclude that AEA's planning process has not so far given sufficient systematic attention to planning issues at product-group level, although we note that steps are being taken to improve this in future.

3.66. We recommend that in the next planning cycle separate product-group plans including a market appraisal, competitor analysis, marketing strategy and production/service delivery strategy should be developed for each product group (see also paragraph 13.40).

Strategic planning

3.67. Many strategic options are available within the overall framework of AEA's preferred 'Pushing the Limits' strategy. This is particularly apparent at business level. We conclude that:

- (a) although AEA has established a strategic framework, its strategy needs to be more completely defined and further analysis is required to identify the best strategic option within the broad framework of 'Pushing the Limits';
- (b) although some progress has been made, many of AEA's businesses have yet to achieve the sharp strategic focus envisaged in the SIP of May 1989; and
- (c) the business plans prepared by AEA are of variable quality although steps are being taken to improve them in the next planning cycle.

3.68. We recommend that:

- (a) in preparing its next business plan each AEA business should carry out a strategic review of the options available to it; and
- (b) as part of these strategic reviews each business should classify its product groups with a view both to taking prompt action to improve its business focus and to identifying any constraints impeding progress. Possible categories could, for example, include:
 - (i) core product areas with attractive margins to be retained for cash generation;
 - (ii) peripheral but profitable product areas to be hived off or form the basis of joint ventures;
 - (iii) low-volume product areas with limited growth potential to be closed or sold, for instance to their management teams;
 - (iv) loss-making or low-margin product areas with no potential to be closed; and
 - (v) low-volume product areas with growth potential and attractive prospective margins to be invested in as likely emerging businesses.

The AEA Corporate Plan

3.69. The AEA Corporate Plan for 1991 to 1995 contains four-year sales and financial projections, but because of the reorganisation there are no comparative data on historic performance at business or product-group level. Actual performance is not therefore reviewed against earlier plans and the milestones suggested in the SIP report. Any analysis of the market and the competitive position at product-group level is very limited. We conclude that the lack of comparative historic data and the limited market analysis at product-group level in the 1991 to 1995 AEA Corporate Plan increase the risk that the sales and financial projections may be unrealistic and have prevented AEA's actual out-turn performance from being effectively reviewed against earlier plans.

3.70. The AEA Corporate Plan identifies a number of important management weaknesses such as poor project management, limited business skills and 'too many of the wrong people'. Although training programmes are under way, these are not related in the plan to the specific weaknesses identified. The plan does not outline action programmes for recruitment to rectify these weaknesses, or modify the strategy to operate within the restrictions that they imply. We conclude that the 1991 to 1995 AEA Corporate Plan does not take sufficient account of the weaknesses that it has identified.

3.71. We recommend that in its next MTCP (or in associated documents) AEA should assess the adequacy of the action it has taken to rectify the management weaknesses identified in its 1991 to 1995 Corporate Plan, particularly in the areas of poor project management and limited business skills, and should outline appropriate further plans to close any remaining gaps in its management skills.

3.72. AEA is particularly vulnerable to changes in Government energy policy. Although the AEA Corporate Plan considers a few key sensitivity cases including the impact of the early closure of the PFR, little consideration is given to the potential effect of threats such as major changes of Government policy towards nuclear power. We conclude that some of the threats faced by AEA are sufficiently serious to require it to prepare appropriate outline contingency plans.

3.73. We recommend that in its next MTCP AEA should identify the threats which could expose it to serious financial problems, and should develop outline contingency plans accordingly, so far as is practicable.

Joint ventures and alliances

3.74. AEA's statutory powers (vires) have a significant inhibiting effect on the activities that it can undertake in the non-nuclear field. Broadly speaking AEA is not empowered to manufacture non-nuclear products or to provide routine non-nuclear services. This applies even in respect of products or services based on intellectual property rights (IPR) which AEA has itself developed.

3.75. AEA believes that forming alliances or joint venture companies could be an important part of its strategy towards developing some segments of its business. This particularly applies to the non-nuclear side, which AEA is seeking to expand to compensate for the decline in nuclear business. A number of possibilities have been identified in the AEA Corporate Plan. Because of its restrictive vires constraints, however, AEA has less flexibility in forming such joint ventures than a private sector company. Thus AEA is confined to taking minority positions which limit the extent to which it can influence the exploitation process, and the financial return it can expect. Further development of the joint venture, beyond the initial product based on AEA's IPR, could also be restricted by AEA's vires constraints. The joint venture would be prevented from diversifying its business to include second generation and complementary products. Even those joint ventures established initially for nuclear work could be affected by the constraints, for example where a nuclear company in which AEA had a majority holding wished to diversify into related non-nuclear areas.

3.76. Furthermore, AEA is subject to certain requirements for prior approval by the Secretary of State by reason of a Ministerial Direction under section 3 of the Atomic Energy Authority Act 1954. These approval requirements have been relaxed, notably in relation to minority shareholdings, but AEA considers that the remaining requirements and criteria for approval still represent an unjustified limitation on its options (particularly with regard to partnerships and other non-incorporated joint ventures). The issue is under discussion between DEn and AEA.

3.77. We conclude that:

- (a) AEA's activities in the non-nuclear field are significantly inhibited by the existence of the present limitations on its statutory powers;
- (b) the vires constraints significantly affect AEA's ability to participate in joint ventures and alliances particularly in most non-nuclear areas where it is confined to joint ventures and alliances which are necessary for the exploitation of its IPR;
- (c) these vires constraints can inhibit the further business development of joint ventures, even in the nuclear field;
- (d) it is possible that some parts of AEA's activities might be best exploited by using alliances or by AEA taking minority shareholdings in joint ventures; and
- (e) the question of AEA's vires will need to be addressed in the context of any move towards plc status (see Chapters 2 and 4).

3.78. Meanwhile we recommend that AEA should not hesitate to approach DEn to promote any specific ideas for participating in joint ventures or alliances.