

UNITED KINGDOM ATOMIC ENERGY AUTHORITY
Minutes of the 6th Board Meeting in 2016

Date: 1 December 2016

Location: Llewellyn-Smith Room, K2,
Culham Science Centre

Members present:

Roger Cashmore, Chairman
Keith Burnett
Ian Chapman
Norman Harrison
Jim Hutchins
Peter Jones
Chris Theobald

In attendance:

Stephen Axford (BIS)
Becca Holyhead (Women Onboard)
David Martin
Catherine Pridham
Maya Riddle (secretary)

Jerome Pamela, Chair of CPAC (4-5)
Joe Milnes, MAST-U Project Manager (4-5)
Andrew Kirk, MAST-U Ops Manager (4-5)
Rob Buckingham, RACE director (6-12)
Martin O'Brien, Director of New Research
Opportunities (7-9)
Mark Shannon, Programme Office Manager (7-9)
Harjit Sandu, Head of Finance (11)

Apologies:

Martin Cox

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1 Chairman's Opening Remarks

- 1.1 Roger Cashmore welcomed everyone to the meeting and informed members that Peter Jones & Keith Burnett had been reappointed for a further 1 year.
- 1.2 The Board formally endorsed Ian Chapman's appointment as CEO.

2 Minutes of the 29 September 2016 meeting

- 2.1 Members reviewed the matters arising.
- 2.2 Actions on Steve Cowley had transferred to Ian Chapman. Some actions had been delayed to the next meeting due to weight of business.
- 2.3 The Board approved the minutes of the Board meeting on 29 September 2016.

3 Board sub-committee chairs updates

30 November Board Assurance Committee

- 3.1 Chris Theobald provided highlights from the meeting, which included:
 - there was an increase in the number of unusual occurrence reports (UNORs), but this was indicative of a positive reporting culture;
 - preparations for the deuterium-tritium (DT) campaign on JET were progressing. It should be noted that DT was not in the current JET operating contract (to end of 2018);
 - attrition of key staff had been raised as a concern;
 - there had been significant improvement in completion of mandatory training;
 - there was a new waste strategy/forward plan;
 - a proposal had been made on ATO holders;
 - the committee considered cyber resilience; and
 - there had been a stand-down for safety on MAST-U, indicative of the time pressures the team was under.
- 3.2 Ian Chapman added that there would be JET experiments with trace tritium in 2018.

1 December Remuneration Committee

- 3.3 Keith Burnett provided highlights from the meeting, which included:
 - there had been a discussion on issues with recruitment and retention, in particular following the referendum decision to leave the EU;
 - IR35 regulation was expected to have a significant impact;
 - the performance review of the outgoing CEO had been agreed; and
 - the job description for a new non-executive director (to replace Peter Jones, when his term finished) had been agreed.
- 3.4 Stephen Axford asked that BEIS continued to be kept informed on staffing issues.

1 December Audit Committee

3.5 Peter Jones provided highlights from the meeting, which included:

- he was in discussion with the NDA Audit Committee chair regarding a common approach to decommissioning provisions;
- we were not always getting prompt fraud alerts from the BEIS counter fraud network; and
- a lot of the audit actions had been cleared. There were two overdue actions, but there were plans in place to close these out, which were being tracked.

Jerome Pamela joined by videoconference and Joe Milnes & Andrew Kirk joined the meeting

4 CPAC reports

4.1 Jerome Pamela said that he was extremely pleased by the transparency and quality of reports and presentations.

4.2 A sub-committee of CPAC had met on 3rd October 2016 to review MAST-U, which included a visit to the load assembly. Key points included:

- CPAC was very impressed with the quality of work, particularly given the complexity of the build;
- most of the technical risks had now been retired, but reuse of legacy equipment could present a risk. Resourcing levels and preparation of the safety case were also a concern;
- the move of the project end-point (to machine bake) and clarification of boundaries between the project and commissioning activities were welcomed. CPAC encouraged the teams to work closely together on the transition; and
- the programme for 2017 was challenging and CPAC recommended additional resource on integration.

4.3 CPAC had a full meeting on 4 & 5th October. Key points of note included:

- the strategic vision and goals for UKAEA were clear and consistent;
- CPAC advised that there be no further cuts to the tokamak science programme;
- there was a sound strategy for MRF, which was synergistic with fusion and would give a world-class facility. The business case to breakeven seemed a bit ambitious;
- the quality of the work in RACE was commended and its long-term strategy was sound. Remote handling was important for an integrated approach to fusion design;
- the strategy for business development was well developed;
- CPAC supported the IT strategy and the planned infrastructure funding;
- CPAC welcomed Oxfordshire Advanced Skills (OAS) as this was addressing a national need;
- the proposal for an integrated design activity at Culham was important for UKAEA's ambition to undertake fusion reactor design; and

- while there had been concerns about JET reliability, particularly the neutral beam injectors (NBI), the recent scientific campaign on JET was very encouraging and had broken historic NBI power records.
- 4.4 Ian Chapman informed members that MRF was not yet taking active material and that external work was expected to increase when it was fully operational.
 - 4.5 Peter Jones asked about having a person based at ITER and noted that this was an ambition.
 - 4.6 Ian Chapman drew member's attention to his proposal to extend CPAC membership.
 - 4.7 Becca Holyhead advised that women tended to respond better to open adverts.
 - 4.8 Roger Cashmore thanked Jerome for all his and CPAC's activities.
 - 4.9 The Board noted the reports and agreed the proposal to extend membership.

5 MAST-U Update presentation

- 5.1 Joe Milnes provided members with an update on the MAST-U project. Key points included:
 - the tokamak boundary was effectively complete with over 90% of the internal systems installed and the major joints had been leak tested;
 - there was still a lot to do and busy 6 months ahead;
 - dates for pump-down and bake had slipped since May;
 - the team was tired, but morale was good; and
 - most of the technical risks had been retired. Integration activities and manpower were key remaining risks;
- 5.2 Jim Hutchins asked questions about coil testing.
- 5.3 Andrew Kirk provided an overview of the MAST-U restart plans. Key points included:
 - MAST-U was effectively a new machine, so this was essentially a new start;
 - to ensure that we could start first scientific experiments as soon as possible, some commissioning activities were being undertaken in parallel with the MAST-U project;
 - Brian Lloyd had reviewed the restart and commissioning plans and made some useful suggestions; and
 - there was no contingency in the programme and lack of manpower was a key risk. To help with resourcing and knowledge transfer, it was intended to bring in some younger members of staff.
- 5.4 We would be operating MAST-U as a EUROfusion device for 10 days a year. A call had been issued for proposals and the number of requested for experimental time was 3 times that available.
- 5.5 Chris Theobald said that it was fantastic seeing the machine come together.
- 5.6 Stephen Axford asked about future users of MAST-U and noted these included UK universities, European fusion labs, Princeton & Oakridge in the US and China.

- 5.7 Ian Chapman added that the last MAST campaign ca. 70% of the experimental time was external (non-UKAEA) involving some 40 institutes.

Jerome Pamela, Joe Milnes & Andrew Kirk left and Rob Buckingham joined the meeting

6 CEO's Report

- 6.1 Ian Chapman said that the announcement, in the Autumn statement, of increased funding for science and innovation was very positive.
- 6.2 Following the referendum decision to leave the EU, there was a lot of discussion with BEIS, which was currently in information gathering mode.
- 6.3 A recommendation on our EPSRC fusion grant was going to the EPSRC Council meeting on 13 Dec. It had been reviewed by EPSRC's Science Advisory Committee.
- 6.4 The last JET campaign achieved more high power in 5 weeks than in the last 5 years. The neutron rate with the ITER-like wall had been broken, which was very positive for DT and for ITER operations.
- 6.5 Two major ITER contracts have been won by UK industry led consortia – Cask & Plug contract worth nearly €100m and the CMA contract worth ca. €174m.
- 6.6 Rob Buckingham provided an update on the Meccano project.
- 6.7 Peter Jones asked about the Science & Innovation audits and Rob Buckingham explained that regional Local Enterprise Partnerships (LEPs) were being audited to identify regional/sector specialisms. The Oxfordshire LEP had selected autonomous vehicles as one its 5 areas to be audited.
- 6.8 Stephen Axford added that the audits helped the government understand about regional strengths and provided an evidence base for investment.
- 6.9 The Board noted the report and gave its endorsement to the Meccano project.

Martin O'Brien & Mark Shannon joined the meeting

7 RACE Forward Plan

- 7.1 Rob Buckingham provided highlights from the plan for the next 4 years, which included:
- this year, 85% of RACE's income was from non-commercial/non-profit making work;
 - there were a lot of opportunities and RACE could grow significantly, but would need investment; and
 - up to 70% of the ESS project (hot cell) was expected to be outsourced to industry.
- 7.2 Catherine Pridham expressed concerns about ongoing baseline overhead funding.
- 7.3 David Martin pointed out that RACE had already been very successful in helping UK industry to win large ITER remote handling contracts.
- 7.4 Roger Cashmore reconfirmed that the priority for RACE should be on generating

profit and jobs for UK plc, but that eventually it should be self-sustaining.

- 7.5 Jim Hutchins said that it would be helpful if the Board could see a more detailed plan with the assumptions and then be kept updated with developments. It was agreed that the new non-executive directors would meet with Rob Buckingham to review the business plan in more detail.
- 7.6 Rob Buckingham also took members through his RACE to Zero presentation. A number of suggested changes to slides were made.
- 7.7 The Board noted the plan.

8 MRF Forward Plan

- 8.1 Martin O'Brien provided highlights from the plan for the next 4 years, which included:
 - MRF would operate in the space between the level of nuclear material which universities could handle and that which Sellafield could handle;
 - investment had been agreed as part of the Sir Henry Royce Institute. Further funding was expected from the National Nuclear Users Forum (NNUF);
 - CSR funding had been provided for shielded instrument rooms, which would help bring forward the start of active operations;
 - the core MRF team was being kept low to minimise fixed costs; and
 - a User's advisory panel had been set up to advise on user requirements and steer the purchase of new equipment.
- 8.2 Chris Theobald asked about the anticipated increase in income levels. Martin O'Brien explained the assumptions behind this.
- 8.3 The Board noted the plan.

9 OAS Forward Plan

- 9.1 David Martin said that OAS was not business development. The plan went beyond 4 years as there were 2 phases:
 - Phase 1 was for 25 Apprenticeships per year, rising to 48; and
 - Phase 2 was a new facility eventually catering for 125 Apprenticeships per year.
- 9.2 Phase 1 was underway and a low financial risk approach had been taken.
- 9.3 The costs for Phase 2 would be dependent on the training provider and we would need to go out to tender for this. However, a visit to Aston indicated that it could be run with at a margin, which could be reinvested back into the facility
- 9.4 Chris Theobald asked about Phase 1 and noted that this was operated by JTL.
- 9.5 Becca Holyhead asked about quality of training and noted that there were KPIs in place.
- 9.6 Jim Hutchins asked who was using OAS and noted that this year Apprentices were from UKAEA, STFC, Nuvia and Magnox.
- 9.7 Roger Cashmore concluded that the financial principles seemed sound and that the facility was good for the country.

9.8 The Board noted the plan.

Martin O'Brien & Mark Shannon left the meeting

10 BEIS Update

10.1 Stephen Axford indicated the new BEIS structure, following the merger of BIS and DECC.

10.2 The Board noted the changes.

Stephen Axford left and Harjit Sandu joined the meeting

11 Financial update

11.1 Catherine Pridham apologised for the lack of a financial report.

11.2 Harjit Sandu said that we were procuring, issuing invoices, paying suppliers and paying staff. However, there were some data quality and reporting issues with the new financial system Unit 4 Business World.

11.3 Chris Theobald asked when quality financial information was expected and noted that the issues should be resolved for the end of period 9.

11.4 Keith Burnett commended the team for implementing the new system and advised that reporting rarely worked properly from the start.

12 Any Other Business

12.1 The next Board meeting would be held on Thursday 9 February 2017.

Secretary Maya Riddle

Chairman Roger Cashmore