



Australian Government

Department of Innovation Industry, Science and Research

Funding Agreement

between the

COMMONWEALTH OF AUSTRALIA

as represented by the

**Department of Innovation, Industry, Science and Research
And**

**the Commonwealth Scientific and Industrial Research
Organisation (CSIRO)**

ABN 41 687 119 230

**As centre agent for iVEC, an unincorporated joint venture
between the CSIRO, Curtin University of Technology, Murdoch
University, Edith Cowan University and The University of
Western Australia**

regarding funding for
***the Pawsey High Performance Computing (HPC) Centre for SKA
Science-Education Investment Fund (EIF) Project***

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6 April, 2009

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Parties

COMMONWEALTH OF AUSTRALIA ('Commonwealth', 'Us', 'We' or 'Our'), represented by and acting through the Department of Innovation, Industry, Science and Research (ABN 74 599 608 295) ('Department' or 'DIISR')

AND

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) (ABN 41 687 119 230), of Limestone Avenue, Campbell in the Australian Capital Territory ('You', or 'Your'), as centre agent for iVEC, an unincorporated joint venture between the CSIRO, Curtin University of Technology, Murdoch University, Edith Cowan University and The University of Western Australia.

Note: this agreement uses a number of words which are defined in the glossary in clause 33.1. Defined terms start with a capital letter, e.g., Asset.

Purpose

- A. We and the Department of Education, Employment and Workplace Relations (DEEWR) jointly operate a Program, the Education Investment Fund ('the **Program**' or '**EIF**') which is one of the three Nation-building Funds established by the *Nation-building Funds Act 2008*. We are responsible for administering the research aspects of the EIF which include, but are not limited to, entering in to funding agreements for approved, predominantly research projects.

The Program is mentioned in Outcome 2 of the Department's Portfolio Budget Statements for the 2009-10 financial year as one of several programs contributing to the development of Australia's science and research capacity. It seeks to ensure that Australia receives the best possible return on its research infrastructure investment. A key focus will be advancing the development of a world class Australian research sector by providing support for research facilities.

- B. You are committed to helping achieve the objectives of the Program through Your conduct of the Project to create and develop the Pawsey High Performance Computing (HPC) Centre for SKA Science ('the Pawsey Centre') research infrastructure funded from the EIF.
- C. As a result of this commitment, We agree to support the Project by providing Funding to You, subject to the terms and conditions of this agreement.
- D. We are required by law to ensure accountability for public money, and You are required to be accountable for all Funds provided by Us.
- E. You agree to accept the Funding on the terms and conditions set out in this agreement.

1 Term of Agreement

- 1.1 This agreement commences on the Date of this Agreement and, unless terminated earlier, it expires on the Completion Date.

2 Project

- 2.1 You must carry out the Project:
- (a) at the times and in the manner specified in item C of schedule 1;
 - (b) within the Project Period; and
 - (c) in accordance with this agreement (and any applicable Guidelines), diligently, effectively and to a high professional standard.

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- 2.2 The Funding must be expended by You only for the Project.
- 2.3 Where an Asset is wholly purchased or created with the Funds, You must notify Us if You intend to accept funding for the purchase or creation of that Asset under any other program of Ours and obtain Our prior approval of such additional funding, whether that program is administered by this Department or by any other Commonwealth agency.
- 2.4 Where an Asset is partly purchased or created with the Funds, You must notify Us if You intend to accept funding for the purchase or creation of that portion of the Asset under any other program of Ours and obtain Our prior approval of such additional funding, whether that program is administered by this Department or by another Commonwealth agency.
- 2.5 If, contrary to clause 2.3 or 2.4, You receive funding for any Asset under any other program of Ours, You must immediately notify Us, of such funding, including the amount that You have received.
- 2.6 We are not responsible for the provision of additional money to meet any expenditure in excess of the Funds.

3 Funding

- 3.1 Subject to sufficient funds being available for the Program, and compliance by You with this agreement (including the invoicing requirements, if any, specified in item E of schedule 1), We will provide You with the Funding at the times and in the manner specified in item AA of schedule 2.
- 3.2 Without limiting Our rights, We may withhold or suspend any payment in whole or in part if:
- (a) You have not performed Your obligations under this agreement; or
 - (b) You have outstanding or unacquitted money under any arrangement (whether contractual or statutory) with Us; or
 - (c) Contrary to clause 2.3 or 2.4, You receive any funding for any Asset under any other program of Ours without Our prior approval, in particular, We may withhold or suspend that part of the payment equal to the amount of the other funding.
- 3.3 If We exercise Our rights under clause 3.2, You must continue to perform Your obligations under this agreement, unless We agree otherwise in writing.
- 3.4 Without limiting clause 3.2, if, contrary to clause 2.3 or 2.4, You receive funding for any Asset under any other program of Ours, We may reduce the Funding by the amount of the funding that You have received under that other program, or take any other action permitted under this agreement.
- 3.5 Unless otherwise indicated, You agree to pay all taxes, duties and government charges imposed or levied in Australia or overseas in connection with the performance of this agreement.
- 3.6 Unless otherwise indicated, any consideration for a supply made under this agreement is exclusive of any GST imposed on the supply.
- 3.7 If one party (the supplier) makes a taxable supply to the other party (the recipient) under this agreement, on receipt of a tax invoice from the supplier, the recipient will pay without setoff an additional amount to the supplier equal to the GST imposed on the supply in question.

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- 3.8 No party may claim or retain from the other party any amount in relation to a supply made under this agreement for which the first party can obtain an input tax credit or decreasing adjustment.
- 3.9 On the basis that the Funds paid under the agreement are of a funding nature, are paid to a 'government related entity' for GST purposes, are sourced from an appropriation, and are to be used for the purposes stated in this agreement, the parties rely on GSTR 2006/11 for the Funding not being consideration for any supply and for no GST being imposed by reference to them.

4 Management of Funding

4.1 You must:

- (a) ensure that the Funds are held in an account in Your name, and which You solely control, with a bank or credit union carrying on banking business in Australia;
- (b) if specified in item F of schedule 1, this must be an account which is:
 - i. established solely to account for and administer, Funding provided by Us to You under this agreement; and
 - ii. separate from Your other operational accounts;
- (c) on request from Us, provide Us and the authorised deposit-taking institution with an authority for Us to obtain all details relating to any use of the account;
- (d) identify the receipt and expenditure of the Funds separately within Your accounting Records so that at all times the Funds are identifiable and ascertainable.

4.2 You must keep financial Records relating to the Project to enable:

- (a) all income and expenditure related to the Project to be identified in Your accounts;
- (b) the preparation of financial statements in accordance with Australian Accounting Standards; and
- (c) the audit of those Records in accordance with Australian Auditing Standards.

4.3 You must not use the Funds:

- (a) as security to obtain, or comply with, any form of loan, credit, payment or other interest; or
- (b) for the preparation of, or in the course of, any litigation.

4.4 You must spend the Funds only in accordance with the budget set out in item C.3 of schedule 1, unless you have obtained Our prior written approval.

5 Repayment of Funding

5.1 If:

- (a) at any time, an overpayment occurs, including where an invoice is found to have been incorrectly rendered after payment; or
- (b) at the Completion Date some or all of the Funding has not been:
 - i. spent in accordance with this agreement; or
 - ii. acquitted to Our satisfaction,

then this amount must be repaid to Us within 20 business days of a written notice from Us, or dealt with as directed in writing by Us.

5.2 An overpayment may be recovered from You, including by offsetting that overpayment against any amount subsequently due to You under this agreement or any other arrangement between You and Us or between You and the Commonwealth generally.

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- 5.3 Any amount owed to Us under clause 5.1 is recoverable by Us as a debt due to Us by You without further proof of the debt by Us.
- 5.4 An adjustment note must be provided to Us if required by the GST Act, including where You repay some or all of the Funding to Us.

6 Acknowledgment and Publicity

- 6.1 You must, in all publications, promotional and advertising materials, public announcements and activities by You or on Your behalf in relation to the Project acknowledge the financial and other support You have received from Us, in the manner set out in item G of schedule 1.
- 6.2 We reserve the right to publicise and report on the awarding of Funding to You, including the amount of the Funds given to You and the title and a brief description of the Project.
- 6.3 You must invite the Minister and/or any other person nominated by the Minister to take part in any significant promotional event held by You or any subcontractor. This may include allowing the Minister or any other person nominated by the Minister to speak at, or play any role (including an integral role) in the relevant promotional event.

7 Subcontracting

- 7.1 You must not, without Our prior written approval, subcontract the performance of any obligations under this agreement. In giving Our approval, We may impose terms and conditions as We think fit.
- 7.2 The subcontractors We have approved at the Date of this agreement, and any terms and conditions relating to their use, are identified in item H of schedule 1.
- 7.3 You are fully responsible for the performance of Your obligations under this agreement, even if You may subcontract some or all of Your obligations.
- 7.4 Despite any approval given by Us under clause 7.1, You are responsible for ensuring the suitability of a subcontractor for the work proposed to be carried out and for ensuring that the work meets the requirements of this agreement.
- 7.5 We may revoke Our approval of a subcontractor on any reasonable ground by giving written notice to You. On receipt of the notice You must, at Your own cost, promptly cease using that subcontractor and, if requested by Us, arrange their replacement with personnel or another subcontractor acceptable to Us.
- 7.6 If We withdraw Our approval of a subcontractor, You remain liable under this agreement for the past acts or omissions of Your subcontractors as if they were current subcontractors.
- 7.7 You must not enter into a subcontract under this agreement with a subcontractor named by the Director of the Equal Opportunity for Women in the Workplace Agency as an employer currently not complying with the *Equal Opportunity for Women in the Workplace Act 1999*.

7A Joint Venture or Consortium Arrangement

- 7A.1 Subject to clause 7A.2, You must not, without Our prior written approval, enter into a joint venture or consortium arrangement whereby a third party other than those Project Participants approved by Us at the Date of this agreement performs any of the obligations under this agreement. In giving approval, We may impose terms and conditions as We think fit.

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- 7A.2 The Project Participants that We have approved at the Date of this agreement are identified in item HA of schedule 1. Our approval is given subject to You entering into a legally binding, written Participant's Agreement which is acceptable to us with each of those Project Participants for the purposes of implementing an arrangement contemplated by this clause 7A.
- 7A.3 The Participant's Agreement must contain terms and conditions which ensure the Project Participants comply with those obligations under this agreement identified in item HA of Schedule 1. The Participant's Agreement must also provide for the nomination by the Project Participants of those individuals who are to form the Project Steering Committee and who are authorised by the Project Participants to work with Us and with You to complete the Project.
- 7A.4 You are fully responsible for the performance of Your obligations under this agreement, even if You enter into a Participant's Agreement.
- 7A.5 Despite any approval given by Us under clause 7A.1 and 7A.2, You are responsible for consulting with the Project Steering Committee to ensure the suitability of a Project Participant for the activities proposed to be carried out by the Project Participant, as specified in the Project Plan, and for ensuring that those activities, as carried out, meet the requirements of this agreement.
- 7A.6 You must notify us immediately if any Project Participant is no longer able or is unwilling to carry out the activities which the Project Participant had undertaken to carry out for the Project or is otherwise in breach of the any obligation under any Participant's Agreement ('Participant in Breach').
- 7A.7 We may, by giving written notice to You, revoke Our approval of any Project Participant ('Participant in Breach') that breaches any obligation under the Participant's Agreement. On receipt of the notice, You must promptly cease using that Project Participant for the performance of any obligation under this agreement, and, if requested by Us, consult with the Project Steering Committee to arrange for replacement of the Participant in Breach with personnel or another participant acceptable to Us for the purposes of carrying out any obligation under this agreement that was not carried out by the Participant in Breach under the Participants Agreement.
- 7A.8 If We withdraw Our approval of a Project Participant, You remain liable under this agreement for the past acts or omissions of that Project Participant as if it were a current Project Participant.
- 7A.9 You must not enter into a joint venture or consortium arrangement under this agreement with a Project Participant named by the Director of the Equal Opportunity for Women in the Workplace Agency as an employer currently not complying with the *Equal Opportunity for Women in the Workplace Act 1999*.

8 Specified Personnel

- 8.1 You must ensure that the Specified Personnel, if any, listed in item I.1 of Schedule 1 undertake activities on the Project in accordance with the terms of this agreement.
- 8.2 Where Specified Personnel are unable to undertake activities on the Project, You must notify Us immediately. If requested by Us, You must provide replacement personnel acceptable to Us without additional payment and at the earliest reasonable opportunity.

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- 8.3 We may give notice on reasonable grounds related to performance of the Project requiring You to remove personnel (including Specified Personnel) from work on the Project. You must, at Your own cost, promptly arrange for the removal of the personnel from work on the Project and their replacement with personnel acceptable to Us.
- 8.4 If You are unable to provide acceptable replacement personnel, We may terminate this agreement under clause 28.

9 Assets

- 9.1 You must ensure that the Funding is not used to purchase or create any Asset, or any portion of an Asset, apart from those detailed in item J of schedule 1, without Our prior written approval.
- 9.2 Assets are owned in accordance with Item J.1 of schedule 1.
- 9.3 During the Project Period and for a period of at least **three (3) years** following the Commissioning Date for each Asset You must ensure that the owner of each Asset:
- (a) uses the Asset in accordance with this agreement and for the purposes of the Project;
 - (b) does not encumber or dispose of the Asset, or deal with or use the Asset, other than in accordance with this clause 9, without Our prior written approval;
 - (c) safeguards the Asset against theft, loss, damage, or unauthorised use;
 - (d) maintains the Asset in good working order;
 - (e) maintains all appropriate insurances for the Asset to their full replacement value, and provides satisfactory evidence of this on request from Us;
 - (f) if required by law, maintains registration and licensing of the Asset;
 - (g) is fully responsible for, and bears all risks relating to, the use or disposal of the Asset;
 - (h) if specified in item J of schedule 1, includes the Asset on an Assets register. You must:
 - i. maintain the register in the form and containing the details as described in item J of schedule 1; and
 - ii. provide Us with a copy of the register, as and when requested;
- 9.4 We may require You to pay to Us a proportion of the market value of an Asset which is equal to the proportion that Our contribution bears to the purchase of the Asset:
- (a) if You or the owner of the Asset sells or otherwise disposes of the Asset during the Project Period (which must be with Our prior written consent and subject to any conditions We may impose);
 - (b) if We reduce the scope of this agreement under clause 27 and the Asset is not required for the continuation of work referred to in clause 27.2(c); or
 - (c) on termination of this agreement before the end of the period specified in item D of schedule 1.
- 9.5 If You fail to make payment as required by clause 9.4, within 20 business days of receiving written notice from Us then
- (a) the amount are recoverable by Us as a debt due to Us by You.
- 9.6 If any Asset is lost, damaged or destroyed, You must, unless We first agree otherwise in writing, ensure that the owner of the Asset reinstates the Asset, including use of the proceeds of insurance, and this clause 9 continues to apply to the reinstated Asset. Any surplus from the proceeds of the insurance must be notified to Us and used and accounted for as Funding under this agreement.
- 9.7 We may require the owner of an Asset to deal with the Asset as agreed in writing with Us:
- (a) if We reduce the scope of this agreement under clause 27; or

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- (b) on termination of this agreement before the end of the period specified in item D of schedule 1.

9.8 On completion of the Project We may, at Our sole discretion, require by direction in writing that the owner of an Asset makes the Asset available for inclusion in any subsequent agreement supporting the Pawsey Centre.

10 Insurance

10.1 You must, for as long as any obligations remain in connection with the Project, have insurance as specified in item K of schedule 1.

10.2 When requested, You must provide Us, within 10 business days of the request, with evidence satisfactory to Us that You have complied with Your obligation to insure.

11 Liaison and Monitoring

11.1 You must:

- (a) liaise with and provide information to the Program Delegate, or a person nominated by the Program Delegate, as reasonably required by the Program Delegate;
- (b) comply with all reasonable requests, directions, or monitoring requirements received from the Program Delegate; and
- (c) liaise and cooperate with and assist Us in any review or other evaluation that We undertake during the term of this agreement and two years after the Completion Date.

12 Reporting

12.1 You must provide to Us the Reports at the times and in the manner stated in item L of schedule 1 of Your progress in undertaking the Project.

12.2 You must provide Us with:

- (a) a certificate that all Funding received was expended for the Project and in accordance with this agreement;
- (b) an audited detailed statement of income and expenditure in respect of the Funding, which must include a definitive statement as to whether the financial accounts are true and fair, and a statement of the balance of Your account referred to in clause 4.1;
- (c) an audit statement that the Funding was expended for the Project and in accordance with this agreement.

12.3 The certificate referred to in clause 12.2(a) and the audits referred to in clause 12.2(b) and (c) must:

- (a) contain the details, if any, described in item L of schedule 1;
- (b) be provided to the Program Delegate within one month (or other period specified in item L of schedule 1) of the end of the Project Period; and
- (c) at the other times specified in item L of schedule 1, if any.

12.4 The certificate referred to in clause 12.2(a) must be provided by the person specified in item L of schedule 1 or, if no person is specified, by Your Chief Financial Officer, chief internal auditor or authorised delegate of the Chief Executive Officer.

12.5 Subject to clause 12.6, the audits referred to in clause 12.2(b) and (c) must:

- (a) comply with the Australian Auditing Standards; and
- (b) be carried out by a person who is:

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- i. registered as a company auditor under the *Corporations Act 2001*, or a member of the Institute of Chartered Accountants in Australia, or of CPA Australia or the National Institute of Accountants; and
- ii. not a principal, member, shareholder, officer or employee of You (Your holding company or a subsidiary of You or Your holding company).

12.6 If You are audited by the Auditor-General or a State or Territory Auditor-General:

- (a) for the entire term of this agreement; and
- (b) the Funding is included in the income and expenditure which is subject to the audit,

then, instead of the certificate and audits referred to in clause 12.2, You may provide Us with:

- i. a detailed statement of income and expenditure for the Funding, which must include a definitive statement as to whether the financial accounts are true and fair, and a statement of the balance of the Funding held by You referred to in clause 4.1; and
- ii. a statement that the Funding was expended for the Project and in accordance with this agreement.

12.7 The statements referred to in clause 12.6(i) and (ii) must

- (a) be certified by:
 - i. Your Chief Financial Officer or an authorised delegate of the Chief Executive Officer; and
 - ii. the senior executive officer employed by You who has primary responsibility for managing Your audit functions; and
- (b) be delivered at the times and in the manner specified in clause 12.3.

13 Commonwealth Material

13.1 Ownership of all Commonwealth Material, including Intellectual Property Rights in that Material, remains vested at all times in Us but We grant You a licence to use, copy and reproduce that Material only for the purposes of this agreement and in accordance with any conditions or restrictions specified in item M of schedule 1.

13.2 You must keep safely and maintain Commonwealth Material You have been given for the purposes of this agreement.

13.3 You may retain all Commonwealth Material remaining in Your possession at the end of this agreement, unless otherwise specified in item M or item O of schedule 1.

14 Project Material

14.1 Subject to this clause 14, ownership and Intellectual Property Rights in Project Material vest immediately in You.

14.2 You grant to Us a permanent, irrevocable, free, world wide, non-exclusive licence (including a right of sub licence) to use, reproduce, adapt and exploit the Project Material for any non-commercial purpose.

14.3 If a third party has Intellectual Property Rights in existing Material incorporated or supplied with Reports or the Pawsey Centre Annual Business Plans, You must arrange for the grant to Us of a licence in the same terms as set out in clause 14.2.

14.4 You must, if requested by Us to do so, bring into existence, sign, execute or otherwise deal with any document which may be necessary or desirable to give effect to this clause 14.

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14.5 You warrant that You are entitled, or will be entitled at the relevant time, to deal with the Intellectual Property Rights in the Reports and the Pawsey Centre Annual Business Plans in accordance with this clause 14;

14.6 You agree:

- (a) to use reasonable endeavours to obtain from each Author (other than You) of any Report or the Pawsey Centre Annual Business Plan, a written consent to the performance of the Specified Acts (whether occurring before or after the consent is given) by Us or any person licensed by Us to use, reproduce, adapt and exploit the applicable Report or the Pawsey Centre Annual Business Plan;
- (b) upon request, to provide the executed original of each consent to Us; and
- (c) To notify Us of any Author (and the Author's employer, if any) from whom You are unable to obtain consent.

14.7 If requested by Us, You must provide Us with a copy of the Project Material in the form requested by Us.

15 Disclosure of Information

15.1 Subject to clause 15.5,

- (a) You must not, without Our prior written approval, disclose any of Our Confidential Information to a third party; and
- (b) We must not, without Your prior written approval, disclose any of Your Confidential Information to a third party.

15.2 In giving written approval to disclosure, a party may impose conditions as it thinks fit, and the other party agrees to comply with the conditions.

15.3 We may at any time require You to arrange for any person engaged in, or in relation to, the performance or management of this agreement to give written undertakings, in a form required by Us, relating to the non-disclosure of Our Confidential Information.

15.4 If You receive a request under clause 15.3, You must promptly arrange for all undertakings to be given.

15.5 The obligations on the parties under this clause 15 will not be breached if information:

- (a) is disclosed to the responsible Ministers;
- (b) is disclosed in response to a request by a House or a Committee of the Parliament of the Commonwealth of Australia;
- (c) is authorised or required by law to be disclosed; or
- (d) is in the public domain otherwise than due to a breach of this clause 15.

15.6 Nothing in this clause 15 limits Your obligations under clause 16 or clause 18.

16 Protection of Personal Information

16.1 You agree:

- (a) to comply with the Information Privacy Principles when doing any act or engaging in any practice in relation to Personal Information for the purposes of this agreement; and
- (b) to deal with Personal Information received, created or held by You for the purposes of this agreement only to fulfil Your obligations under this agreement and in accordance with any conditions or restrictions specified in item P of schedule 1.

16.2 An act done or a practice engaged in by You or a subcontractor to meet (directly or indirectly) an obligation under this agreement:

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- (a) is authorised by this clause 16 for the purposes of sub-sections 6A(2) and 6B(2) of the Privacy Act even if the act or practice is inconsistent with a National Privacy Principle or an approved privacy code (as defined in the Privacy Act) that applies to You or the subcontractor; but
- (b) is subject to the other obligations in this agreement including this clause 16.

16.3 In this clause 16, "received" includes "collected".

17 Records

- 17.1 You must make full and accurate Records of the conduct of the Project including progress against the Milestones (if any), the receipt and use of Funding, the acquisition of Assets and the creation of Intellectual Property Rights in Project Material.
- 17.2 Subject to Your obligations under clause 16, Records must be retained by You for 7 years after the end of the Project Period.

18 Access to Premises and Records

- 18.1 You must at all reasonable times give the Auditor-General, the Privacy Commissioner, the Program Delegate, or any person authorised in writing by the Secretary:
- (a) reasonable access to:
 - i. Your employees;
 - ii. premises occupied by You;
 - iii. documents and records; and
 - (b) reasonable assistance to:
 - i. inspect the performance of the Project;
 - ii. to locate and inspect documents and records;
 - iii. make copies of documents and records and remove those copies, relevant to the Project.
- 18.2 The rights referred to in clause 18.1 are subject to:
- (a) the provision of reasonable prior notice to You; and
 - (b) Your reasonable security procedures.
- 18.3 If a matter is being investigated which, in the opinion of any person authorised in writing by the Secretary, may involve an actual or apprehended breach of the law, clause 18.2(a) will not apply.
- 18.4 The requirement for access specified in clause 18.1 does not in any way reduce Your responsibility to perform Your obligations under this agreement.

19 Indemnity

- 19.1 You agree to indemnify Us against any:
- (a) loss or liability incurred by Us;
 - (b) loss of or damage to Our property; or
 - (c) loss or expense incurred by Us in dealing with any claim against Us, including reasonable legal costs and expenses on a solicitor/own client basis and the cost of resources used or disbursements paid by Us,
- as a result of:
- i. any act or omission by You, or any of Your employees, agents, Project Participants or subcontractors in connection with this agreement, where there was fault on the part of the person whose conduct gave rise to that liability, loss, damage, or expense;

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- ii. any material breach by You or any of Your employees, agents, Project Participants or subcontractors of obligations or warranties under this agreement;
- iii. any use or disclosure by You, Your officers, employees, agents, Project Participants or subcontractors of Personal Information held or controlled in connection with this agreement; or
- iv. the use by Us of the Reports or the Pawsey Centre Annual Business Plans, including any claims by third parties about the ownership or right to use Intellectual Property Rights (including moral rights) in Project Material.

19.2 Your liability to indemnify Us under this clause 19 will be reduced proportionately to the extent that any fault on Our part contributed to the relevant loss, damage, expense, or liability.

19.3 Our right to be indemnified under this clause 19 is in addition to, and not exclusive of, any other right, power, or remedy provided by law, but We are not entitled to be compensated in excess of the amount of the relevant loss, damage, expense or liability.

19.4 In this clause 19, "fault" means any negligent or unlawful act or omission or wilful misconduct.

20 Conflict of Interest

20.1 You warrant that, to the best of Your knowledge after making reasonable inquiries, at the Date of this agreement no Conflict exists or is likely to arise in the performance of Your obligations under this agreement.

20.2 If during the term of this agreement, a Conflict arises, or is likely to arise, You must:

- (a) immediately notify Us in writing of that Conflict and of the steps You propose to take to resolve or otherwise deal with the Conflict;
- (b) make full disclosure to Us of all relevant information relating to the Conflict; and
- (c) take steps as We may, if We choose to, reasonably require to resolve or otherwise deal with that Conflict.

20.3 If You fail to notify Us under this clause 20, or are unable or unwilling to resolve or deal with the Conflict as required, We may terminate this agreement under clause 28.

21 Negation of Employment, Partnership and Agency

21.1 You will not, by virtue of this agreement, be or for any purpose be deemed to be Our employees, partners or agents.

21.2 You must not represent Yourself, and must ensure that Your employees, partners, agents or sub-contractors do not represent themselves, as being Our employees, partners or agents.

22 Entire Agreement, Variation and Severance

22.1 This agreement records the entire agreement between the parties in relation to its subject matter.

22.2 Except for action We are expressly authorised to take elsewhere in this agreement, no variation of this agreement is binding unless it is agreed in writing and signed by the parties.

22.3 If a court or tribunal says any provision of this agreement has no effect or interprets a provision to reduce an obligation or right, this does not invalidate, or restrict the operation of, any other provision.

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23 Waiver

- 23.1 If either party does not exercise (or delays in exercising) any rights under this agreement, that failure or delay does not operate as a waiver of those rights.
- 23.2 A waiver by either party of any rights does not prevent the further exercise of any right.
- 23.3 Waiver of any provision of, or right under, this agreement:
- (a) must be in writing signed by the party entitled to the benefit of that provision or right; and
 - (b) is effective only to the extent set out in the written waiver.
- 23.4 In this clause 23, 'rights' means rights or remedies provided by this agreement or at law.

24 Assignment and Novation

- 24.1 You must not assign Your rights under this agreement without prior written approval from Us.
- 24.2 You agree not to negotiate with any other person to enter into an arrangement that will require novation of this agreement without first consulting Us.

25 Incorporation

- 25.1 If You are a body corporate, You warrant that Your constitution is not inconsistent with this agreement.
- 25.2 You must notify Us if You intend to amend Your constitution in a way which affects Your ability to comply with this agreement.
- 25.3 If You alter Your constitution in a way which affects Your ability to comply with this agreement, We may terminate this agreement under clause 28.

26 Dispute Resolution

- 26.1 Subject to clause 26.3, the parties agree not to commence any legal proceedings in respect of any dispute arising under this agreement, which cannot be resolved by informal discussion, until the procedure provided by this clause 26 has been used.
- 26.2 The parties agree that any dispute arising during the course of this agreement is dealt with as follows:
- (a) the party claiming that there is a dispute will send the other party a written notice setting out the nature of the dispute;
 - (b) the parties will try to resolve the dispute through direct negotiation by persons who they have given authority to resolve the dispute;
 - (c) the parties have 10 business days from the receipt of the notice to reach a resolution or to agree that the dispute is to be submitted to mediation or some alternative dispute resolution procedure; and
- if:
- i. there is no resolution of the dispute;
 - ii. there is no agreement on submission of the dispute to mediation or some alternative dispute resolution procedure; or
 - iii. there is a submission to mediation or some other form of alternative dispute resolution procedure, but there is no resolution within 15 business days of the submission, or extended time as the parties may agree in writing before the expiration of the 15 business days,
- then, either party may commence legal proceedings.

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26.3 This clause 26 does not apply if:

- (a) either party commences legal proceedings for urgent interlocutory relief;
- (b) action is taken by Us under clauses 5, 18, 27 or 28; or
- (c) an authority of the Commonwealth, a State or Territory is investigating a breach or suspected breach of the law by You.

26.4 Despite the existence of a dispute, both parties must (unless requested in writing by the other party not to do so) continue to perform obligations under this agreement.

27 Termination With Costs and Reduction

27.1 We may, at any time by written notice to You, terminate this agreement in whole or reduce the scope of this agreement without prejudice to the rights, liabilities, or obligations of either party accruing prior to the date of termination. If this agreement is terminated or reduced in scope We will only be liable for:

- (a) payments under the payment provisions of this agreement that were due before the effective date of termination; and
- (b) subject to clauses 27.3 and 27.4, any reasonable costs incurred by You and directly attributable to the termination or partial termination of this agreement.

27.2 Upon receipt of a notice of termination or reduction in scope You must:

- (a) stop work as specified in the notice;
- (b) take all available steps to minimise loss resulting from that termination and to protect Commonwealth Material and Project Material; and
- (c) continue work on any part of the Project not affected by the notice.

27.3 If there is a reduction in scope of the obligations under this agreement, Our liability to pay any part of the Funding will, in the absence of agreement to the contrary, abate proportionately to the reduction in the obligations under this agreement.

27.4 We will not be liable to pay compensation for loss of prospective profits for a termination or reduction in scope under this clause 27 or loss of any benefits that would have been conferred on You had the termination or reduction not occurred.

28 Termination For Default

28.1 We may immediately terminate this agreement by giving written notice to You of the termination if:

- (a) We are satisfied that any statement made in the Pawsey Centre Project Plan or Final Pawsey Centre Project Plan was incorrect, incomplete, false or misleading in a way which may have affected:
 - i. the terms and conditions of this agreement; or
 - ii. action taken by Us under this agreement;
- (b) You fail to fulfil, or are in breach of any of Your obligations under this agreement (including but not limited to Your obligations under clauses 12, 20 and 25, and achievement of the Milestones), and You do not rectify the omission or breach within 20 business days (or such longer period of time as We and You may agree) of receiving a notice in writing from Us to do so;
- (c) You are unable to pay all Your debts when they become due;
- (d) if You are an incorporated body:
 - i. You fail to comply with a statutory demand within the meaning of section 459F of the *Corporations Act 2001*;

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- ii. proceedings are initiated to obtain an order for Your winding up or any shareholder, member or director convenes a meeting to consider a resolution for Your winding up;
 - iii. You come under one of the forms of external administration referred to in Chapter 5 of the *Corporations Act 2001* or equivalent provisions in other legislation, or an order has been made to place You under external administration; or
 - iv. notice is served on You or proceedings are taken to cancel Your incorporation or registration or to dissolve You as a legal entity;
- (e) if You are an individual, You become bankrupt or enter into a scheme of arrangement with creditors; or
- (f) You cease to carry on a business relevant to the performance of the Project.

28.2 Termination under clause 28.1 does not affect the other accrued rights of the parties as at the date of termination.

29 Compliance With Laws and Our Policies

29.1 You must, in carrying out Your obligations under this agreement, comply with:

- (g) all relevant statutes, regulations, by-laws and requirements of any Commonwealth, State, Territory or local authority; and
- (h) any of Our policies notified by Us to You in writing, including those listed in item Q of schedule 1.

29.2 The National Code of Practice for the Construction Industry, in accordance with the Australian Government Implementation Guidelines for the National Code of Practice for the Construction Industry, reissued June 2006, applies to this project.

29.3 In these clauses 29.2 - 29.15:

Code	means the National Code of Practice for the Construction Industry 1997, a copy of which can be downloaded from www.deewr.gov.au/building .
Guidelines	means the Australian Government Implementation Guidelines for National Code of Practice for the Construction Industry, August 2009, a copy of which can be downloaded from www.deewr.gov.au/building .
Project Parties	means all contractors, subcontractors, consultants and employees who perform on-site work in relation to the Project.

29.4 Where the Funding specifically relates to building and construction activity, subject to the thresholds specified in the Guidelines, You must comply and ensure that the Project Parties comply with the Code and Guidelines.

29.5 The Guidelines require You to ensure that:

- (i) all requests for tender, expressions of interest, submissions and invitations to join Common Use Arrangements in relation to the Project made by You or any of the Project Parties contain the commitment to apply the Code and Guidelines as set out in the model tender documents available at: <http://www.workplace.gov.au/workplace/Organisation/Industry/BuildingConstruction/Forindustry.htm>; and
- (j) all contracts entered into in relation to the Project by You or any of the Project Parties contain the commitment to apply the Code and Guidelines as set out in the model

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contract clauses available at:

<http://www.workplace.gov.au/workplace/Organisation/Industry/BuildingConstruction/Forindustry.htm>.

29.6 You must maintain adequate records of compliance by You and each of the Project Parties with the Code and the Guidelines. You must permit the Commonwealth or any person authorised by the Commonwealth, including a person occupying a position in the Office of the Australian Building and Construction Commissioner, full access to Your and the Project Parties premises and records to:

- 1) inspect any work, material, machinery, appliance, article or facility;
- 2) inspect and copy any record relevant to the Project and works governed by this agreement;
- 3) interview any person,

as is necessary to monitor compliance with the Code and the Guidelines.

Additionally, You undertake that You and each of the Project Parties will agree to a request from the Commonwealth, including a person occupying a position in the Office of the Australian Building and Construction Commissioner, to produce a specified document within a specified period, in person, by fax, or by post.

29.7 The Commonwealth and those authorised by it may publish or otherwise disclose information in relation to compliance by the You and the Project Parties with the Code and the Guidelines. You must obtain the consent of the Project Parties to the publication or disclosure of information under this clause.

29.8 While acknowledging that value for money is the core principle underpinning decisions on Government procurement, when issuing tenders You may preference contractors, subcontractors and consultants that have a demonstrated commitment to:

- 1) adding and/or retaining trainees and apprentices;
- 2) increasing the participation of women in all aspects of the industry; or
- 3) promoting employment and training opportunities for Indigenous Australians in regions where significant indigenous populations exist.

29.9 You must not appoint a contractor, subcontractor or consultant in relation to the Project where:

- 1) the appointment would breach a sanction imposed by the Minister for Employment and Workplace Relations; or
- 2) the contractor, subcontractor or consultant has had a judicial decision against them relation to employee entitlements, not including decision under appeal, and has not paid the claim.

29.10 You must ensure that:

- (a) all requests for tender in relation to the Project made by You or any of the Project Parties contain the commitment to apply the Code and Industry Guidelines as set out in the document entitled 'Model Tender and Contract Documentation for Government departments, agencies and CAC Act bodies', a copy of which appears at <http://www.abcc.gov.au/abcc/NationalCode/>
- (b) all contracts entered into in relation to the Project by You or any of the Project Parties contain the commitment to apply the Code and Implementation Guidelines as set out in the document referred to in clause 29.10(a).

29.11 You must maintain adequate records of Your compliance, and that of each of the Project Parties, with the Code and the Industry Guidelines. You must permit Us and those authorised by Us, including a person occupying a position in the Office of the Australian Building and

Construction Commissioner, full access to Your premises and records, and those of the Project Parties, to:

- (k) inspect any work, material, machinery, appliance, article or facility;
- (l) inspect and copy any record relevant to the Project and Works governed by this agreement;
- (m) interview any person; or
- (n) request You or any Project Party to produce a specified document within a specified period, being not less than 14 days in person, by fax or by post,

as is necessary to allow validation of progress by You and the Project Parties in complying with the Code and the Industry Guidelines.

29.12 We and those authorised by Us may publish or otherwise disclose information in relation to compliance by You and the Project Parties with the Code and the Industry Guidelines. You must obtain the consent of the Project Parties to the publication or disclosure of information under this clause.

29.13 You must not appoint a Project Party if that appointment would constitute a breach of a sanction for a failure to comply with the Code.

29.14 In clauses 29.14 to 29.15:

- (o) BCII Act means the Building and Construction Industry Improvement Act 2005; and
- (p) Building Work has the meaning given to it by section 5 of the BCII Act; and
- (q) Scheme means the Australian Government Building and Construction OHS Accreditation Scheme established by the BCII Act.

29.15 Subject to the exclusions specified in the Building and Construction Industry Improvement (Accreditation Scheme) Regulations 2005, You must ensure that all of Your subcontracts valued at \$3 million or more and requiring Building Work related to the Project:

- (r) are notified to the Office of the Federal Safety Commissioner at the earliest possible opportunity; and
- (s) contains a requirement that the contractor:
 - i. is accredited under the Scheme;
 - ii. maintains Scheme accreditation for the life of the contract; and
 - iii. must comply with all conditions of the Scheme accreditation.

30 Applicable Law and Jurisdiction

30.1 The laws of the Australian Capital Territory apply to the interpretation of this agreement.

30.2 The parties agree to submit to the non-exclusive jurisdiction of the courts of the Australian Capital Territory in respect to any dispute under this agreement.

31 Notices

31.1 A party giving notice under this agreement must do so in writing or by Electronic Communication:

- (a) if given by You, marked for the attention of the Program Delegate specified in item BB of schedule 2; or
 - (b) if given by Us, marked for the attention of the person specified in item R of schedule 1,
- and hand delivered or sent by pre-paid post or Electronic Communication to the address specified in the schedule.

31.2 A notice given under clause 31.1 is taken to be received:

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- (a) if hand delivered, on delivery;
- (b) if sent by pre-paid post, 5 business days after the date of posting; or
- (c) if sent by Electronic Communication, at the time that would be the time of receipt under the *Electronic Transactions Act 1999* if a notice was being given under a law of the Commonwealth.

32 Survival of Clauses

- 32.1 These clauses survive the expiration or earlier termination of this agreement: 4, 5, 9, 11, 12, 13, 14, 15, 16, 17, 18 and 19.
- 32.2 Clauses 6 and 18 apply during this agreement and for 7 years from the end of this agreement.

33 Interpretation

- 33.1 In this agreement, unless the contrary intention appears:

'ABN' has the same meaning as it has in section 41 of the *A New Tax System (Australian Business Number) Act 1999*;

'Annual Report' means documents to be provided to Us on an annual basis as stipulated in item L of schedule 1, and described in Attachment C.

'Asset' means any item of tangible property purchased or created in whole or in part with the Funds which has a value of over \$50,000 inclusive of GST;

'Auditor-General' means the office established under the *Auditor-General Act 1997* and includes any other entity that may, from time to time, perform the functions of that office;

'Australian Accounting Standards' refers to the standards of that name maintained by the Australian Accounting Standards Board created by section 226 of the *Australian Securities and Investments Commission Act 2001*;

'Australian Auditing Standards' refers to the standards made by the Auditing and Assurance Standards Board created by section 227A of the *Australian Securities and Investments Commission Act 2001* (Cth);

'Commissioning Date' means the date on which an Asset has been installed and certified by You as fully operational as set out in the Final Pawsey Centre Project Plan;

'Commonwealth Material' means any Material provided by Us to You for the purposes of this agreement or which is copied or derived from that Material, except for Project Material;

'Completion Date' means:

- (a) the date specified in item A of schedule 1;
- (b) if no date is specified, the day after You have done all that You are required to do under this agreement to Our satisfaction; or
- (c) if this agreement is terminated, the date of termination;

'Conflict' refers to a conflict of interest, or risk of a conflict of interest, or an apparent conflict of interest arising through You engaging in any activity or obtaining any interest that is likely to interfere with or restrict You in providing the Project to Us fairly and independently other than those that exist as a direct result of You being a party to the iVEC Members Agreement;

'Date of this Agreement' means the date written on the signature page of this agreement, and if no date or more than one date is written there, then the date on which this agreement is signed by the last party to do so;

'EIF' means Education Investment Fund;

'EIF Advisory Board' means the Advisory Board established under subsection 170(1) of the *NBF Act*;

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'EIF Funding', EIF Funds', 'Funding' or 'Funds' means the amount or amounts (in cash or kind) payable by Us under this agreement by Us as specified in item AA of schedule 2, including interest earned on that amount;

'Electronic Communication' has the same meaning as it has in section 5 of the *Electronic Transactions Act 1999*;

'Final Pawsey Centre Project Plan' means the Final Pawsey Centre Project Plan to be submitted to us for approval by the Program Delegate, in consultation with the Australian eResearch Infrastructure Council;

'Final Report' means the document to be provided to Us as stipulated in item L of schedule 1, and described in Attachment C.

'GST' has the same meaning as it has in section 195-1 of the GST Act;

'GST Act' means the *A New Tax System (Goods and Services Tax) Act 1999*;

'High-performance computing' or 'HPC' means advanced computing, communications, and information technologies, including supercomputer systems, high-capacity and high-speed networks, special purpose and experimental systems, applications and systems software, and the management of large data sets;

'IVEC', means the unincorporated joint venture between the CSIRO, Curtin University of Technology, Murdoch University, Edith Cowan University and The University of Western Australia;

'IVEC Facilities' means the high performance computing facilities currently in operation in Western Australia and which are for the benefit of those organisations who are parties to the iVEC Members Agreement ;

'IVEC Members' means You, Curtin University of Technology, Murdoch University, Edith Cowan University, the University of Western Australia and other persons who may become members under the iVEC Members Agreement;

'IVEC Members Agreement' means the unincorporated joint venture agreement between the iVEC Members for the management and operation of iVEC;

'Information Privacy Principle' has the meaning given in the Privacy Act;

'Intellectual Property Rights' includes all copyright (including rights in relation to phonograms and broadcasts), all rights in relation to inventions (including patent rights), plant varieties, registered and unregistered trademarks (including service marks), registered designs, circuit layouts, and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields;

'Material' includes documents, equipment, software (including source code and object code), goods, information and data stored by any means including all copies and extracts of the same;

'Milestone' means a stage of completion of the Project set out in item C of schedule 1;

'Milestone Reports' means documents to be provided to Us as set out in item L of schedule 1, and described in Attachment C.

'NBF Act' means the *Nation-building Funds Act 2008*;

'Our Confidential Information' means information that:

- (a) is described in Item O of schedule 1;
- (b) We identify, by notice in writing to You after the Date of this Agreement, as confidential information for the purposes of this agreement; or
- (c) You know or ought to know is confidential to Us;

'Participant's Agreement' means the agreement between You and a Project Participant under clause 7A.2;

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'Pawsey Centre Project Annual Business Plan' means documents as stipulated in item L of schedule 1, and described in Attachment B;

'Personal Information' has the same meaning as it has in section 6 of the Privacy Act;

'Privacy Act' means the *Privacy Act 1988*;

'Privacy Commissioner' means the Office of the Privacy Commissioner established under the Privacy Act and includes any other entity that may, from time to time, perform the functions of that Office;

'Program' means the part of Our operations specified in item B of schedule 1 under which We are able to give the Funding to You;

'Program Delegate' means the person for the time being performing the duties of the office of the Department specified in item BB of schedule 2 or any other person specified by the Secretary and notified in writing to You;

'Project' means the activity described in item C.2 of schedule 1, and includes the provision of Project Material specified in that item;

'Project Material' means the Material:

- (a) identified in item N at schedule 1;
- (b) incorporated in, supplied or required to be supplied along with the Material referred to in paragraph (a); or
- (c) copied or derived from Material referred to in paragraphs (a) or (b);

'Project Participant' means those members of iVEC who are to participate in the Project as named in item HA of Schedule 1;

'Project Steering Committee' means those persons authorised by the Project Participants and approved by Us to give guidance to You on the Project and named in the Final Pawsey Centre Project Plan or Final Project Plan, or as agreed between the Parties from time to time

'Project Period' means

- (a) the period specified in item D of schedule 1 during which the Project must be completed; or
- (b) if this agreement is terminated early, the period ending on the day on which the agreement terminates;

'Records' includes documents, information and data stored by any means and all copies and extracts of the same;

'Report' means Project Material that is provided to Us for reporting purposes on matters including the use of the Funding, whether or not Milestones have been achieved, progress reports and evaluations of the Project or obligations of this agreement, as stipulated in item L of schedule 1;

'Secretary' means a person for the time being performing the duties of the office of Secretary to the Department and includes a person designated in writing by the Secretary to exercise any of the Secretary's powers under this agreement;

'Specified Acts' means any of the following acts or omissions by or on behalf of Us:

- (a) using, reproducing, adapting or exploiting all or any part of the Project Material, with or without attribution of authorship;
- (b) supplementing the Project Material with any other Material;
- (c) using the Project Material in a different context to that originally envisaged,

but does not include false attribution of authorship;

'Specified Personnel' means the personnel (whether Your employees or subcontractors), or

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people with specific skills, specified in item I of schedule 1 as personnel required to undertake the Project or any part of the work constituting the Project;

'Us', 'We' and 'Our' includes the Commonwealth's officers, delegates, employees and agents, and Our successors;

'You' and 'Your' includes, where the context admits, Your officers, employees, agents and subcontractors and Your successors;.

'Your Confidential Information' means information that is described in item CC of schedule 2.

33.2 In this agreement, unless the contrary intention appears:

- (a) words in the singular include the plural and vice versa;
- (b) words importing a gender include the other gender;
- (c) a reference to a person includes a partnership and a body whether corporate or otherwise;
- (d) clause headings or words in bold format are inserted for convenience only, and have no effect in limiting or extending the language of provisions;
- (e) all references to dollars are to Australian dollars;
- (f) unless stated otherwise, a reference to legislation is to legislation of the Commonwealth, as amended from time to time;
- (g) an uncertainty or ambiguity in the meaning of a provision of this agreement will not be interpreted against a party just because that party prepared the provision; and
- (h) where a word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning.

33.3 The schedules (and annexures and documents incorporated by reference, if any) form part of this agreement.

33.4 In the event of any conflict or inconsistency between any part of:

- (a) the terms and conditions contained in the clauses of this agreement;
- (b) the schedules;
- (c) the annexures, if any;
- (d) documents incorporated by reference, if any,

then the material mentioned in any one of paragraphs (a) to (d) above has precedence over material mentioned in a subsequent paragraph, to the extent of any conflict or inconsistency.

33.5 This agreement may be executed in any number of counterparts and by the parties on separate counterparts. Each counterpart constitutes an original of this agreement, all of which together constitute one agreement.

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SCHEDULE 1: Your Obligations

A. Term of agreement (clause 1)

A.1 The Completion Date for this agreement is 31 March 2014.

B. Program and Legislation (clause 2)

B.1 We and DEEWR operate the Program known as the Education Investment Fund (EIF) legislated under *Nation-building Funds Act 2008* and the *Nation-building Funds (Consequential Amendments) Act 2008*.

The role of the EIF is to build a modern, productive, internationally competitive Australian economy by supporting world-leading, strategically focussed infrastructure investments that will transform Australian tertiary education and research.

The main purpose of the research component of the EIF is to fund the creation or development of research infrastructure.

More information about EIF can be found at
<http://www.deewr.gov.au/HigherEducation/EIF/Pages/default.aspx>

C. Project (clause 2)

C.1 Project Objectives

The Project Objective is set out in Section 1.2. of the Final Pawsey Centre Project Plan at Attachment A, and is as follows:

The Objective of the Project is to construct a national HPC facility comprising a peak HPC capability that meets the needs of both the radio astronomy research community and high-end researchers in other areas of computational science.

In order to achieve that objective, the project:

- Plans, designs and constructs a building facility and associated external infrastructure, located in Perth, Western Australia, which will house the petascale High Performance Computing (HPC) system;
- Designs, procures and installs a petascale HPC system that meets the needs of both the radio astronomy research community and high-end researchers in other areas of computational science; and
- Plans for the operation and use of the petascale HPC system.

The Milestones to be achieved by You are specified in section 2.3 of the Final Pawsey Centre Project Plan and the Pawsey Centre Project Annual Business Plans described in Attachment B.

C.2 Project description including Project Material

In conducting the Project, You will:

- Use the EIF Funds for the creation and development of infrastructure;
- Establish, operate, and provide access to the Pawsey Centre that will deliver the above research infrastructure; and
- Equip the Project with the relevant Assets listed in J.1.

Expected benefits of the Project are that

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- it will provide a world-class HPC centre, placed to build towards meeting the enormous challenges associated with the computing and data processing capabilities that the SKA will involve; and
- in addition to making a significant contribution to SKA Science, the Project will constitute a hub for high performance computing that will support high-end research in many disciplines, including nanotechnology, biotechnology, geoinformatics, engineering, atomic physics, chemistry, minerals and mining.

You must:

- progress and carry out the Final Pawsey Centre Project Plan at Attachment A;
- develop and provide Us a Final Pawsey Centre Project Plan in consultation with the research community that is acceptable to us, by 31 December 2009;
- ensure that the Final Pawsey Centre Project Plan is implemented;
- ensure that the subcontractors and other participant organisations provide the resources and perform the activities required by this agreement; and
- providing Us with the Pawsey Centre Project Annual Business Plans and Reports required by this agreement.

A broad description of the Project is contained in the Final Pawsey Centre Project Plan at **Attachment A**.

You must develop a Final Pawsey Centre Project Plan and submit it to Us for approval.

C.3 Budget

Table 1 outlines the EIF Funding that will be applied to the Project. You are not to provide any amount to any subcontractor until You have entered into a binding subcontract with that party that complies with clause 7 of this agreement and addresses the conditions of approval in item H of this schedule. The suggested allocation of amounts you will pay to each facility and subcontractor will be shown in Annex A1 to the Final Pawsey Centre Project Plan (which may only be altered in accordance with clause 22.2).

The EIF Funding may be applied to the Project elements as described in Section 2 and Annex A1 of the Final Pawsey Centre Project Plan at Attachment A.

You may not provide the EIF Funds to any other Project elements until the Final Pawsey Centre Project Plan has been approved by Us on consideration of the advice of the Australian eResearch Infrastructure Council, and until We inform you of the outcome of the decision by the Parliamentary Public Works Committee concerning the construction of the proposed building component and associated HPC equipments.

You may use the EIF Funding towards the costs specified in this item C.3 that you, or the subcontractors, have incurred prior to the date of this agreement if We determine in Our sole opinion that such prior expenditure was for the activities set out in the Final Pawsey Centre Project Plan at Attachment A and is not inconsistent with any of the requirements of this agreement. The costs specified in this item C.3 include the costs associated with initial Project activities relating to the Capability Development of HPC Capacity at existing iVEC Nodes as described in Section 2 and Annex A1 of the Final Pawsey Centre Project Plan at Attachment A. These initial Project activities should also include initial establishment activities to implement the approved Final Project Plan and those activities undertaken in the preparation of a submission to the Parliamentary Public Works Committee (PWC) and follow-up activities leading to the final decision of the PWC.

You must ensure that all the cash and in-kind contributions specified in the agreed Final

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Pawsey Centre Project Plan are provided by each participant organisation.

Table 1: Summary of the EIF contributions to the Project (GST exclusive)

	2009-10	2010-11	2011-12	2012-13	TOTAL
EIF cash contribution (\$m)	20	20	20	20	80

D. Project Period (clause 2)

- D.1 The Project commences on the Date of this Agreement and must be completed by 30 June 2013.

E. Invoice Requirements (clause 3)

- E.1 Invoices forwarded by You must be correctly addressed and include the:
- (a) title of Project;
 - (b) Your name and ABN;
 - (c) name of Program Delegate;
 - (d) agreement number or date of execution;
 - (e) fees and expenses to be invoiced (including a description of the deliverables or milestones that the invoice relates to); and
 - (f) bank account details for payment of the invoice by electronic funds transfer.
- E.2 Where the invoice relates to a taxable supply made under this agreement the invoice must comply with the requirements for a tax invoice, as defined in the GST Act. The date for payment is 30 days after delivery of a correctly rendered invoice to the Commonwealth.

F. Separate Bank Accounts (clause 4)

- F.1 You are not required to maintain a separate bank account for the Funds.

G. Acknowledgement and Publication (clause 6)

- G.1 In all of Your or the IVEC Members', signage, relevant publications, promotional materials, activities and statements, You or the IVEC Members must acknowledge that the Project is an initiative of the Australian Government being conducted as part of the Super Science Initiative and financed from the Education Investment Fund.

H. Subcontractors (clause 7)

- H.1 The subcontractors listed in the table below are approved to undertake work on the Project. If subcontractors are not known before signing of this agreement, names and ABNs must be provided in writing to Us and agreed by Us before their work can commence.

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H.2

Name of Subcontractor	Activity
<ul style="list-style-type: none"> [Insert here] 	<p>1. A written subcontract must be entered into which binds each subcontractor to conditions that are consistent with the following conditions of this agreement:</p> <p>Clause 6 [Acknowledgement and Publicity] Clause 9 [Assets] Clause 10 [Insurance] Clause 11[Liaison and Monitoring] Clause 14 [Project Material] Clause 15 [Disclosure of Information] Clause 16 [Protection of Personal Information] Clause 17 [Records] Clause 18 [Access to Premises and Records] Clause 20 [Conflict of Interest] Clause 21 [Negation of Employment, Partnership and Agency] Clause 27 [Termination with Costs and Reduction] Clause 28 [Termination for Default]; and Clause 29 [Compliance with Laws and Our Policies].</p>

H.3 All persons invited to express an interest in Australian Government construction projects or projects which the Australian Government contributes funding (including this Program) must be informed of the application of the National Code of Practice for the Construction Industry to the project. Advertisements calling for expressions of interest, requests for tender, submissions, invitations to join Common Use Arrangements must incorporate the following statement (see Item Q of schedule 1):

The National Code of Practice for the Construction Industry, in accordance with the Australian Government Implementation Guidelines for the National Code of Practice for the Construction Industry, reissued June 2006 applies to this project.

HA. Project Participants (clause 7A)

HA.1 The following Project Participants are approved to undertake work on the Project on the terms and conditions set out in this Table:

Name of Project Participant	Activity
<ul style="list-style-type: none"> Curtin University of Technology (ABN: 99 143 842 569) Murdoch University (ABN: 61 616 369 313) Edith Cowan University (ABN: 54 361 485 361) The University of Western Australia (ABN: 87 882 817 280) 	<p>1. A Participant's Agreement must be entered into which binds the Project Participants to conditions that are consistent with the following conditions of this agreement.</p> <p>Clause 6 [Acknowledgement and Publicity] Clause 7A.2 [Binding Participants Agreement] Clause 7A.3 [Participants Agreement Terms and Conditions] Clause 7A.5 [Consultation with Project Steering Committee] Clause 7A.7 [Project Participant Breach] Clause 7A.8 [Joint Venture liability] Clause 9 [Assets] Clause 10 [Insurance] Clause 11[Liaison and Monitoring] Clause 14 [Project Material] Clause 15 [Disclosure of Information] Clause 16 [Protection of Personal Information] Clause 17 [Records] Clause 18 [Access to Premises and Records] Clause 19 [Indemnity]</p>

Initials **s22**

	Clause 20 [Conflict of Interest] Clause 21 [Negation of Employment, Partnership and Agency] Clause 27 [Termination with Costs and Reduction] Clause 28 [Termination for Default]; and Clause 29 [Compliance with Laws and Our Policies].
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I. Specified Personnel (clause 8)

I.1 The following Specified Personnel are required to undertake the work set out below

Skills Required	Name, if applicable	Details of Work
Strong leadership, knowledge and experience of contemporary ICT project management in a research environment	to be appointed	Project Director
Strong leadership, knowledge and experience in the design, procurement, deployment and operation of the compute, visualization and storage clusters, and the software environment provided for the systems' users	to be appointed	HPC Systems Architect

I.2 The following persons have been appointed by the Project Participants to the Project Steering Committee and are required to undertake the work set out below

Skills Required	Name, if applicable	Details of Work
Independent, strategic leadership and oversight experience.	s22	Chair, Pawsey Centre Project Steering Committee
Strategic leadership, experience managing a research organisation		Chair, HPC System Project Control Group

J. Assets (clause 9)

J.1 The Assets that are to be acquired or created as part of the Project, using the Funding, are as follows. The schedule of Assets is to be updated in each of the Pawsey Centre Project Annual Business Plans and/ or Milestones Reports where necessary.

The Assets envisaged for Project as outlined in the Final Project Plan consist of the following:

Asset (Description, Serial Number, if available, Asset No. if available)	Location (Facility and location)	Ownership	Estimated Purchase Price A\$	Funds from what portion of purchase price (%) I=insured SI= self-insured
expansion components of the existing HPC system	at members' existing facilities	iVEC partners, as described in clause 15 of the iVEC Members Agreement	\$15 million	100%
building to house the petascale HPC system	located on CSIRO property,	CSIRO	\$25 million	100%

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	adjacent to the Australian Resources Research Centre, Technology Park, Kensington, WA			
components of the petascale HPC system	in the building referred to above	CSIRO	\$40 million	100%

J.2 You must maintain an asset register identifying each asset and showing the owner, location and value of each asset.

K. Insurance (clause 10)

K.1 You must maintain:

- (a) workers' compensation insurance for an amount required by any applicable Commonwealth, State or Territory legislation;
- (b) Professional indemnity insurance for \$10,000,000 (ten million dollars) or more per claim; and
- (c) public liability insurance for \$10,000,000 (ten million dollars) or more per claim.

L. Reporting and Pawsey Centre Project Annual Business Plans (clause 12)

L.1 You must provide regular reports that are acceptable to Us as described below.

L.2 Additional reporting may be required to meet wider Government objectives. We will endeavour to give You as much notice as we can of these reporting requirements.

L.3 The content of the Pawsey Centre Project Annual Business Plan is set out in Attachment B which you must provide in a format agreed by Us. You must provide the following the Pawsey Centre Project Annual Business Plan to Us on the due dates set out below:

Details of Pawsey Centre Annual Business Plans	Due Date
Pawsey Centre Project Annual Business Plan 1 (including Milestone Report 2)	31 March 2010
Pawsey Centre Project Annual Business Plan 2 (including Milestone Report 6)	31 March 2011
Pawsey Centre Project Annual Business Plan 3 (including Milestone Report 10)	31 March 2012

We will consider each Pawsey Centre Project Annual Business Plan, in consultation with the Australian eResearch Infrastructure Council, and approve the Pawsey Centre Project Annual Business Plan or commence negotiations on changes to the content of the Pawsey Centre Project Annual Business Plan either (1) by 15 May in the year the Pawsey Centre Project Annual Business Plan is lodged, or (2) within forty-five (45) days of the lodgement of the Pawsey Centre Project Annual Business Plan with Us, whichever is the later.

L.4 You must provide Milestone Reports, Annual Reports and a Final Report that are acceptable to Us. The content of Milestone Reports, Annual Reports and the Final Report is set out in **Attachment C** which you must provide in a format agreed by Us. We will consult the Australian eResearch Infrastructure Council in the consideration the Annual Report. The Reports must be provided to Us on the due dates set out below:

Details of Report	Due Date
Pawsey Centre Project Milestone Report 1	31 December 2009
Pawsey Centre project Milestone Report 2	31 March 2010
Pawsey Centre Project Milestone Report 3	30 June 2010
Pawsey Centre Project Annual Report 1 (including Milestone Report 4)	30 September 2010
Pawsey Centre Project Milestone Report 5	31 December 2010

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Pawsey Centre Project Milestone Report 6	31 March 2011
Pawsey Centre Project Milestone Report 7	30 June 2011
Pawsey Centre Project Annual Report 2 (including Milestone Report 8)	30 September 2011
Pawsey Centre Project Milestone Report 9	31 December 2011
Pawsey Centre Project Milestone Report 10	31 March 2012
Pawsey Centre Project Milestone Report 11	30 June 2012
Pawsey Centre Project Annual Report 3 (including Milestone Report 12)	30 September 2012
Pawsey Centre Project Milestone Report 13	31 December 2012
Pawsey Centre Project Milestone Report 14	31 March 2013
Pawsey Centre Project Milestone Report 15	30 June 2013
Pawsey Centre Project Final Report	30 September 2013

M. Commonwealth Material (clause 13)

M.1 Not applicable.

N. Project Material (clause 14)

N.1 Project Material means:

- (a) the agreed Final Pawsey Centre Project Plan;
- (b) all Pawsey Centre Project Annual Business Plans;
- (c) all Reports, including Milestone Reports, Annual Reports and the Final Report;
- (d) design documents associated with the petascale HPC system and the Pawsey Centre.

O. Our Confidential Information (clause 15)

O.1 Not applicable.

P. Protection of Personal Information (clause 16)

P.1 No additional obligations.

Q. Compliance with Laws and Policies (clause 29)

Q.1 You acknowledge that:

- (a) You may have obligations under the *Equal Opportunity for Women in the Workplace Act 1999* and You must comply with those obligations;
- (b) Chapter 7 of the *Criminal Code* provides for offences which attract substantial penalties, including theft of Commonwealth property and other property offences, obtaining property or financial advantage by deception, offences involving fraudulent conduct, bribery, forgery and falsification of documents;
- (c) giving false or misleading information is a serious offence under the *Criminal Code*;
- (d) the publication or communication of any fact or document by a person which has come to their knowledge or into their possession or custody by virtue of the performance of this agreement (other than a person to whom You are authorised to publish or disclose that fact or document) may be an offence under section 70 of the *Crimes Act 1914*, punishment for which may be a maximum of two years imprisonment;
- (e) in respect of data, including personal information, held in connection with this agreement, any unauthorised and intentional access, destruction, alteration, addition or impediment to access or usefulness of the data stored in any computer in the course of performing this agreement is an offence under Part 10.7 of the *Criminal Code* which may attract a substantial penalty, including imprisonment;
- (f) You are aware of the provisions of section 79 of the *Crimes Act 1914* relating to official secrets;

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- (g) You are aware of Your obligations under Part 4 of the *Charter of United Nations Act 1945* and the *Charter of United Nations (Terrorism and Dealing with Assets) Regulations 2002*;
- (h) Note: more information about the Charter of United Nations Act and the Charter of United Nations (Terrorism and Dealing with Assets) Regulations is available at http://www.dfat.gov.au/icat/freezing_terrorist_assets.html; and
- (i) You may be subject to the provisions of the *Trade Practices Act 1974* and the *Archives Act 1983*.

Q.2 You must:

- (a) when using Our premises or facilities (including information systems), comply with Our reasonable directions and procedures relating to occupational health, safety.
- (b) ensure that person who will have access to official secrets within the meaning of section 79 of the Crimes Act 1914 signs an acknowledgment that he or she is aware of the provisions of that section.
- (c) when dealing with Your employees, You must comply with Our policies on employment, including the Workplace Relations Act 1996, and obligations under relevant occupational health and safety laws.

R. Notices (clauses 8 and 31)

R.1 The person who can accept notices for You is:

Name: s22

Office Address:

Postal Address: PO Box 225 Dickson
ACT 2602

Fax: s22

Phone:

Email:

s22

Initials

SCHEDULE 2: Our Obligations

AA. Funding (clause 3)

AA.1 The total Funding for the Project is **\$80,000,000** payable by the following instalments:

	Payable
\$10,000,000	On acceptance by Us of a CSIRO letter of commitment to operating the infrastructure described in Section 2.1.1 of Attachment A, as determined by the Program Delegate.
\$10,000,000	Execution of a Participant's Agreement, acceptable to Us, to give effect to clause 7A of this Funding Agreement.
\$20,000,000	On receipt of written advice from CSIRO of approval of the Public Works Committee for construction of the Pawsey Centre and associated petascale HPC procurement.
\$20,000,000	On receipt of written advice from CSIRO that the petascale HPC procurement negotiations have been successfully concluded.
\$15,000,000	On receipt of written confirmation of the delivery of the petascale HPC system.
\$5,000,000	On receipt of written confirmation from CSIRO that the petascale HPC system has passed acceptance testing.

AA.2 GST is not included in the Funding in accordance with paragraph 9-15(3)(c) of the GST Act as explained in Goods and Services Tax Ruling (GSTR) 2006/11. If, however, it is subsequently determined that GST must be remitted by You to the Australian Taxation Office in respect of the Funding, We will, in addition to the Funding, pay to You an amount equal to the GST that is payable.

BB. Program Delegate (clauses 11 and 31)

BB.1 The Program Delegate is:

Name: **s22**
Office Address: Level 6, 10 Binara Street, Canberra City, ACT 2601
Postal Address: GPO Box 9839, Canberra, ACT, 2601
Fax: **s22**
Phone:
Email:

CC. Your Confidential Information (clause 15)

CC.1 Not applicable

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Initials

THIS AGREEMENT is made on the 4 day of December 2009

SIGNED for and on behalf of)
~~THE COMMONWEALTH OF AUSTRALIA~~)
~~by Ms Anne-Marie Lansdown~~ s22
~~Head of the Science and Infrastructure Division~~
~~of the Department of Innovation, Industry,~~)
~~Science and Research~~)
 GROUP EXECUTIVE, INFORMATION SERVICES
 In the Presence of: CSIRO.

s22

Full name and occupation or profession of witness (Please print)

SIGNED FOR AND ON BEHALF OF THE)
 Commonwealth of Australia by)
 Ms Anne-Marie Lansdown
 Title Head of the Science and Infrastructure Division s22
 Institution Department of Innovation,
 Industry, Science and Research

In the Presence of:

s22

WITNESS

s22

Manager eResearch, DUSR

Please print full name and occupation or profession of witnesses above.

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ATTACHMENT A FINAL PAWSEY CENTRE PROJECT PLAN

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ATTACHMENT B CONTENT OF PAWSEY CENTRE PROJECT ANNUAL BUSINESS PLANS

Each Pawsey Centre Project Annual Business Plan should set out the activities to be undertaken to progress the Final Pawsey Centre Project Plan during the coming financial year (i.e. 1 July to 30 June). The Pawsey Centre Annual Business Plans must include, but are not limited to, the following:

Executive Summary (2 pages)

- expected progress with the Project in the coming year
- any material variations from the Final Pawsey Centre Project Plan that are proposed
- key risk factors for the year and strategies to address them

Status of Project

- address highlights, difficulties or breakthroughs since the previous Pawsey Centre Project Annual Business Plan
- describe the outlook for the Project in future years

Project infrastructure

- describe expected progress with the provision of the EIF infrastructure during the period of the Pawsey Centre Project Annual Business Plan
- describe expected progress with the commissioning of the EIF infrastructure and facilities during the period of the Pawsey Centre Project Annual Business Plan
- describe activities to position researchers and research teams to occupy and utilise the infrastructure
- describe other activities to ensure the effective management and governance of the Project, including providing access to external users

Management and implementation

- describe the expected governance and management activities and developments during the period of the Pawsey Centre Project Annual Business Plan
- describe the key risks and risk management strategies for the period of the Pawsey Centre Project Annual Business Plan

Milestones

- List the Milestones to be achieved during the period of the Pawsey Centre Project Annual Business Plan. Examples include:
 - construction milestones
 - governance milestones
 - infrastructure establishment milestones
 - staffing targets
 - financial targets
 - levels of co-investment

Project Resources

- summary of the expected EIF Funds on hand at the beginning and end of the period
- describe the expected level and nature of in-kind co-investment and its impact on the Project
- describe the staffing positions funded under the Project

ATTACHMENT C CONTENT OF THE PAWSEY CENTRE PROJECT REPORTS

Pawsey Centre Project Annual Report

Each Annual Report should provide an accurate description of the Project activities, and overall Project status for the previous financial year (i.e. July to June), assessed against the relevant Pawsey Centre Project Annual Business Plan, in a format and content that is agreed by Us. Each Annual Report must include, but is not limited to, the following:

Content

- Overview of status of the Project, e.g. addressing highlights, difficulties or breakthroughs
- A description of activities undertaken, including discussion of unexpected or unusual activities. This should include an assessment of the risk management strategy for the period
- A short description of progress against the milestones set out in the relevant Pawsey Centre Project Annual Business Plan, including discussion of agreed Milestones not fully met and explanation
- A Milestone report
- Reporting for the first year will be against the Final Pawsey Centre Project Plan
- Discussion of any deviations from the Final Pawsey Centre Project Plan or the agreed relevant Pawsey Centre Project Annual Business Plan, including:
 - additional activities undertaken (nature of activities, reason for undertaking the activities, realised or expected benefits from the additional activities);
 - agreed activities not completed and an explanation why they were not completed; and
 - remedial action proposed, including timeframes
- Discussion of the level of cash and in-kind co-investment received against expected levels
- Data against performance indicators (See Attachment D for performance indicators).
- The audited detailed statement referred to in clause 12.2(b) of the Agreement, which addresses the applicable provisions of clauses 12.3, 12.5, 12.6 and 12.7 of the Agreement

Milestone Reports

Milestone Reports are short reports of progress against milestones, or any milestones not met, and an explanation against the expected milestones for each quarter as described in the Final Pawsey Centre Project Plan as appropriate, and the Pawsey Centre Project Annual Business Plans.

A Milestone Report is required for every reporting period throughout the life of this Project.

Content

From time to time, by provision of a Notice to You, We may amend the content required in the Milestone Reports.

- Brief summary of progress on Project overall
- Progress of Milestones

Final Report

The Final Report must include, but is not limited to, the following:

- An Annual Report as described above, providing an accurate description of the Project activities, and overall Project status for the previous financial year
- A summary of the conduct of the Project as a whole, highlighting key successes and shortcomings
- Discussion of the expected future usage of the infrastructure, as well as the terms of future usage, including access terms and pricing
- Discussion of the expected future trends in the use of research infrastructure

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All reports and Pawsey Centre Project Annual Business Plans

Any confidential information is to be clearly identified as such and presented in a separate attachment.

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ATTACHMENT D PERFORMANCE INDICATORS

A set of indicators are to be developed for use in monitoring annual performance across the Project and must be included in the Final Pawsey Centre Project Plan. The specific performance indicators used are to be agreed with Us, but it is expected that the indicators will address the following areas:

Providing Research Infrastructure

- Value of new infrastructure by location
 - Include cost and description of facilities and equipment
- Value of all infrastructure made available under EIF
 - Include cost and description

Performance against EIF principles

- Principle 1:
 - Projects should address national infrastructure priorities
- Principle 2:
 - Projects should demonstrate high benefits and effective use of resources
- Principle 3:
 - Projects should efficiently address infrastructure needs
- Principle 4:
 - Projects should demonstrate they achieve established standards in implementation and management

Meeting Researcher Needs

- Number, type and location of applicants for each facility
- Number, type and location of users for each facility
 - User types are university, publicly funded research agencies, industry, other
 - User location is institution
- Percentage utilisation of facilities
 - Based on available capacity
 - Breakdown per specific capability node and/or instrument if applicable
- Measures of user satisfaction

Quality of Research Infrastructure

- Benchmark against other Australian and overseas infrastructure. Benchmarking methods may include:
 - Specific comparisons against facilities or instruments where available
 - Independent reviews

Collaborative Infrastructure Provision

- Extent and duration of collaborative agreements / relationships established for managing and developing research infrastructure
 - Include type of agreement and parties involved

Fostering Collaborative and World-class Research

- Number and nature of Australian research collaborations that involve use of EIF infrastructure
 - Include type of collaborative activity and parties involved
- Number and nature of international collaborative research activities supported by EIF infrastructure
 - Include type of collaborative activity and parties involved.

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ATTACHMENT A

The Pawsey High Performance Computing Centre for SKA Science (The Pawsey Centre)

EIF FINAL PROJECT PLAN

iVEC

26 Dick Perry Avenue
Technology Park
Kensington
WA 6151

v2.4

2 DECEMBER 2009

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1. Project Overview

1.1. Background and Context

The NCRIS Strategic Roadmap for Australian Research Infrastructure, released in August 2008, following extensive consultation with the research community, identified the need for additional High Performance Computing (HPC) capability at a national level.

The Australian Government's Super Science initiative has responded to that need, in part, by initiating the establishment of a new HPC Centre in Perth.

This investment will provide a world-class HPC centre that is well placed to build towards meeting the enormous challenges associated with the computing and data processing capabilities that the SKA will involve. In addition to making a significant contribution to SKA Science, the Centre will constitute a hub for high performance computing that will support high-end research in many disciplines, including nanotechnology, biotechnology, geoinformatics, engineering, atomic physics, chemistry, minerals and mining.

The Perth-based high performance computing centre project was officially launched by Senator Kim Carr, Minister for Innovation, Industry, Science and Research, at a ceremony held at the Australian Resources Research Centre (the headquarters of iVEC), on 27 August 2009. The Centre was named after Dr Joseph Pawsey – an Australian pioneer in the field of radio astronomy.

iVEC – the hub of advanced computing in WA - is an unincorporated joint venture between the CSIRO and all four public universities in Western Australia, whose purpose is to allow the State's industry, science and technology communities to access high performance computing, large-scale storage, high-speed communications and 3D visualisation in order to meet the demands faced by Western Australia to compete effectively on a global basis. The nature of this relationship between iVEC and its institutional partners is reflected in the agreed governance and management arrangements for the duration of the Centre Project:

- CSIRO, the Centre Agent for iVEC, has executed the Funding Agreement with the Commonwealth Government for the construction of a HPC facility and associated infrastructure at its ARRC site in Perth, Western Australia.
- CSIRO will own and maintain the facility, to be built on land owned by CSIRO.
- iVEC will manage the operations of the Centre and provide services to the high end research user community.

iVEC has been an enthusiastic supporter of other NCRIS and EIF activities including the NCRIS Platforms for Collaboration program. It is the Western Australian Partner in the Australian Research Collaboration Service (ARCS), a Partner in the National Computing Infrastructure (NCI) and a host for some Australian National Data Service (ANDS) staff.

1.2. Objectives of the Project.

The **Objective** of the Project is to construct a national HPC facility comprising a peak HPC capability that meets the needs of both the radio astronomy research community and high-end researchers in other areas of computational science.

In order to achieve that objective, the project will:

- Plan, design and construct a building and associated external infrastructure, located in Perth, Western Australia, which will house the petascale High Performance Computing (HPC) system.

- Design, procure and install a petascale HPC system that meets the needs of both the radio astronomy research community and high-end researchers in other areas of computational and data-intensive science.
- Plan for the operation and use of the petascale HPC system.

Specifically the Pawsey Centre Project will create a new HPC centre, and will:

- Provide an internationally significant HPC capability, and associated data support, to prioritised radio astronomy data analysis and physical sciences research endeavours
- Develop and operate a resource allocation system that gives priority research on-demand access to allocated resources
- Support meritorious research in all fields through the provision of 'capability' quality computational services which specifically requires petascale HPC access
- Construct a Data Centre facility able to support system upgrade through the proposed lifetime of the SKA, (should Australia host the SKA)
- Provide a significant boost to national HPC capacity through the extension of existing facilities during the Data Centre construction phase and develop world-class HPC expertise among the high-end research users

The achievement of these objectives will lead to **outcomes** that will:

- Develop world-class HPC expertise among the high-end research user community and staff, through the planned installation of approx 150 TeraFlops of HPC capacity at existing IVEC Facilities
- Provide infrastructure to support research which specifically requires petascale HPC access
- Facilitate the intellectual capability relating to the use of HPC facilities to support high-end research
- Augment opportunities for researchers including WA computational science researchers to participate in a National Merit Allocation Scheme.

1.3. Implementation principles

The organisations participating in the development of the Pawsey Centre will endeavour to establish, operate and provide access to HPC infrastructure in accordance with the EIF principles, listed below.

EIF Principles

- Principle 1: Projects should address national infrastructure priorities
- Principle 2: Projects should demonstrate high benefits and effective use of resources
- Principle 3: Projects should efficiently address infrastructure needs
- Principle 4: Projects should demonstrate they achieve established standards in implementation and management.

IVEC – which will manage the design and operation of the Centre - will endeavour to establish, operate and provide access to the Centre's facilities in a manner which:

- takes into account the long-term strategic requirements of relevant research disciplines;
- enhances national and international research collaboration;
- provides leading-edge research capability for relevant disciplines and seeks to support excellence in science;

- provides for merit-based access to the facilities in accordance with the norms and expectations of the research community; and
- has a strong emphasis on service provision to the research community.

1.4. Scope of the Project

The Centre will be developed (designed, constructed and managed) in Perth by iVEC and its Joint Venture partners CSIRO, Curtin University, Murdoch University, Edith Cowan University and The University of Western Australia.

The establishment of the Centre involves the planning and development of four inter-related components:

- The expansion of current capabilities through the installation of approx 150 teraflops of HPC capacity at existing iVEC Facilities in the first eighteen months of the project
- The design and procurement of the computer hardware that constitutes the petascale computer
- The design and construction of the physical building that houses the petascale computer
- The resource allocation processes that determine the use of the HPC capability.

The Centre will be co-located with the Australian Resources Research Centre at the Western Australian Technology Park, Kensington, WA.

The project is designed to complement CSIRO's Australian SKA Pathfinder (ASKAP) and the International Centre for Radio Astronomy Research (ICRAR).

As well as making a significant contribution to SKA science and ASKAP, the Centre will support high-end research in many disciplines and help to establish Australia as a world hub for high-performance computing.

1.5. Participants

Participant	Roles & Responsibilities
Commonwealth Government (DIISR)	Provides the funding for the project through an EIF Funding Agreement with CSIRO. Monitors and evaluates implementation of the project through the Funding Agreement.
CSIRO	Acts as the Centre Agent for iVEC Signs the EIF Funding Agreement in its capacity as the Centre Agent for iVEC
iVEC	Acts as the Project Client
HPC Centre Steering Committee	Responsible for the establishment and commissioning of the Centre Reports to the iVEC Board
HPC Systems Project Control Group	Develops and manages the expansion of the HPC capacity of existing iVEC Facilities for the purpose of growing petascale HPC expertise among iVEC staff and the high-end user community. Responsible for identification, sourcing and procurement of the HPC hardware for the Centre.
HPC Building Project Control Group	Responsible for the planning, design and construction of the building that will house the Centre

1.6. Funding arrangements

The total Commonwealth funding for the Project is \$80M over four years: \$20M per year from 2009-10 to 2012-13. Funding is being provided from the Education Investment Fund (EIF), which has the authority to fund 'the creation and development of research infrastructure'.

Funding will be provided through a Funding Agreement to be signed between CSIRO, acting as the iVEC centre agent, and DIISR, to enable iVEC's management of the Project.

While the Commonwealth will provide support for the capital cost of the Project, iVEC partners and the WA Government, are required to meet operational costs including the employment of appropriate staff to manage and sustain the Centre.

2. Project Infrastructure

The infrastructure that will result from the EIF funds in accordance with the Funding Agreement will comprise two main elements:

- a) **The HPC component** – the HPC capacity available to users of the Centre will be increased to the petaflop scale over the lifetime of the Centre through:
 - 1) the development of world-class HPC expertise among the high-end research user community and iVEC staff, through the installation of approx 150 teraflops of HPC capacity at existing iVEC Facilities in the first 18 months of the project – and consequently, enhancement of the intellectual capability relating to the use of HPC facilities to support high-end research: and
 - 2) the purchase, installation and commissioning of the petascale computer that is housed within the facility, over the last 30 months of the project.
- b) **The Building:** construction of a purpose-built facility and associated electrical and cooling infrastructure, to house a petascale computer.

2.1. Infrastructure Components

EIF Funds will be used to create the following infrastructure:

2.1.1. HPC Systems Buildout

An integral part of the overall planning and design of the petascale HPC system is the planned expansion of existing iVEC HPC capacity. This expansion will enable the assessment of the differing requirements of high-end research user communities with regard to the productive exploitation of an eventual petascale computing system. Current capacity will be expanded to around 150 teraflops, enabling researchers to develop their expertise to ensure their optimal use of another order of magnitude in high performance computing. This 'bridging' stage is critical to the effective planning, implementation and take-up of the petascale computing system.

- Expansion of current iVEC HPC facilities: July 2009 – Dec 2010
- Integration with initial Petascale scoping phase: Jan 2010 – Dec 2010
- Indicative value: \$15 million

2.1.2. Petascale HPC System

The specification and procurement of the petascale computing system will in effect commence with the expansion of the existing iVEC HPC facilities (as outlined above). The final configuration will service the current and anticipated needs of both the radio astronomy research community and high-end researchers in other areas of computational science.

- Specification of Petascale HPC System: Jan 2010 – Dec 2010
- Procurement of Petascale HPC System: Jan 2011 – Dec 2011
- Installation & Commissioning: Jan 2012 – June 2013
- Indicative Value: \$40 million

2.1.3. HPC Centre Building

The Centre building will be located on CSIRO property, adjacent to the Australian Resources Research Centre (ARRC), Technology Park, Kensington, WA. It will be specifically designed to house the petascale computer, incorporating appropriate cooling systems and electrical power supply.

- Building planning, design & approval Jul 2009 – Dec 2010
- Building construction: Jan 2011 – Dec 2011
- Indicative value: \$25 million

2.2. Infrastructure Development Phases

The infrastructure components outlined in Section 2.1 will be developed over a four year timeframe, in three broad phases. Each phase incorporates Milestones, some of which are related to progress payments.

Phase I (July 2009 – Dec 2010) comprises:

- Buildout of the existing HPC system
- Scoping and specification of the petascale HPC system
- Planning, design and approval of the building to house the petascale HPC system

Phase II (Jan 2011 - December 2011) comprises:

- Procurement of the petascale HPC system
- Construction of the building to house the petascale HPC system

Phase III (January 2012 – June 2013) comprises:

- Installation and commissioning of the petascale HPC system

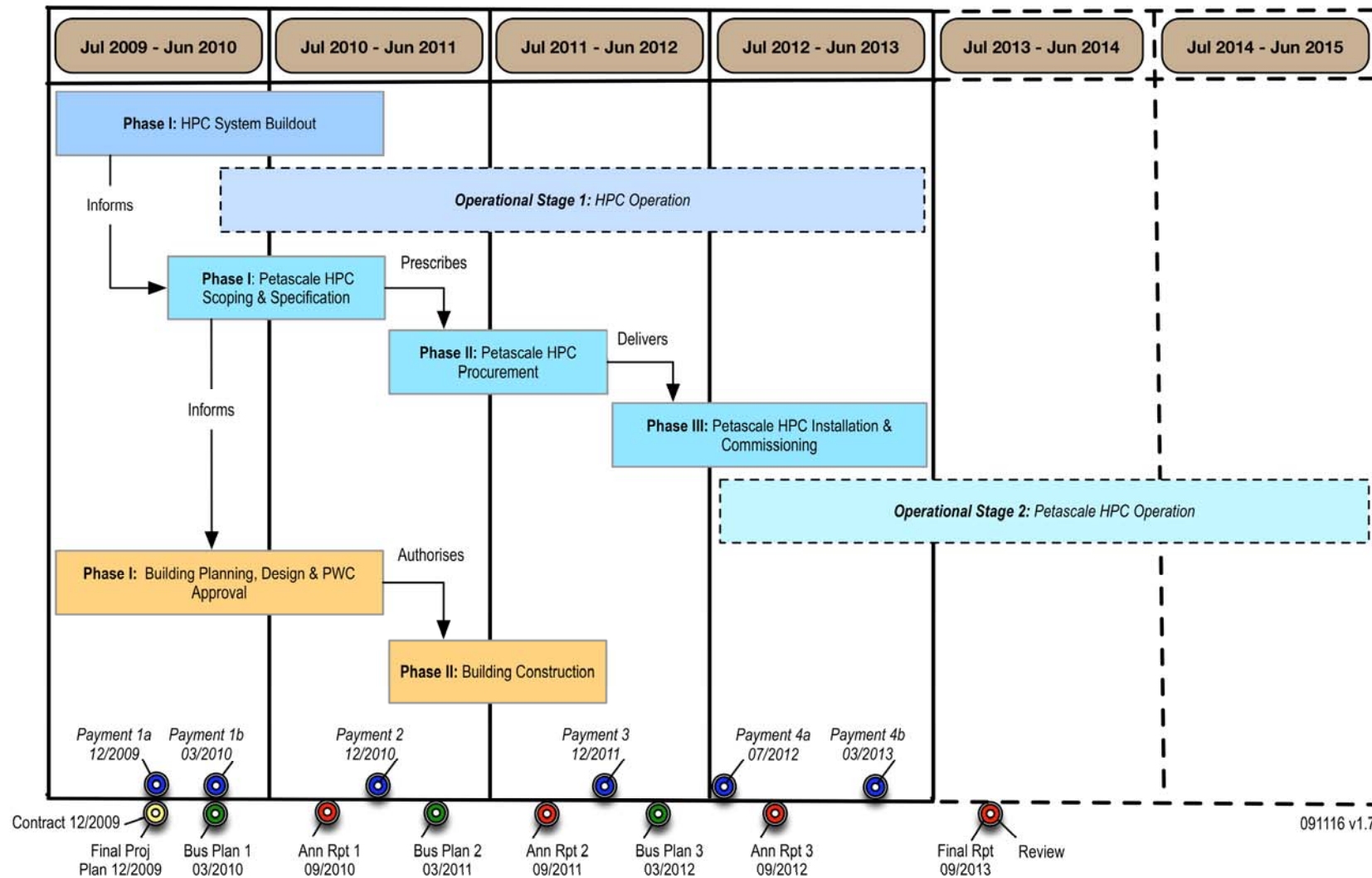
The detailed milestones for Phases II and III will be articulated in more detail in the Annual Business Plans.

Phase II milestones depend on Public Works Committee and other building design decisions yet to be determined. The commencement of Phase II is contingent upon receiving PWC approval for the building construction by 31 December 2010.

Phase III milestones depend on tender and procurement decisions and associated installation arrangements yet to be determined. The commencement of Phase III is contingent upon a successful procurement of the petascale computing hardware and the completion of the building by 18 December 2011.

The high-level project timeline below shows the integration of the phases for the development of the infrastructure components detailed above.

Pawsey HPC Centre for SKA Science: High Level Project Development Timetable



2.3. Milestones

2.3.1. Major Project Milestones

	Major Project Milestones	Projected Completion Date
1	Provide commitment to operating the HPC Systems Buildout infrastructure	30 Nov 2009
2	Signing of EIF Funding Agreement by CSIRO	4 Dec 2009
3	<i>Pawsey Centre Project Milestone Report 1</i>	31 Dec 2009
4	Execution of Participants' Agreement for Pawsey funding	31 Mar 2010
5	Procurement of first system in HPC expansion complete	31 Mar 2010
6	<i>Pawsey Centre Project Milestone Report 2</i>	31 Mar 2010
7	Annual Business Plan 1	31 Mar 2010
8	<i>Pawsey Centre Project Milestone Report 3</i>	30 Jun 2010
9	Building PWC process completed/Parliamentary Approval	31 Aug 2010
10	<i>Pawsey Centre Project Annual Report 1 (incl Milestone Report 4)</i>	30 Sep 2010
11	HPC expansion procurements completed	31 Dec 2010
12	<i>Pawsey Centre Project Milestone Report 5</i>	31 Dec 2010
13	Annual Business Plan 2	31 Mar 2011
14	<i>Pawsey Centre Project Milestone Report 6</i>	31 Mar 2011
15	<i>Pawsey Centre Project Milestone Report 7</i>	30 Jun 2011
16	<i>Pawsey Centre Project Annual Report 2 (incl Milestone Report 8)</i>	30 Sep 2011
17	Completion of Pawsey Centre Building	31 Dec 2011
18	Contract let for installation of petascale system	31 Dec 2011
19	<i>Pawsey Centre Project Milestone Report 9</i>	31 Dec 2011
20	Annual Business Plan 3	31 Mar 2012
21	<i>Pawsey Centre Project Milestone Report 10</i>	31 Mar 2012
22	<i>Pawsey Centre Project Milestone Report 11</i>	30 Jun 2012
23	Delivery of petascale HPC system	30 Jul 2012
24	<i>Pawsey Centre Project Annual Report 3 (incl Milestone Report 12)</i>	30 Sep 2012
25	<i>Pawsey Centre Project Milestone Report 13</i>	31 Dec 2012
26	Annual Business Plan 4, including science case for further funding	31 Mar 2013
27	<i>Pawsey Centre Project Milestone Report 14</i>	31 Mar 2013
28	Acceptance of petascale HPC system	30 Mar 2103
29	Commissioning of petascale system	30 Jun 2013
30	<i>Pawsey Centre Project Milestone Report 15</i>	30 Jun 2013
31	International review of service quality and research outcomes	30 Sep 2013
32	<i>Pawsey Centre Project Final Report</i>	30 Sep 2013

2.3.2. Quarterly Milestones – Phase I

	Milestones to 30 Sept 2009	Projected Completion Date
1	Submit Interim Project Plan Draft to DIISR	20 Aug 2009
2	Establish and convene the HPC Systems Project Control Group	20 Aug 2009
3	Commence analysis of HPC parameters & requirements for building capability of existing HPC nodes	20 Aug 2009
4	Commence Site/Infrastructure/Environmental/Energy Generation Studies, etc	20 Aug 2009
5	Submit Interim Project Plan (final) to CSIRO	30 Sep 2009
6	Advertise for Project Director	30 Sep 2009
7	Establish and convene the HPC Centre Steering Committee	30 Sep 2009
8	Commence environmental studies & analysis (Issue identification)	30 Sep 2009
9	Complete preliminary topographical survey of site	30 Sep 2009

	Milestones to 31 December 2009	Projected Completion Date
1	Initiate first procurement of HPC components for the expanded IVEC Facilities	30 Oct 2009
2	Evaluate Project Director applications	30 Oct 2009
3	Advertise for HPC Systems Architect	30 Oct 2009
4	Establish and convene the HPC Building Project Control Group	30 Oct 2009
5	Commence identification of functional requirements & specialized needs for the facility	30 Oct 2009
6	Commence audit of site services (internal & external) infrastructure capacity	30 Nov 2009
7	Commence exploration of block diagram & siting options	30 Nov 2010
8	Commence development of a preliminary building Project Brief & Costing Plan	30 Nov 2009
9	Submit Final Project Plan to CSIRO	30 Nov 2009
10	Provide commitment to operating the HPC Systems Buildout infrastructure	30 Nov 2009
11	Evaluate HPC Systems Architect applications	30 Nov 2009
12	Signing of EIF Funding Agreement by CSIRO	4 Dec 2009
13	Advertise Building Project Manager contract	10 Dec 2009
14	Evaluate Building Project Manager Tender Responses	17 Dec 2009
15	Develop brief for planning and design consultants	18 Dec 2009
16	Appoint Project Director	18 Dec 2009
17	Appoint Building Project Manager (firm)	24 Dec 2009

Milestones to 31 March 2010		Projected Completion Date
1	Advertise Planning and Design consultants contract	7 Jan 2010
2	Evaluate Planning and Design consultant Tender Responses	21 Jan 2010
3	Engage planning and design consultant	22 Jan 2010
4	Appoint HPC Systems Architect	31 Jan 2010
5	CSIRO/IVEC user consultations (initially by PM and then with planning and design consultants upon appointment at end of Jan)	31 Mar 2010
6	Complete building options development and analyses	31 Mar 2010
7	Complete Schematic Design	31 Mar 2010
8	CSIRO briefs DoFD, & PWC Secretariat	31 Mar 2010
9	Initiate procurement of remaining HPC components for the expanded IVEC Facilities	31 Mar 2010
10	Finalise first HPC procurement	31 Mar 2010
11	Execution of Participants' Agreement	31 Mar 2010
Milestones to 30 June 2010		
1	Commence consultative process for the definition of the requirements and parameters of the petascale HPC system	30 Apr 2010
2	CSIRO prepares PWC Evidence (must be available for Referral Motion) based on Schematic design	30 Apr 2010
3	Dry Run PWC Hearing	17 May 2010
4	Referral Motion (by Minister for Finance and Deregulation)	May 2010
5	PWC Public Hearing	Jun/Jul 2010
Milestones to 30 Sept 2010		
1	PWC advertises for public submissions/comments	Jun/Jul 2010
2	PWC Report	Aug 2010
3	PWC Report Tabled in Parliament	Aug/Sep 2010
4	PWC Expediency Motion	Aug/Sep 2010
Milestones to 31 Dec 2010		
1	Complete building approvals process	Nov 2010
2	Complete procurement of expanded HPC equipment	31 Dec 2010
3	Complete tender documents for petascale HPC system procurement	31 Dec 2010

2.3.3. Quarterly Milestones – Phase II

Detailed quarterly milestones for Phase II will be provided in the Annual Business Plan 1 that will be consistent with building plans approved by PWC and the result of the design activities completed in Phase I.

2.3.4. Quarterly Milestones – Phase III

Detailed quarterly milestones for Phase III will be provided in the Annual Business Plan 2 that will be consistent with the outcomes of the tender process for the petascale HPC systems.

2.4. Project Resources

The key resources for the project comprise:

- Financial contributions - outlined in Table 1 provided in Item C3 of Schedule 1 – comprising funding of \$20 million per financial year, 2009-10 to 2012-13, through the EIF Funding Agreement.
- the technical and project management skills of:
 - the Project Director
 - the HPC Systems Architect
 - the Building Project Manager
- the technical expertise and experience of staff located within existing IVEC HPC Facilities.
- Additional support in the following areas will be drawn where possible from existing CSIRO capabilities and resources. Further project resources in the form of contracted services may be identified subject to agreement as per the Funding Agreement.
 - Project Officer
 - Costing Construction Officer
 - Contract & HR Support (CSIRO)
 - Procurement & Probity Support (CSIRO)
 - Legal Support (CSIRO)

Note: IVEC personnel involved in the Steering Committee, Project Control Groups and other governance structures are not regarded as costed project resources.

3. Access and Pricing

3.1. General Principles

The systems and services supported by the Centre will be part funded by the Commonwealth and part funded by other participants. These contributions will result in underlying shares of the systems and services based on the respective proportion contributed towards the total costs of the Centre from July 2009 through to the expected decommission of the systems, defined here as June 2016.

In anticipation of prospective contributions by IVEC, the parties agree to assign 60% and 40% as the respective shares of the Commonwealth and IVEC, and agree to refine those shares prior to the operation of the petascale HPC, using updated IVEC budgets in January 2012 and as reported in Business Plan 3 (March 2012).

The parties further agree that in respect of the total systems and services funded under this project, that:

- a) A proportion will be made available to the radio astronomy community to support SKA related research.
- b) A proportion will be allocated to accommodate meritorious use and the national priority data-intensive research requirements of NCRIS and Super Science investment.

In respect of a), the radio astronomy use shall have first call on up to 25% of the systems and services. IVEC will consult with the Australian radio astronomy community to allocate the components of this proportion including its potential to contribute to the base line data processing for MWA and ASKAP. All astronomy researchers may in addition participate in the merit and data-intensive priority

processes. The Commonwealth and iVEC will support this use by equal allocations from their underlying shares.

In respect of b), iVEC will establish a Pawsey Allocation Committee to advise it concerning the development and management of allocation processes. Details of these allocation processes and selection criteria will be agreed with the Commonwealth and included in each Annual Business Plan. In general, allocations will be made to the best research proposals against the selection criteria from any researcher eligible for support through EIF infrastructure investment.

The proportional use shall be reported monthly with the intention that these guidelines should be targets for each quarter, and unused proportions are not carried forward.

The use of shares arising from funding contributed outside of this agreement to the expansion of the Centre, shall be determined by agreement with iVEC. It is expected that further contributions from additional investments in the Centre by astronomy or other Super Science developments or any other research interest, would be converted to shares allocated at the discretion of the contributing parties.

3.2. Access Charges

In addition to the access principles outlined in 3.1 above, there will be provision for any organisation to purchase a portion of the systems for their priority use at full operating cost. The cost to research organisations will be the annual cost of the facility in that year factored by the share made available. The cost of access to non-research and commercial users must take account the requirement for Competitive Neutrality and may take into account other market factors.

3.3. Information Management

3.3.1. Information Management

iVEC will use CSIRO's established project management methodology to document project processes, decisions and deliverables, and keep records appropriate to enable scrutiny of its decisions and outcomes.

The use of this methodology will ensure that:

- There is a structured, consistent approach to managing the project (initiation, planning, execution, handover, review).
- There are tools and guides provided for the initiation, planning, execution, monitoring, control and completion of the project, to minimise project management effort and maximise effectiveness.

3.3.2. Intellectual Property

The majority of the funds in this project will be spent on building a state-of-the-art datacentre and a petascale computer, where it is anticipated that there will be no intellectual property generated.

Intellectual Property included in Project Materials will be owned by CSIRO and held for the benefit of the iVEC partners in accordance with the Intellectual Property arrangements that iVEC may adopt from time to time.

Ownership and Management

3.4. Ownership

IVEC is an unincorporated joint venture between the CSIRO and all four public universities in Western Australia, whose purpose is to allow the high-end research communities to access high performance computing, large-scale storage, high-speed communications and 3D visualisation facilities.

The CSIRO, as the Centre Agent for IVEC, is the signatory to the EIF Funding Agreement. As such, CSIRO will own and maintain the Centre, with IVEC managing the operations of the Centre and providing services to the high-end research user community.

The Centre will physically house the bulk of the HPC equipment acquired as part of the project. Other existing HPC, located within IVEC's partner institutions, will be upgraded in Year 1 of the project to provide researchers with access to a mid-range HPC system that will be used to inform the HPC Systems Project Control Group of the parameters that are critical to the acquisition of an appropriately configured petascale HPC system. Ownership of these upgraded assets will be vested in the hosting institution.

3.5. Governance Framework

As outlined in section 1.1 above, the relationship between IVEC and its institutional partners is reflected in the agreed governance and management arrangements for the duration of the Centre Project:

- CSIRO, the Centre Agent for IVEC will execute the Funding Agreement with the Commonwealth Government for the construction of an HPC facility and associated infrastructure at its ARRC site in Perth, Western Australia.
- CSIRO will own and maintain the Centre, to be built on land owned by CSIRO.
- IVEC will manage the operations of the Centre and provide services to the high end research user community.

The IVEC Board has established an HPC Centre Steering Committee, supported by an HPC Systems Project Control Group and an HPC Building Project Control Group, to provide the Board with strategic and operational inputs.

3.5.1. IVEC Membership

IVEC membership comprises the following organisations:

- CSIRO
- Curtin University
- Edith Cowan University
- Murdoch University
- University of Western Australia

3.5.2. IVEC Board

IVEC is governed by a Board of Management comprised of an independent Chairperson and representatives from IVEC's partners. As at Sep 30 2009, the Board was comprised of:

- s22

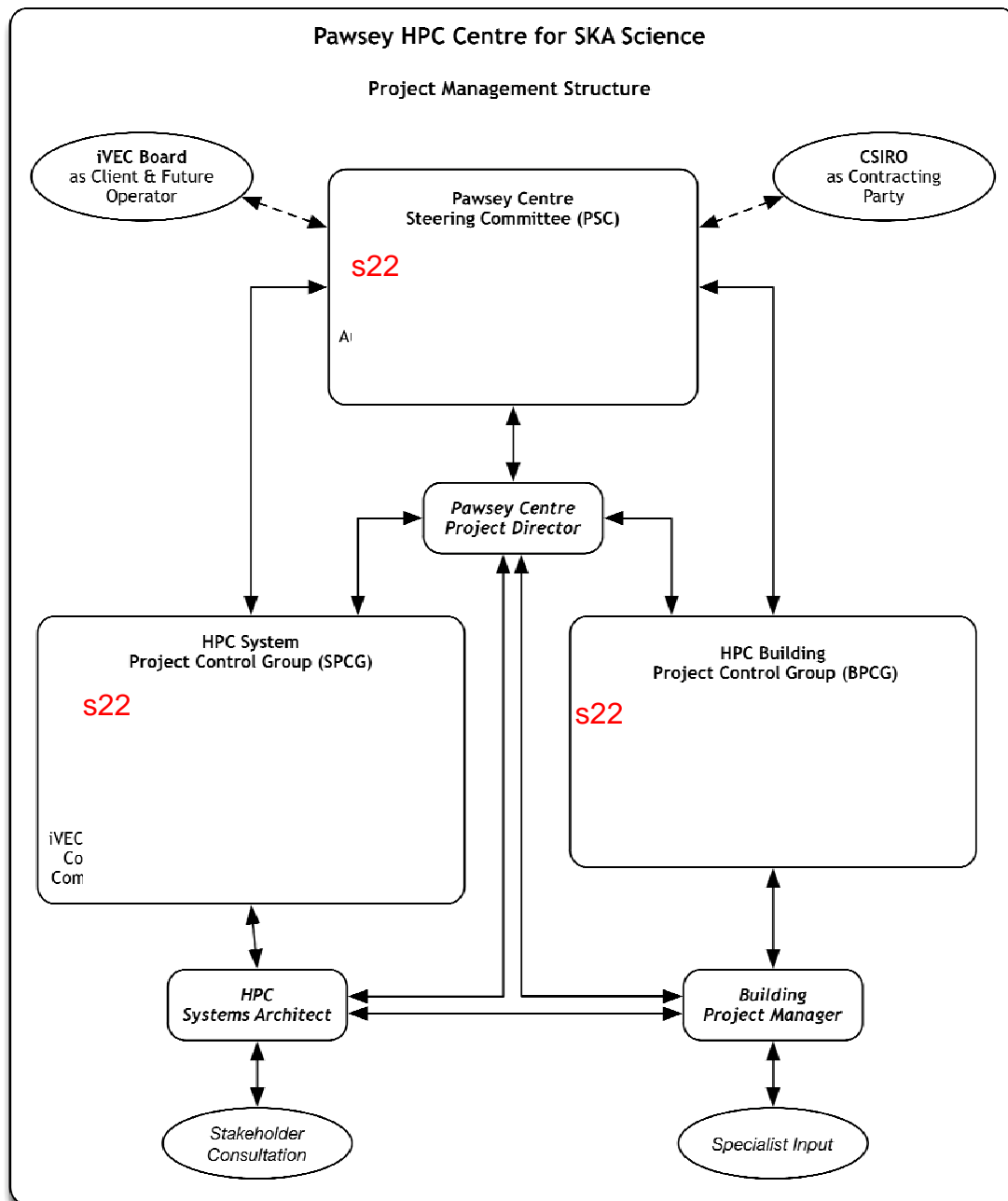
- s22

3.6. Management Structure

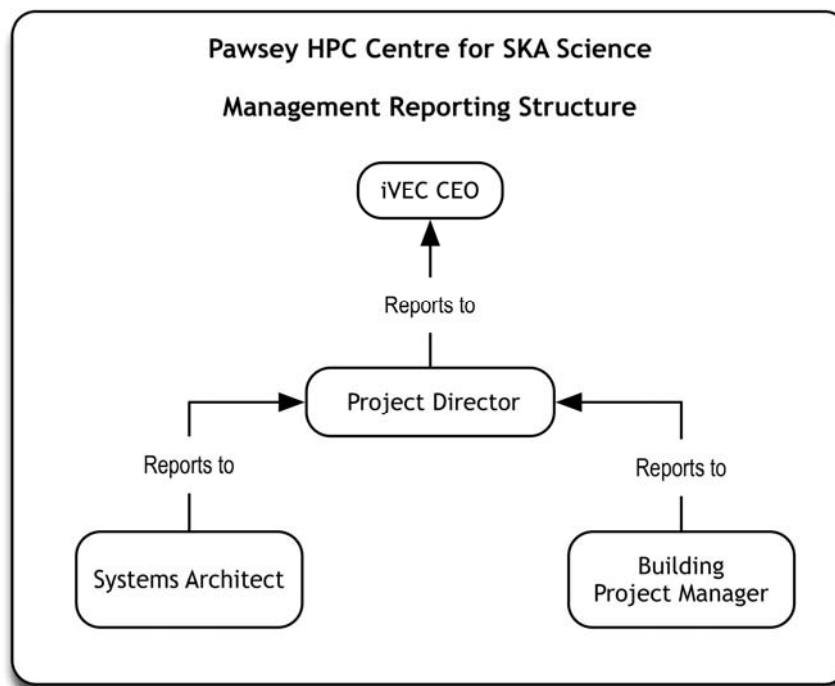
The proposed project management structure comprises a Steering Committee with overall responsibility for the planning and execution of the project, and a Project Control Group for each of the two project components (HPC Systems and HPC Building).

The management structure diagrammed below and outlined in the sections that follow, is designed to ensure that the Centre is planned and developed in an efficient and effective manner. The structure and associated project management roles will exist only for the life of the project (approximately four years).

The governance and management of the Centre, once established, will be determined by the iVEC Board prior to the commencement of operation of the Centre.



At the day to day operational level, the Project Director reports directly to the iVEC CEO. The Systems Architect and the Building Project Manager report to the Project Director. These relationships are outlined in the diagram below.



3.6.1. CSIRO

The CSIRO (an iVEC Partner) has the following responsibilities during the life of the Centre project:

- Executes the EIF Funding Agreement with the Commonwealth Government
- Holds ultimate contractual responsibility
- Acts as the Centre Agent for iVEC

3.6.2. iVEC Board

Acting within the Terms and Conditions of the EIF Funding Agreement, the iVEC Board endorses the governance and project management structures required for the efficient planning and execution of the Centre project.

In its role as the project Client, the iVEC Board specifies its requirements concerning the nature of the HPC system and the purpose-built building that will house the HPC equipment.

3.6.3. Pawsey HPC Centre: Steering Committee

The Steering Committee has overall responsibility for the establishment and commissioning of the Centre (building construction and HPC hardware acquisitions).

The Committee provides regular Progress Reports to the iVEC Board.

A key position within the Steering Committee is the HPC Centre Project Director. This person will have overall responsibility for the planning, execution and management of the Centre project (ie including the HPC systems identification and the building construction). The Project Director reports at the operational level to the CEO.

The **Steering Committee** comprises:

Chair	s22
Project Director	<i>(to be appointed)</i>
IVEC CEO	s22
IVEC Board Representative	s22
CSIRO Executive Representative	tba
Aust SKA Coordination Committee Chairman	s22
DIISR Observer (non-voting)	s22

3.6.4. HPC Systems: Project Control Group

The HPC Systems Project Control Group is responsible for identification, sourcing and procurement of the high performance computing hardware for the Centre.

The specialised nature of the technology necessitates the appointment of an HPC Systems Architect

The Systems Architect will be responsible for expert liaison with all relevant stakeholders, to identify the particular technical needs of specific future user groups.

The Systems Architect will provide regular status reports to the Project Control Group and make final recommendations to the Project Control Group concerning the requirements and parameters for the purchase of HPC equipment. At the operational level, the Systems Architect reports to the Project Director.

The Systems Project Control Group will submit reports and recommendations to the Steering Committee for sign-off.

The **HPC Systems Project Control Group** comprises:

Chair	s22
Project Director	
HPC Systems Architect	
ICRAR representative	
ASKAP representative	
NCI Representative	
IVEC Board representative	
IVEC Facility Directors' Representative	
Computational Science representative	
Computational Science representative	

3.6.5. HPC Building: Project Control Group

The HPC Building Project Control Group is responsible for the planning, design and construction of the building that will house the Centre.

The Project Manager for the Control Group will have expertise and experience in building construction management.

The Project Manager (Building) will have oversight of all matter relating to the planning, design, approval, procurement and construction stages of the building project.

The Project Manager is also responsible for liaison with all relevant stakeholders, to identify particular technical needs of specific future user groups.

The Project Manager will provide status reports to the Project Control Group at regular intervals. At the operational level, the Project Manager reports to the Project Director.

The Project Control Group will provide regular status reports to the Steering Committee concerning the progress of the building planning and construction.

The Building Project Control Group will submit reports and recommendations to the Steering Committee for sign-off.

The **HPC Building Project Control Group** comprises:

Chair	s22
Project Director	
Project Manager (Building)	
iVEC Board representative	
iVEC Facilities Representative	
CSIRO Representative (Facility Agent)	
CSIRO Representative (Property)	

3.7. Project Goals and Evaluation

3.7.1. Goals

The primary goal of the Centre is to establish a world-class hub for high performance computing that will support high-end research in different areas of computational science, including Radio Astronomy. In so doing, the Centre will complement and support CSIRO's Australian SKA Pathfinder (ASKAP) and the International Centre for Radio Astronomy Research (ICRAR).

The intention of the Project is to create the infrastructure that will:

- Grow HPC expertise among the high-end research user community and iVEC staff, through the installation of approx 150 teraflops of HPC capacity at existing iVEC Facilities in the first 18 months of the project.
- Provide infrastructure to support research which specifically requires petascale HPC access
- Facilitate the intellectual capability relating to the use of petascale HPC facilities to support high-end research

3.7.2. Evaluation

Project evaluation criteria will reflect the demands of both designing and constructing the building to house the petascale computer, and designing, procuring, installing and commissioning the actual petascale computer system. The performance indicators outlined below will be refined following the appointment of the Systems Architect and the Project Director.

Indicative Evaluation Criteria:*Provision of Research Infrastructure*

- Value of new infrastructure by location
 - Cost and description of facilities and equipment
- Value of all infrastructure made available under EIF
 - Cost and description

Performance against EIF Principles

- Principle 1: Projects should address national infrastructure priorities
- Principle 2: Projects should demonstrate high benefits and effective use of resources
- Principle 3: Projects should efficiently address infrastructure needs
- Principle 4: Projects should demonstrate they achieve established standards in implementation and management

Quality of Research Infrastructure

- Benchmark against other Australian and overseas infrastructure.
 - Specific comparisons against facilities or instruments where available
 - Independent reviews
- Quality of the intended services provided by the research infrastructure to meet the needs and demand of the targeted communities

Collaborative Infrastructure Provision

- Extent and duration of collaborative agreements / relationships established for managing and developing research infrastructure
 - Type of agreement and parties involved
- Extent and prospect of sustainability of the research infrastructure beyond the life of the Project.

4. Risk Management

The key risks for iVEC (and CSIRO) in executing the Centre EIF Project and the risk management strategies to be employed, can be grouped into four major categories:

- Financial
- Building Construction
- HPC Procurement
- Relationships

Key risks in each area, and the related mitigation strategies, are detailed below:

Risk Area 1: Financial		
	Risk	Mitigation
1.1	Construction of the Pawsey HPC Centre & procurement of HPC Systems: potential for cost overruns	Refer Risk Area 2 (Construction) and Risk Area 3 (Procurement) for mitigation strategies relating to costing
1.2	Ongoing Western Australian Government support for iVEC – iVEC has yet to secure ongoing Western Australian Government support for the venture beyond the term of the current Funding Agreement, which expires in June 2010.	Detailed discussions have already been held between Troy Buswell, the Minister for Science and Treasurer and the iVEC CEO and iVEC Board Chairperson. Whilst not committing to a quantum of ongoing funding from the Government, the Minister has indicated that the State Government will continue to support iVEC's activities, including those of the Centre
1.3	Provision for meeting ongoing operating costs associated with the Centre (estimated at approx \$4 million/year), for building and related costs. At this stage, there is no agreement between the iVEC members (and potentially other users) as to how these costs will be met/shared.	Discussions between the iVEC members are at an early stage in terms of potential cost sharing arrangements to meet recurrent operating expenses associated with the Centre. Preliminary investigations suggest that cooling costs (which may represent up to one third of total electricity demand) could be met by establishing the Centre as a geothermal energy demonstration site, alongside the main ARRC facility, tapping into shallow hydrothermal aquifers. However, this will require significant, up-front capital investment. CSIRO is in the process of engaging a consultant to quantify the costs/benefits of pursuing this opportunity.
1.4	Capacity to meet depreciation costs associated with computing equipment. Those iVEC members with ownership of computing equipment provided through the Funding Agreement will incur depreciation charges for the life of the equipment. For CSIRO, these charges will be a significant expense, as it will own the petascale computing equipment located in the data centre at ARRC. Estimated depreciation charges are \$8 million/annum	CSIRO will investigate opportunities to cover depreciation costs within the Commonwealth Government's financial management framework.

Risk Area 2: Building Construction		
	Risk	Mitigation
2.1	Insufficient funding to meet requirements – there could be insufficient provision made for construction costs.	The indicative split between building and HPC costs is \$25m and \$55m respectively. This amount is considered adequate to meet HPC Centre construction costs.
2.2	General construction delay risks - potential building delay risks could include initial lack of scope definition, changes in functional brief and scope of works during design/construction phases, errors in brief and contract documentation, equipment supply problems, latent site conditions (eg unexpected discovery of site contamination, flora and fauna, archaeological or heritage items), failure in performance of design or construction contractors, changes in legislation or in building & construction standards.	The timeframe for the design and construction of a project of this size and complexity is relatively tight. The building component can be constructed within this timeframe but fit-out and timely commissioning of the building may provide challenges if definition of user requirements and the scope of fit-out are delayed. The risk of construction-related delays will be mitigated through thorough site investigations and planning, established quality control systems and procedures, and experienced project management within an effective governance structure. CSIRO has managed similar building projects within this timeframe. Delay allowances will be incorporated in the building construction program to address site conditions (minimal), weather, industrial action, etc.
2.3	Compliance with local zoning requirements – compliance will be required with any applicable requirements.	The 4.3 hectare developed ARRC site is subject to a 99 year Ground Lease with the WA Government. "Advanced computing" is a "Permitted Use" in the Lease. There is no specific requirement in the lease for CSIRO to obtain any planning approvals for any use or development of the leasehold land. Notwithstanding, the building will be designed to ensure it is consistent with local planning requirements (height, plot ratio, site coverage, street frontage and boundary setbacks, landscape and carparking).
2.4	Capacity to comply with any applicable environmental and heritage requirements.	A formal application will to be lodged under the EPBC Act. Environmental and heritage assessments will be required. Although the site is within an area that in the pre-World War II era was used as a military and civilian rifle range, there are no known heritage issues. There is also no known unusual vegetation or threatened fauna associations present on the site. The building will be designed and constructed to minimise impact on the local environment. Sustainability principles will be incorporated in the building design, eg energy conservation and site generation (geothermal, solar), water conservation measures.

2.5	Approval by the Parliamentary Standing Committee on Public Works (PWC) of the proposed building	CSIRO works closely with iVEC partners and DIISR to prepare necessary documentation addressing PWC requirements and possible concerns for presentation to the PWC of the proposed building of the HPC Centre. CSIRO has considerable expertise in the preparation and submission of projects to the PWC.
2.6	Governance – an effective project governance arrangement will be required	A Project Governance Structure will be established to ensure appropriate management of the project throughout its design and construction. The project will be overseen by a Steering Committee consisting of senior representatives from CSIRO, ASKAP and iVEC and an observer from DIISR, who will identify collaborative research strategies and provide overall direction to the project. A Building Project Control Group, comprising iVEC, CSIRO and property representatives with extensive experience in managing large construction projects, will provide oversight and management of the day- to-day design and construction activities and report to the Steering Committee.
2.7	Financial – the potential for cost increase is present in any construction project.	Once the scope of work is defined, the budget estimate will be developed by experienced Cost Planners and costings will be refined as part of the detailed planning phase and reviewed by independent Cost Planners. Unexpected cost increases once the budget is established will be controlled through management of scope, budget and costs of respective components to achieve offsetting savings.
2.8	Resourcing – the potential for engagement of sub-optimal contractors and personnel	Resources for the planning, design and construction of the facilities will be sourced from the private sector through open tender processes. Experience has shown there are many competent firms available to undertake the project. The proposed project team will consist of people with the relevant expertise to manage the project
2.9	Procurement – capacity to manage procurement procedures effectively	<p>It is expected that the project will be constructed using a traditional lump sum contract form of construction delivery, consistent with CSIRO's preferred approach. The procurement will be managed by CSIRO using normal tendering processes. A Building Project Manager will be appointed to manage the day-to-day activities by design consultants and contractors. The Project Manager will be directed by the Project Control Group and also be supported by a quantity surveyor who will provide independent cost advice. The Project Control Group will meet regularly throughout the design and construction phases, and members will have responsibility for communicating with and involving staff as appropriate. CSIRO Property Services will also appoint an in-house Project Director to coordinate CSIRO's input for the briefing, design and construction phases of the project. The CSIRO Project Director will be a member of the Project Control Group along with CSIRO Business Unit representatives.</p> <p>The selection criteria for evaluation and appointment of design and construction contractors will be based on the relevant experience, past performance, technical, resource and managerial capabilities and financial capacity of such contractors to undertake the project within the value and complexity range.</p>

Risk Area 3: HPC Procurement		
	Risk	Mitigation
3.1	Objectives and benefits – clear information will be required on the required objectives and benefits of the HPC equipment.	The HPC Systems Project Control Group, through the expertise of the HPC Systems Architect, has the role of determining the specific structure and parameters of the HPC system. The research user community will be widely consulted in the determination of these parameters.
3.2	Insufficient funding to meet requirements – there could be insufficient provision made to meet high-end HPC acquisition costs.	The indicative split between building and HPC costs is \$25m and \$55m respectively. This amount is considered adequate to meet high-end HPC needs.
3.3	General procurement delay risks - potential procurement delay risks could include initial lack of scope definition, changes in functional brief, lack of effective stakeholder consultation and agreement, inadequate tender documentation and responses from tenderers, probity issues, terms and conditions unacceptable to tenderers, variations in price and foreign exchange, and delays in supply of selected equipment.	The procurement process will be subject to CSIRO procurement policy/procedures and will be oversighted by the Procurement Unit. The general procurement risks are routinely addressed in procurement exercises. Both iVEC and the CSIRO have previous experience in high-end HPC procurement exercises. The experience and learnings from these exercises will be drawn on as part of risk mitigation.
3.4	The procured systems do not meet the requirements of the radio astronomy and other data-intensive sciences	The Pawsey Steering Committee has direct representation from the radio astronomy community, providing oversight for this very important community. The HPC Systems Project Control Group has two representatives from the radio astronomy community and two from the wider computational science and engineering community. One of the latter is Dr Alf Uhlherr, Senior Manager, Advanced Scientific Computing, who has access to researchers across all of the communities within CSIRO. Finally, the Director of NCI has significant experience in providing a system (the National Facility) that has to meet the requirements of many stakeholders. This combined experience that will be involved in every stage of the specification process will greatly minimise the risk associated with meeting the requirements.

Risk Area 4: Relationships		
	Risk	Mitigation
4.1	Lack of effective engagement between Project personnel and external stakeholders	<p>Key stakeholder representatives will be included in the membership of the Steering Committee and both Project Control Groups.</p> <p>Wide and ongoing consultation with stakeholders will be a key role of the Project Director, Systems Architect, Building Design Consultant and Building Project Manager.</p> <p>IVEC will ensure ongoing strong engagement with the research user community & other stakeholders through forums, newsletters and regular communication activities.</p>
4.2	Potential difficulty in meeting the demands of different user communities for access to the HPC Centre	<p>Key user communities will be consulted concerning their particular requirements of an HPC system.</p> <p>A HPC Centre Access Policy will be developed and distributed to user communities. This policy will re-iterate and refine existing policy governing access to current HPC facilities at IVEC Nodes.</p> <p>An induction-development program will form part of the initial phase of the HPC system expansion, providing researchers with the opportunity to develop their expertise in preparation for their eventual access to another order of magnitude in HPC.</p>

5. Implementation Strategy & Financial Information

5.1. Implementation Strategy

Key tasks to be completed by 30th Sept 2009:

- Submission of Interim Project Plan to CSIRO as part of the project endorsement process
- Review and refinement of the Interim Project Plan, in consultation with CSIRO and DIISR. Areas to be addressed include:
 - Project participants details
 - Project Resources details
 - Detailed Milestones summary by Quarter
 - Financial projections data
 - Pricing and Access
- Negotiation of a Funding Agreement between CSIRO, as lead agent of IVEC, and DIISR
- Submission of the Interim Project Plan to DIISR for approval.

Tasks to be completed by 18th Dec 2009:

- Initiation of procedures to appoint a Project Director, Systems Architect and Building Project Manager
- Completion and submission of Final Project Plan to DIISR for approval.

5.2. Financial Projections

Summary of EIF contributions to the Project (GST exclusive)

(Reference: EIF funding Agreement, Schedule 2, AA Funding – Clause 3).

2009-10	2010-11	2011-12	2012-13	TOTAL
<p>\$10 Million on acceptance by DIISR of a letter of commitment to operating the infrastructure described in Section 2.1.1 of Attachment A, as determined by the Program Delegate.</p> <p>\$10 million on the execution of a Participants' Agreement, acceptable to DIISR, to give effect to clause 7A of this Funding Agreement.</p>	<p>\$20 Million on receipt of written advice from CSIRO of approval of the Public Works Committee for construction of the Pawsey Centre and associated petascale HPC procurement.</p>	<p>\$20 Million on receipt of written advice from CSIRO that the petascale HPC procurement negotiations have been successfully concluded.</p>	<p>\$15 Million on receipt of written confirmation of the delivery of the petascale HPC system.</p> <p>\$5 Million on receipt of written confirmation from CSIRO that the petascale HPC system has passed acceptance testing</p>	<p>\$80 M</p>

The Budget for the full-term of the Project, including the co-investments needed to underpin the work will be provided in the March 2010 Business Plan.

5.2.1. Financial Management

IVEC is subject to the financial management arrangements at CSIRO, and disburses funds on the basis of these arrangements.

5.2.2. Source of Co-Investment and nature of expenditure

Confirmed co-investment details and processes for expenditure will be provided in the Final Project Plan.

Annex 1: Description of Project Infrastructure to be initiated in 2009 – 2010

Infrastructure	Expenditure
Capability development of HPC capacity at existing IVEC Nodes	\$15 million