

The Senate

Select Committee into the Scrutiny
of Government Budget Measures

Third interim report

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Membership of the Committee

Members

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Senator Richard Di Natale (Chair until 15.06.2015)	AG, VIC
Senator Sam Dastyari (Deputy Chair until 25.02.2016)	ALP, NSW
Senator Lisa Singh (Deputy Chair from 25.02.2016)	ALP, TAS
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Senator the Hon Matthew Canavan (from 17.07.2016 – 23.02.2016)	NAT, QLD
Senator Sean Edwards (from 12.10.2.2015)	LP, SA
Senator Sue Lines	ALP, WA
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Senator James Paterson (from 15.03.2016)	LP, VIC
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Senator the Hon Kim Carr (Substituted for Senator Anne Urquhart 21.03.2016 – 10.04.2016 and 18.04.2016 – 10.05.2016)	ALP, VIC
Senator the Hon Anne Ruston (Substituted for Senator the Hon Matthew Canavan 12.12.2014)	LP, SA
Senator Scott Ludlam (Substituted for Senator Richard Di Natale 12.12.2014)	AG, WA

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Senator David Bushby	LP, TAS
Senator Scott Ludlam	AG, WA
Senator Bridget McKenzie	NAT, VIC
Senator Nicholas McKim	AG, TAS
Senator Helen Polley	ALP, TAS
Senator Lee Rhiannon	AG, NSW
Senator Janet Rice	AG, VIC

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List of Recommendations

Recommendation 1

2.104 The committee recommends that the Auditor-General investigate the use of private emails by CSIRO, as part of its processes to determine staffing reductions, in order to establish whether the CSIRO Executive has met its record keeping obligations in managing a significant restructure.

Recommendation 2

2.105 The committee recommends that the CSIRO Board delays the implementation of the proposed job cuts and undertakes a thorough review of the deep dive process and outcomes in light of the evidence received by this committee and feedback from staff and stakeholders.

Recommendation 3

2.106 The committee recommends that the government direct the CSIRO to cease implementation of its proposed restructure in light of the upcoming election and evidence that the alternative government would set different priorities for CSIRO through the Statement of Expectations process.

Recommendation 4

3.95 The committee recommends that a suitable independent agency be tasked with investigating the economic value of CSIRO climate measurement and research, including the return on investment for Australia and the benefits of better timed and placed adaptation and mitigation measures.

Recommendation 5

3.96 The committee recommends that the Department of Defence reports to the Minister of Defence and the Minister for Industry, Innovation and Science on the future ocean intelligence requirements needed to maintain tactical advantages for all its operations, including the entire operating life of the future submarine fleet.

Chapter 1

Referral

1.1 On 25 June 2014, the Senate resolved to establish the Select Committee into the Abbott Government's Budget Cuts. The committee was established to inquire into the effect of cuts or changes in the Commonwealth budget and provide a final report to the Senate on or before 20 June 2016, with particular reference to:

- a) any reductions in access to services provided by the Commonwealth;
- b) the provision of other services, programs or benefits provided by the Government affected by the budget;
- c) Commonwealth-state relations and the impact of decreased Commonwealth investment on service delivery by the states;
- d) the fairness and efficiency of revenue raising;
- e) the structural budget balance over the forward estimates and the next 10 years;
- f) the reduced investment in scientific research and infrastructure and its impact on future productivity;
- g) public sector job cuts;
- h) the impact of the budget on retirement incomes and pensions;
- i) intergenerational mobility;
- j) the impact of the budget on young people and students;
- k) the impact of the budget on households; and
- l) other matters the committee considers relevant.¹

Committee name change

1.2 On 11 August 2015, the Senate agreed to change the name of the committee to the Senate Select Committee into the Scrutiny of Government Budget Measures to more accurately reflect the ongoing work of the committee.²

Area of inquiry for this report

1.3 As per Terms of Reference f and l, the committee agreed to investigate the proposed organisational restructure and resulting job losses in the climate research areas at the CSIRO. Job losses were announced by the current CSIRO Chief Executive Dr Larry Marshall on 4 February 2016.³

1 *Journals of the Senate No. 36—25 June 2014, pp 1000-1001.*

2 *Journals of the Senate No. 104—11 August 2015, p. 2900.*

3 Dr Larry Marshall, staff email, accessed via <http://www.smh.com.au/environment/climate-change/climate-will-be-all-gone-as-csiro-swings-jobs-axe-scientists-say-20160203-gml7jy.html> (accessed on 15 March 2016)

Conduct of the inquiry

1.4 The committee directly contacted a number of relevant organisations and individuals to notify them of the inquiry and to invite submissions. A list of all submissions received by the committee is available at Appendix 1.

1.5 In relation to this inquiry, the committee held public hearings in: Hobart on 8 March, Melbourne on 11 March, Canberra on 7 April and 27 April 2016. Relevant submissions and the Hansard transcripts of evidence from public hearings can be accessed online through the committee's website.

Acknowledgements

1.6 The committee thanks all the individuals and organisations that made submissions to this inquiry and appeared at the public hearings.

Chapter 2

Process issues raised with the committee

2.1 A number of issues with the processes undertaken leading up to the announcement of the restructure were raised with the committee. These include: the 'deep-dive' process; how staffing numbers to be cut were decided; a lack of consultation with staff and key partners; and the use of private emails by CSIRO executives as part of the process.

Background

2.2 On 4 February 2016, the Chief Executive of CSIRO, Dr Larry Marshall, sent an email to staff announcing a change of strategic direction. The change involves an organisational restructure which will affect programs across the organisation, including climate research. The media reported that the restructure would affect up to 350 jobs with the climate science areas the hardest hit.¹ Staff were told about plans to cut approximately 100 full time researchers from the Oceans and Atmosphere Division with the Earth Assessment and Oceans and Climate Dynamics units most affected.²

2.3 On 11 February 2016, at estimates hearings, Dr Marshall provided additional context for the strategic shift:

The committee will no doubt be aware of the strategic shift for the CSIRO announced in our strategy last year and, with more details, in the media just over a week ago. As there has been some misreporting in relation to this matter, I would like to put on record the facts as they currently stand. In our CSIRO Strategy 2020: Australia's Innovation Catalyst, we recognise that the Australian economy is in transition. We must respond. What carried us in the past cannot carry us into the future. The future will be defined by science-led innovation, which will reinvent existing industries and create new ones to maintain Australia's prosperity. CSIRO does research for a purpose. We are a big, mission-directed organisation created to deliver science and solutions to solve the biggest challenges facing Australia. On Thursday last week, I announced the outcomes of the latest review of our science investments in order to respond to our new innovation catalyst strategy. But it is more than just CSIRO's own strategy. It is responding to the nine national science and research priorities, which include a priority to build Australia's capacity to respond to environmental change and emigrate research outcomes from biological, physical, social and economic systems.³

1 Jessica Gardner, 'CSIRO puts 350 staff on notice in Netflix-style culture revamp', *The Sydney Morning Herald*, 4 February 2015.

2 Peter Hannam, 'Australia to be 'isolated' from global research after CSIRO climate cuts: WMO', *Sydney Morning Herald*, 9 February 2016.

3 *Estimates Hansard*, 11 February 2016, p. 54.

2.4 Dr Marshall also provided further detail on how this change would affect staff:

This change is a refresh and a redirection of capability and of CSIRO, not cuts to staffing levels. After this process over two financial years, the number of team members should be the same or slightly higher. The worst case is that up to 350 team members could be affected, and, if they cannot be redeployed or reskilled, they will leave. We are trying to be a more open organisation; that is why we crowdsourced our strategy. We communicated to our team as soon as we confirmed people's jobs could be affected. Because this affects people's lives, I respectfully ask you to be patient with us while we work through the detail to be fair to those affected. I must stress that this announcement marked the start of this journey. Moving from setting the high-level strategic science priorities as a first phase, to working out the detail of how to execute this with our staff and stakeholders in its second phase, and then executing the changes. We are currently in the second phase of this process, consulting with our staff and our stakeholders in order to resolve the details, a process which we are committed to undertaking. Until this is complete and the precise information is known, speculating on potential outcomes is not fair to our staff.⁴

2.5 The 4 February 2016 announcement follows significant government funding cuts to CSIRO since the 2014-15 Budget which cut \$27 million in 2014-15 and \$114.8 million over the forward estimates.⁵ On 13 May 2014, Dr Megan Clark, former Chief Executive of CSIRO, outlined the impacts of government funding cuts on CSIRO staffing numbers:

Based on the new Budget position, and taking into account the economic environment for our industry and external partners, we will need to reduce the number of staff in CSIRO by up to 420 FTE by the end of June 2015. A further potential decrease of an estimated 80 FTE is forecast to occur through to June 2018 dependent on external revenue. These reductions are in addition to the previously announced loss of up to 300 FTE arising from our reform program. The changes are reflected in our Average Staffing Levels in the PBS which reduce from 5,523 for 2013-14 to 5,034 for 2014-15. This will be painful for our teams and our people who have dedicated themselves to the future of Australia and their families.⁶

4 *Estimates Hansard*, 11 February 2016, p. 54.

5 Dr Megan Clark, *Message from the Chief Executive: 2014 Federal Budget* <https://www.csiroalumni.org.au/news/172901/Message-from-the-Chief-Executive-2014-Federal-Budget.htm> (accessed 15 March 2016); see also Noel Towell, 'CSIRO job cuts mean painful days for government scientists', *The Canberra Times*, 14 May 2014

6 Dr Megan Clark, *Message from the Chief Executive: 2014 Federal Budget* <https://www.csiroalumni.org.au/news/172901/Message-from-the-Chief-Executive-2014-Federal-Budget.htm> (accessed 15 March 2016) .

Concerns with the 'deep-dive' process

2.6 The committee was interested to understand the process CSIRO used to decide the areas which would be subject to job losses. Dr Alex Wonhas, Executive Director, Environment, Energy and Resources at CSIRO outlined:

...the whole process started with CSIRO, under its new chief executive, developing its new Strategy 2020.⁷ That really outlined the areas that CSIRO wants to invest in into the future and, frankly, the role that CSIRO wants to play in Australia's innovation system. If I could maybe summarise it, it is really for CSIRO to become Australia's innovation catalyst.⁸

2.7 Dr Wonhas then went on to describe what was termed the 'deep dive' process which commenced in September 2015 requiring each business unit to show how their work aligned with the strategy:

As a result of the overall strategy outline, all of the business units have been asked, basically, to present their forward plan in alignment with that strategy. That is a process that played out over the second half of last year: firstly, a meeting where all of the business units presented their plans and then there were individual discussions between the leadership of those groups and the executive.

In those discussions, each of the business units outlined their plans. For example, the Oceans and Atmosphere team outlined growth options in alignment with the new strategy of 35 staff. That is where the 35 number came from. They also outlined a corresponding reduction in other staff areas.⁹

2.8 Ms Hazel Bennett, Chief Finance Officer, CSIRO, informed the committee that the decisions around job losses were made in relation to six criteria:

...impact value; customer need; market attractiveness; competitiveness; performance, and that is more along the lines of the broader science performance; financial attractiveness, in terms of financial return; and financial investment required in any new growth area.¹⁰

2.9 The business units were advised of these criteria and put forward their plans which the executive used to consider the growth opportunities and opportunities for reprioritisation.¹¹

2.10 Between November and December 2015, the Chief Executive, Dr Larry Marshall, the CFO, Ms Hazel Bennett, the Deputy Chief Executive, Mr Craig Roy and other executives spent half a day with the leadership team of every business unit to

7 Strategy 2020 was launched in July 2015.

8 *Proof Committee Hansard*, 8 March 2016, p. 39; Mr Craig Roy, *Estimates Hansard*, 11 February 2016, p. 60.

9 *Proof Committee Hansard*, 8 March 2016, p. 39.

10 *Proof Committee Hansard*, 8 March 2016, p. 40.

11 *Proof Committee Hansard*, 8 March 2016, p. 39.

discuss issues. The issues discussed included: the strategy of the individual business units, markets, strength of business units capability and partnerships. They were also asked to describe options for growth, new markets as well as options of areas to divest in order to fund growth.¹²

2.11 Ms Bennett confirmed that, across all criteria the Oceans and Atmosphere area performed relatively poorly and as a result was subject to staffing cuts.¹³

2.12 The committee questioned the ability of management to measure performance against these criteria, particularly impact value and the customer need for climate science.¹⁴ In relation to customer need, Dr Wonhas responded:

If we are taking, as I said before, demand for these services as a function of government investment as a proxy, it is fair to say that there has been a reduction in that, and that has been an indicator that there may be less demand from our numbers of customers for that.¹⁵

2.13 However, the committee questioned witnesses regarding the decision-making process, in particular the financial performance metrics used and the need for external earnings and found conflicting evidence. In reference to projected external revenue in Oceans and Atmosphere research programs for 2016 and beyond, Dr Peter Craig, Director, Collaboration for Australian Weather and Climate Research, CSIRO, reported on a case where the probability of an important contract happening was set at zero per cent by the business development team:

That is what happened. I know that is what happened, and the people involved in the NES project, who I worked very closely with, are incredulous that that happened. Clearly what they [O&A Management] did was make it look as though the prospective earnings in climate science were a lot less than they really were—like zero versus \$23 million.¹⁶

2.14 When asked by the committee for reasons for this action by O&A Management, Dr Craig replied:

That one really does put me on the spot. I have to say that, at senior level in the O&A management, I think there is—at best—indifference¹⁷ and, at worst, hostility towards climate science.

2.15 Witnesses also questioned the value of the deep dive process stating that it only included the executive of CSIRO. Professor Anthony Haymet argued:

I think the flaws in this process have to be acknowledged. There has to be some understanding inside the organisation that the next time a 'deep dive'

12 Mr Roy, *Estimates Hansard*, 11 February 2016, p. 60.

13 *Proof Committee Hansard*, 8 March 2016, p. 40.

14 *Proof Committee Hansard*, 8 March 2016, p. 40.

15 *Proof Committee Hansard*, 8 March 2016, p. 40.

16 *Proof Committee Hansard*, 11 March 2016, p. 48.

17 *Proof Committee Hansard*, 11 March 2016, p. 48.

goes on it will truly be deep and the real experts in the field will actually be consulted.¹⁸

2.16 Dr Craig also stressed this point:

Let us be clear about this deep dive. The level and depth was one level below Dr Ken Lee, the director of the Oceans and Atmosphere Flagship. The flagship has 420 staff. It must have a budget of around about \$100 million, and they went down to one level below the director. That does not seem very deep to me.¹⁹

2.17 Dr Craig stated that, from information available to him, the assessment undertaken against the criteria did not go far enough to include the people who really understood the science.²⁰

2.18 In a public statement, Dr Marshall explained:

We asked business unit leaders to focus their operational plans on growth, and growth within finite resources will always initially lead to making choices about what to exit.²¹

2.19 In addition to poor performance across the criteria, Ms Bennett, mentioned that a reduction in co-funding for the Oceans and Atmosphere area was another clear factor in staffing reductions as:

[The reduction of co-funding] goes not only to the viability of the science but also to whether the CSIRO can stand in and almost be the funder of last resort.²²

2.20 When asked at the hearing on 27 April 2016 whether achieving cost savings was a key reason for the restructure, Ms Bennett commented:

We set out to re-prioritise our investment. As I indicated from the start, there is no external reduction on CSIRO. Back in September-October [2015] it was our initiative, which became the deep-dive processes, to support the growth into the new strategic areas. So it has been very fluid all the way through from the deep dives to consultation and adjustments from them and now essentially back into Finance; we are now finalising the business unit budgets.²³

2.21 When pressed by the committee whether CSIRO had attempted to value the decades of climate research and intellectual property Ms Bennett conceded:

18 *Proof Committee Hansard*, 11 March 2016, p. 59.

19 *Proof Committee Hansard*, 11 March 2016, p. 45.

20 *Proof Committee Hansard*, 11 March 2016, p. 49.

21 Dr Larry Marshall, 'Correcting the Public Record on Changes at CSIRO', *Media release*, 8 February 2016.

22 *Proof Committee Hansard*, 8 March 2016, p. 43.

23 *Proof Committee Hansard*, 27 April 2016, p. 7.

We walk around the issue, because it is incredibly difficult—just the point at which we even recognise when particular science fed into and what it ultimately led into. We often try and postulate this, particularly around valuation of our IP. But, as you can imagine, it is very difficult to take essentially the very first origin of the science idea through into when we believe it is now in the form where it starts to shape up as a commercial outcome in some shape or form and then ultimately becomes something different.²⁴

Deciding on the staffing cuts

2.22 Ms Bennett informed the committee that as a result of the 'deep-dive' process the Oceans and Atmosphere business, which has approximately 420 staff, will have 100 positions cut. However, 35 new positions would be created.²⁵

2.23 The committee examined how CSIRO arrived at these numbers. The committee was informed that, having gone through the information put forward by the business units, the executive met for two days on 14 and 15 December 2015.²⁶ As a result of this meeting, the executive asked Dr Wonhas to go back to the Director of the Oceans and Atmosphere team, Dr Ken Lee as:

We felt that there was capacity. We provided advice that respective executive directors took back to their business units. In the case you are talking about, you are correct, the executive asked Dr Wonhas to then talk with Dr Lee about the scale of a reduction of 100.²⁷

2.24 Dr Wonhas outlined that as a result of the instructions from the executive:

I called Dr Lee and asked him to consider the option of a total reduction of 100 FTE and I told him what the implications of that option would be in addition to, obviously, the plan that he had put forward. Then there was the Christmas break. Following that, I had a meeting in early January...where I discussed this topic with Dr Lee and we agreed on a small team from his core leadership team to work on that question to draw out the implications. He then commenced work on that with his team, and those details flowed into the meeting of the executive that was held at the end of January.²⁸

2.25 In addition to identifying a reduction of up to 100 FTE, Dr Lee was also asked to identify 35 new positions in growth areas. The 35 new positions would stay in the area with the remaining 65 positions reinvested across the organisation.²⁹

2.26 CSIRO confirmed that Dr Lee was asked to detail the implications of a reduction of this size. Dr Wonhas stated:

24 *Proof Committee Hansard*, 27 April 2016, p. 7.

25 *Proof Committee Hansard*, 8 March 2016, p. 38.

26 Ms Bennett, *Proof Committee Hansard*, 8 March 2016, p. 41.

27 Ms Bennett, *Proof Committee Hansard*, 8 March 2016, p. 42.

28 *Proof Committee Hansard*, 8 March 2016, p. 48.

29 Dr Wonhas, *Estimates Hansard*, 11 February 2016, p. 55.

[Dr Lee was asked] to articulate what might be the most impacted areas, the staffing consequences, the consequences for our external relationships et cetera if the executive were to choose that option. He provided that information back to the executive. He also attended the executive team meeting in January to provide further input for the discussion.³⁰

2.27 In response to questions on notice, CSIRO informed the committee that Dr Lee did not provide any written papers to the executive team meeting in January, but produced a presentation and participated in an extensive discussion. In his presentation, Dr Lee informed the executive of the implications of the proposed cuts to Oceans and Atmosphere area and emphasised that:

...This level of upheaval is very significant and will be a major distraction to not just the directly impacted staff but also management and indirectly impacted staff. Business as Usual productivity levels will be significantly impacted for 12 – 18 months.

There has been no provision made for "disrupted external revenue" during the transition phase of reducing staff by 110 and then recruiting 45 into growth areas.

Some long standing government clients will be impacted by this realignment. This will require some management given that we are electing to make these changes rather than forced by government funding changes.

O&A [Oceans and Atmosphere] is embarking on international growth which is traditionally expensive and has a long incubation period. The out year budgets require much deeper analysis than was possible in a week.

This is a significant cultural change. Whilst clearly flagged in the 2020 Strategy, it will take time to transition staff and implement modified pricing strategies.³¹

2.28 Dr Wonhas reported in March 2016 that work to determine the exact allocation of staff cuts across the Oceans and Atmosphere area had not been finalised:

Dr Lee and his leadership team are currently applying the criteria that Ms Bennett has referred to across the whole of his business unit. They are trying to identify the specific areas that will be impacted on.³²

Role of the Board

2.29 The committee questioned the role of the Board in the deep dive process and subsequent decision on the reduction of staff. CSIRO advised:

The Chief Executive is responsible to the Board for the overall development of strategy, management and performance of CSIRO. The Chief Executive manages the Organisation in accordance with the strategy,

30 *Proof Committee Hansard*, 8 March 2016, p. 48.

31 CSIRO, answer to question on notice from 8 March Hobart hearing number 7, received 17 March 2016.

32 *Proof Committee Hansard*, 8 March 2016, p. 40.

plans and policies approved by the Board to achieve the Organisation's objectives.

Under the Board Directions to the Chief Executive, the Chief Executive is required to consult with the Board on certain matters, including the structure of business units and submit more detailed strategies and investment proposals, preferably at the concept stage, to support delivery of the Corporate Plan. The method of consultation is not specified. The Chief Executive works through the Chairman to determine the method of communication and an appropriate time to respond. The normal timeframe is three working days or less in the case of an urgent matter. In this instance, preliminary investment directions were shared with the Board at their formal Board meeting on 8 December 2015; and the Board were provided with further information by email on 2 February 2016 seeking support to announce the investment directions to staff. Board support was provided before the staff communication was made on 4 February 2016.³³

2.30 Ms Bennett advised that consultation was in accordance with the Board's charter as the proposed cuts were a matter of 'major change.'³⁴

2.31 Ms Bennett confirmed that the Board were asked to comment and provide feedback.³⁵ In an answer to a question on notice the CSIRO indicated:

On 2nd February [2016] the Board consisted of seven part-time members plus the Chief Executive and of the seven part-time members explicit confirmation of support was received from five.³⁶

2.32 The Board Directions to the Chief Executive indicates that all matters which would have a material impact on the organisation should be submitted to the Board, preferably at the concept stage, for advice, endorsement or approval as appropriate.³⁷ CSIRO provided a list of actions that the Chief Executive undertook to comply with the directions.³⁸

2.33 In answer to a question on notice, CSIRO clarified that the Chief Executive's correspondence with the Board was to obtain support to communicate with staff about the preliminary outcomes of the 'deep dive' process:

Had the message been seeking approval for the changes, a circular resolution process including three day time for response would have been applicable. However the message of 2 February was not seeking consideration or approval of any resolution and therefore did not require the

33 CSIRO, answer to question 2 on notice, 8 March 2016 (received 17 March 2016).

34 *Proof Committee Hansard*, 8 March 2016, p. 44.

35 *Proof Committee Hansard*, 8 March 2016, p. 47.

36 CSIRO, answer to question on notice number 4 from 8 March 2016 Hobart hearing, received 17 March 2016.

37 See <http://www.csiro.au/en/About/Leadership-governance/Minister-and-Board/Directions-to-CEO> (accessed 11 April 2016).

38 CSIRO, answer to question 10 on notice, 7 April 2016 (received 16 April 2016).

circular resolution procedure to be invoked. In any case, responses from Board members were received on 3 February 2016.³⁹

2.34 A draft of the all-staff email was attached to Dr Marshall's correspondence of 2 February 2016 to the Board. CSIRO confirmed that only one draft was provided to the Board.⁴⁰ In his email Dr Marshall recognised that informing the Board of changes by email was unusual:

Ordinarily I would have worked these changes through the Board at our next Board meeting – but given the leak risk we felt time was critical and so have focused on working just with our Chairman who has in turn had me work with our Minister.⁴¹

2.35 CSIRO informed the committee that the Board supported the changes:

They have considered and supported the [Executive Team] endorsed strategic investment decisions.⁴²

2.36 The Board indicated support publicly for the changes. In response to an open letter from the international climate community to the Australian Government and the CSIRO Board expressing concern about the proposed cuts, Mr David Thodey, CSIRO Chairman, responded on behalf of the Board in a media release indicating the Board's support.⁴³

2.37 However, it is clear that the Board did not approve the extent of the job cuts. In fact, CSIRO management in written question on notice number two of 7 April 2016, stated that they did not seek Board approval. The Board merely supported the CEO circulating an email to alert staff to a process underway, in light of an expectation this information was soon to appear in the media. The draft email sent to the Board on 2 February was in keeping with this objective, focusing on the identified priorities and avoiding provocative language and details of potential cuts. The email subsequently distributed to staff on 4 February was of a very different tone, and it is questionable whether such an email would have been approved by the Board, given evidence that even the 2 February version received a lukewarm response.

2.38 It is clear from the evidence the Committee has received that the Board has still not approved the extent of the changes proposed, including job cuts and the redistribution of resources across the CSIRO, with the exception of the establishment of the Climate Centre.

39 CSIRO, answer to written question on notice 2, 7 April 2016 (received on 15 April 2016).

40 CSIRO, answer to written question on notice 5, 7 April 2016 (received on 18 April 2016).

41 Email from Dr Larry Marshall, provided by CSIRO, answer to written question on notice 4, 7 April 2016 (received on 15 April 2016).

42 Mr Roy, *Proof Committee Hansard*, 27 April 2016, p. 12.

43 Mr David Thodey, CSIRO Chairman, 'An international response to the proposed CSIRO cuts to climate research', Media release, 19 February 2016.

Role of the minister's office

2.39 CSIRO told the committee that the Minister's office was provided formal briefs on the proposed changes on 1 and 9 February, with a further update provided on 24 February 2016.⁴⁴ On notice, CSIRO confirmed that:

No subsequent briefs on this matter have been requested by any Minister. CSIRO has worked with the Department of Industry Innovation and Science to update the relevant Question Time Brief a number of times so that it could be provided to Minister Pyne's Office.⁴⁵

2.40 In response to questions on notice Ms Bennett outlined that she has had regular discussions with the Minister's office including a meeting with the minister and departmental representatives on 31 March 2015:

Discussions are not always planned to occur at specific times or diarised, rather Ms Bennett and the Minister's office have open lines of communication and regularly discuss the CSIRO changes and other CSIRO matters.⁴⁶

2.41 Dr Marshall has not had any formal meetings with Ministers since the announcement, however he has:

...communicated by phone with Minister Pyne on 12 and 23 February 2016 and with either the Chief of Staff or Minister on March 30.

Dr Marshall also met with Assistant Minister [Karen] Andrews on 9 February 2016 and 23 February 2016 and with Assistant Minister [Wyatt] Roy on 23 February 2016.⁴⁷

2.42 In answers to questions on notice CSIRO reported:

CSIRO confirms that it has met the requirements of the statement of expectations from the Minister.⁴⁸

Lack of consultation

2.43 Lack of consultation was a key issue raised during the inquiry and includes a lack of consultation with CSIRO staff and key external partners.

Staff

2.44 Staff told the committee that they felt that they were in an 'information vacuum'⁴⁹ as CSIRO had provided very limited information following the email on

44 Ms Bennett, *Proof Committee Hansard*, 7 April 2016, p. 20.

45 CSIRO, answer to written question on notice 11, 7 April 2016 (received on 16 April 2016).

46 CSIRO, answer to question on notice 12, 7 April 2016 (received on 18 April 2016).

47 CSIRO, answer to written question on notice 12, 7 April 2016 (received on 16 April 2016).

48 CSIRO, answer to question on notice 16, 7 April 2016 (received on 20 April 2016).

49 Dr Richard Matear, *Proof Committee Hansard*, 8 March 2016, p. 32.

4 February 2016. This has led to a 'toxic' environment whereby staff felt demoralised and were questioning their value and future with CSIRO.⁵⁰

2.45 Dr Richard Matear, a current CSIRO scientist, told the committee that the public has, in some ways, as much information as CSIRO employees about the cuts and it has led to a very stressful environment for staff:

We have been presented with this big cut. We are now being told, 'We're still trying to work our way through what that actually means,' and we are already a month and a bit into that process, and I still feel like we do not know any more than we knew, for example, on the day it was announced, other than that they are reassessing how they are going to implement it—one month into it....⁵¹

....We have this separation of our key science program leaders from the rest of the staff. There is almost no interaction going on. People are extremely tense. People are looking around for new jobs and wondering what is going to happen to them. It has been going on for over a month now. It is a really stressful environment...⁵²

2.46 Dr Graeme Pearman, private consultant and Adjunct Senior Research Fellow, Monash University, expressed his views:

I think it has been emphasised that communication is fundamental in this area. I do not know that any of the chiefs...would have succeeded in communicating so little about what was going to happen. It is not fair to the people employed in the organisation to have this sort of thing dumped on them. There needs to be proper consultation. I stress that I do not think CSIRO today should be the same as CSIRO yesterday.⁵³

2.47 Professor Haymet offered an example of consultation undertaken during a previous process involving change:

CSIRO has gone through change processes quite frequently over the last decade. In my time, Dr Greg Ayers and I merged the divisions of atmospheric research and marine research. I think Dr Ayers and Dr Craig explained why they did that for certain efficiencies and to prepare ourselves for a joint effort with the Bureau of Meteorology. But that was done with open consultation with our scientists. We went to our scientists and said, 'How should we organise this joint division?' I can say that no secret email accounts were used. Greg and I did have some protected files that we emailed back and forth, but this is an open, aboveboard procedure. I think it showed a lot of humility that we were not saying that we were the best prognosticators in the two divisions. We recognised that our greatest assets

50 Dr Matear, Dr John Church, Mr Mark Green, Ms Jessica Munday, *Proof Committee Hansard*, 8 March 2016, p. 30, 71, 73, Dr Paul Fraser, Dr Craig *Proof Committee Hansard*, 11 March 2016, p. 36, 47.

51 *Proof Committee Hansard*, 8 March 2016, p. 32.

52 *Proof Committee Hansard*, 8 March 2016, p. 33.

53 *Proof Committee Hansard*, 11 March 2016, p. 57

were the brilliant minds that we had around us. I think CSIRO often used that. I certainly copied it in my year outside of the CSIRO. We used the best asset we had, and the best asset CSIRO has is its people.⁵⁴

2.48 Dr Craig summarised the sentiments of staff regarding this process:

I am shocked at the lack of collaboration internally, and that really has not come out very much yet. The hallmark of this whole exercise is lack of communication: lack of communication with stakeholders, lack of communication with the board and lack of communication with the experts within the organisation. For example, the experts in climate science and modelling were not consulted. I was not consulted.⁵⁵

2.49 Ms Jessica Munday and Mr Mark Green from the CPSU informed the committee that the 'announcement came out of the blue,' particularly the magnitude and the scale of the proposed cuts:

...we were just a[s] surprised as the international community that there was a very specific proposal put out in a very long email from the CEO—and sort of buried down the end—that was going to be 350 jobs cut. We were not involved at that level of the organisation, or at levels of the organisation, in consultation before that announcement was made. In fact, that is a large part of our criticism—that we were not involved. Outside of the enterprise agreement, it just seems incomprehensible that you would not engage the people doing this work in such a significant conversation around a restructure.⁵⁶

2.50 The CPSU informed the committee that they sought the assistance of the Fair Work Commission in an attempt to be consulted and provide input. As a result of this action there have been three meetings with CSIRO:

That is, in fact, how we found out that, for example, Oceans and Atmosphere was going to have 100 of those job cuts. That is how that information came out—the overall CEO email was just a broad statement, though quite clearly they must have had some thinking around this to have come up with some very specific numbers—and then things have started to filter through in those business units through communications.⁵⁷

2.51 The CPSU expressed the view that this decision should have involved a whole-of-CSIRO discussion:

...not just staff who might lose their jobs but people who are left behind and what they are going to do. That consultation also allows employees a genuine opportunity to influence the decision. This has not been put forward, and our members are not telling us they are getting the impression

54 *Proof Committee Hansard*, 11 March 2016, p. 61.

55 *Proof Committee Hansard*, 11 March 2016, p. 45.

56 *Proof Committee Hansard*, 8 March 2016, p. 68.

57 *Proof Committee Hansard*, 8 March 2016, p. 68.

that this is just a proposal which they can effect some change of. That is what is problematic for us.⁵⁸

2.52 Dr Marshall explained how the staff cuts will be managed:

Firstly the overall number of people in CSIRO is projected to be unchanged at the end of a two year period, however up to 350 people may lose their positions as we change the focus of our work program. Some people will be redeployed or reskilled and some will be made redundant and those final figures are not yet determined. CSIRO has a well-established and respectful process when changes are made. People are advised early, as was done last Thursday, updated as soon as details are available, as is continuing this week, and consulted on how best to implement decisions.⁵⁹

2.53 At the 7 April 2016 hearing Dr Marshall further explained that the numbers of affected staff are maximum numbers and the CSIRO will be doing its best to minimise the numbers.⁶⁰

2.54 At a later hearing on 27 April 2016, Ms Bennett outlined that the proposed quantum of cuts has now decreased. Ms Bennett recognised that:

In terms of the funding, there will still be a reduction in funding to Oceans and Atmosphere. As my colleagues have indicated, in terms of quantum that has shifted from what was previously...articulated [as] a reduction of 70 staff positions. That will now reduce to a reduction of 40 staff positions.⁶¹

2.55 Dr Marshall stressed to the committee that the original reduction in staffing numbers were :

...never 350 climate scientists; it was 350 across all 10 areas that CSIRO invests in. That number has now been reduced to 275. It is good that we are able to reduce it, but it is still not good that we have to lose anyone. It has a very big impact on all of us, particularly the staff that are impacted by the cuts.⁶²

CSIRO partners

2.56 Several key CSIRO partners spoke to the committee during the hearings expressing frustration at the lack of consultation which has left uncertainty regarding the effects of the proposed changes on in the collaborative science sector. Dr Gregory Ayers, Former Director of Meteorology and CEO of the Bureau of Meteorology, summed up the feeling about the lack of consultation regarding the costs and benefits of the staffing cuts with stakeholders:

58 *Proof Committee Hansard*, 8 March 2016, p. 69.

59 Dr Larry Marshall, 'Correcting the Public record on Changes at CSIRO, *Media Release*, 8 February 2016.

60 Dr Larry Marshall, *Proof Committee Hansard*, 7 April 2016, p. 22.

61 Ms Bennett, *Proof Committee Hansard*, 27 April 2016, p. 6.

62 *Proof Committee Hansard*, 27 April 2016, p. 5.

The only way to get an enterprise of this complexity, with all the players contributing to their strength in order to build the national capability, is to get leverage from each other, and the overall benefit is much greater than individuals working on their own. For the CEO of an agency that had been central to the development of such a coordinated national program to not consult, when the model that we had used to develop that coordinated program is so clearly based on consultation and no surprises, I found remarkably strange. It almost looks to me—this is just a personal opinion—like the way venture capitalists are used if you want to do things at the last moment in order for your competitors not to get a jump on you, but there are no competitors in this. They are actually all friends. Why would you burn your closest allies, your staff, the other agencies within which you have a great deal of investment and goodwill, and the international community?⁶³

Bureau of Meteorology

2.57 The Bureau of Meteorology (BoM) is Australia's national weather, climate and water agency provides one of the most widely used services of government (weather forecasting). Dr Bruce Forgan, former BOM Meteorologist in charge of the Baseline Air Pollution Station at Cape Grim, appearing in a private capacity, explained the arrangements at Cape Grim:

There is no contract as the bureau's contribution to CSIRO is not and has never been a contract or a fee-for-service arrangement. The science program at Cape Grim has, from 1 January 1984, been a joint activity of the bureau and CSIRO based on agreements when the government decided that the bureau was the appropriate agency to operate the Cape Grim station. Subsequently, each organisation makes variously joint agreed contributions that have been explicitly documented in the governance process of the program. The letters of agreement began only in the last four financial years, which I believe Dr Lee and subsequently Dr Wonhas may be interpreting as a contract. They are in fact purely a vehicle to comfort the administrative team of what is now Oceans and Atmospheres. Why am I so sure? I was on the joint team from the bureau and CSIRO that developed the process and the wording of the exchange of letters. Those letters of exchange are part of the Cape Grim science program governance process, jointly chaired by CSIRO and the bureau, that examines budgets from all the subprogram scientists at the start of a financial year and agrees on the level of contribution from each organisation, including ANSTO [Australian Nuclear Science and Technology Organisation] and the University of Wollongong.⁶⁴

2.58 Dr Forgan reported:

63 *Proof Committee Hansard*, 11 March 2016, p. 26.

64 *Proof Committee Hansard*, 11 March 2016, p. 37. Cape Grim is a measurement facility in north-west Tasmania tracking changes in greenhouse gas concentrations. See also Dan Conifer and Alexandra Beech, 'BoM given one day's notice about CSIRO restructure' *ABC News*, 8 February 2016.

Prior to the 4 February statement, there was no indication from the CSIRO member of the management group of a change in any commitment to Cape Grim or their apparent withdrawal from the government process that had been in place since 1984. It was a great pity to find this out in the media.⁶⁵

2.59 Dr Paul Fraser, former CSIRO scientist responsible for setting up the Cape Grim Air Monitoring Station, appearing in a private capacity, stated that in his view the reduced level of support for Cape Grim will mean it will be 'inoperable'.⁶⁶

2.60 Dr Wonhas told the February additional estimates hearing that the Director of the Bureau of Meteorology (BoM), Dr Rob Vertessy was advised of the proposed cuts the day before the public announcement.⁶⁷ At the same estimates round, before another committee, Dr Vertessy confirmed that he was informed by Dr Wonhas of the proposed cuts 24 hours prior to the announcement and indicated that he could not answer whether the capability at Cape Grim was in jeopardy as they were still working out the detail with CSIRO.⁶⁸

2.61 Dr Forgan outlined past consultation processes used between CSIRO and BoM:

History says that the consultation process would have been identical to the process when they decided ozone was no longer scientifically relevant. That process took three years. There was another process within the CSIRO on the transfer of another function, which was a meteorology function related to solar radiation. That process took two years. There was two years of consultation before there was an agreement between agencies.⁶⁹

2.62 However, Dr Forgan also reported that consultations in relation to Cape Grim are now underway:

I am pleased to hear that discussions have now begun at a senior level and across government agencies to find a solution to sustain the key contributions to Cape Grim science and its measurement outputs. However, I am not confident that the CSIRO position of 4 February and subsequent comments were based on knowledge of the Cape Grim science program as some statements suggest a poor understanding of the modus operandi and the nature of the science program.⁷⁰

65 *Proof Committee Hansard*, 11 March 2016, p. 37.

66 *Proof Committee Hansard*, 11 March 2016, p. 34.

67 Dr Wonhas, Senate Economics Legislation Committee, *Estimates Hansard*, 11 February 2016, p. 58.

68 Dr Vertessy, Senate Environment and Communications Legislation Committee, *Estimates Hansard*, 8 February 2016, pp 22,24.

69 *Proof Committee Hansard*, 11 March 2016, p. 41.

70 *Proof Committee Hansard*, 11 March 2016, p. 37.

2.63 Dr Wonhas indicated that in relation to Cape Grim measurement activities, he was 'cautiously optimistic that we are progressing with a solution that stakeholders believe will provide adequate measurements'.⁷¹

2.64 In response to questions on notice, CSIRO confirmed that they intend to fund 'the same direct contribution to Cape Grim in 2016-17 as in 2015-16'.⁷² However, the committee heard at the Melbourne hearing that this funding is at a significantly reduced level than in past years.⁷³

2.65 CSIRO acknowledged that while discussions with the BoM regarding Cape Grim remain ongoing:

...no new source of funding has been identified to support this science either within BoM or CSIRO.⁷⁴

Australian Antarctic Division

2.66 Dr Gwen Fenton, Chief Scientist, Australian Antarctic Division (AAD), from the Department of the Environment, outlined to the committee that twenty-six of AAD's 99 projects involve collaboration with CSIRO.

2.67 Dr Fenton indicated that while there may have been some consultation with the Department of the Environment in Canberra she was not aware of any direct consultation between the CSIRO and AAD on the impacts of the cuts:⁷⁵

The Australian Antarctic science program relies on collaborations to maximise the resources and expertise that can be brought to the table to answer the key science questions within the Australian Antarctic Science Strategic Plan. The program currently includes around 400 scientists drawn from about 176 institutions across 28 countries. It is a highly collaborative program and we rely intensely on that and having these good relationships.⁷⁶

...

CSIRO is a major collaborator within the Australian Antarctic science program. At this point, CSIRO has spoken to the department broadly, but not particularly to us individually as the Australian Antarctic Division, so it is very hard for us to say exactly what impact the proposed cuts we are hearing about in the media are going to have on the Australian Antarctic science program.⁷⁷

71 *Proof Committee Hansard*, 8 March 2016, p. 43.

72 CSIRO, answer to written question on notice 20, 7 April 2016 (received on 18 April 2016).

73 Dr Fraser, *Proof Committee Hansard*, 11 March 2016, p. 34.

74 CSIRO, answer to written question on notice 22, 7 April 2016 (received on 16 April 2016).

75 *Proof Committee Hansard*, 8 March 2016, p. 10.

76 *Proof Committee Hansard*, 8 March 2016, p. 39.

77 *Proof Committee Hansard*, 8 March 2016, p. 10.

2.68 Dr Fenton reported that AAD would like to undertake direct and detailed consultation with the CSIRO prior to any final decisions in order to understand the impact of any changes.⁷⁸

Integrated Marine Observing System

2.69 The Integrated Marine Observing System (IMOS) deploys equipment and delivers data streams for use by the entire Australian marine and climate science community and its international collaborators. IMOS confirmed that CSIRO is a major partner. During its 10 years of operation, approximately 37 per cent of all IMOS resources⁷⁹ have gone into parts of the system, operated by CSIRO:

The expertise of all our partners is vital to the program and from CSIRO, being a large partner, it is very significant. I think it is important for the committee to understand that the relationship has two dimensions. CSIRO operate a number of our facilities so they take the observations and provide the data; importantly, they also use that data to undertake science and research. So the relationship has two dimensions. And that is true for all of our partners. Some people who use the data do not actually take any of the observations themselves; they benefit from observations and data that CSIRO collect. But all of the operational partners do undertake the research. So it is significant in both of those contexts.⁸⁰

2.70 Mr Tim Moltmann, Director of the IMOS, University of Tasmania, informed the committee that no formal or written notifications about the CSIRO changes were provided to IMOS.⁸¹

CSIRO response

2.71 Evidence to the committee showed that consultation with partners on the effects of the proposed changes did not begin until after the announcement:

We gave a few select, very close partners a relatively short notice heads-up before the announcement, but I think, as you would appreciate, now is the time for us to engage much more broadly.⁸²

2.72 At the estimates hearing in February Dr Wonhas indicated that it was his intention to complete the process of consultation with partners by the end of March in order to provide clarity for staff.⁸³

2.73 Dr Wonhas acknowledged that pre-announcement there was limited consultation but work is now underway:

78 *Proof Committee Hansard*, 8 March 2016, p. 12.

79 *Proof Committee Hansard*, 8 March 2016, p. 2.

80 *Proof Committee Hansard*, 8 March 2016, p. 2.

81 *Proof Committee Hansard*, 8 March 2016, p. 3.

82 Dr Wonhas, *Estimates Hansard*, 11 February 2016, p. 59.

83 *Estimates Hansard*, 11 February 2016, p. 58.

Just to clarify, we need to distinguish between pre- and post-announcements. Pre-announcement, there was very limited consultation; there were some in-depth consultations with senior officers in the Department of the Environment and there were high-level discussions with the Bureau of Meteorology, but I do not think there were any other consultations on this specific matter. Obviously, post-announcement, there have been some consultations and I acknowledge some of our stakeholders feel they have not been consulted enough. Frankly, I am sorry about that, and we hope we can at least rectify this.⁸⁴

2.74 Dr Wonhas stressed that the CSIRO is now working with interested parties:

...we are actually going through a formal process to answer all of these questions. That said, I think there have been a number of discussions since the announcement. We had very deep interactions, in particular, with the Bureau of Meteorology. They are, obviously, a key partner of ours in the climate-modelling space. We had all sorts of discussions with a range of different stakeholders. I had discussions with the ARC [Australian Research Council] Centre of Excellence for Climate System Science. There were also discussions with the AAD and the [Antarctic Climate & Ecosystems Cooperative Research Centre], and I think that is probably contrary to the record that was given this morning.⁸⁵

Contracts

2.75 Several key CSIRO partners provided evidence to the committee that their contracts were nearing expiration and that there was uncertainty about their ongoing collaborative engagement with CSIRO.⁸⁶

2.76 Dr Wonhas in an email on 6 Feb 2016 to Dr Marshall commented that:

Key concerns [from staff] were

- Who will carry forward the measuring work if CSIRO doesn't do it? [there will be a reduction to the minimum contractual requirements. No one has the money]⁸⁷

2.77 In an answer to a question on notice CSIRO confirmed that it will be honouring its contractual obligations such as those between CSIRO and the Antarctic Climate and Ecosystems Cooperative Research Centre (ACE CRC) as well as others:

CSIRO is committed to meeting its contractual obligations. Whilst CSIRO will fully deliver the obligations under the contract, it will pull back from conducting discretionary, additional work above and beyond that specified

84 *Proof Committee Hansard*, 8 March 2016, p. 53.

85 *Proof Committee Hansard*, 8 March 2016, p. 39.

86 Mr Moltmann, IMOS, *Proof Committee Hansard*, 8 March 2016, p. 5, Dr Fenton, AAD, *Proof Committee Hansard*, 8 March 2016, p. 12, Professor Bindoff, IMAS, *Proof Committee Hansard*, 8 March 2016, p. 23.

87 Science and Technology—CSIRO Oceans and Atmosphere Division—Restructure—Orders for Production of Documents, 16 March 2016, p. 102.

in the contract. No contracts will be "broken", however given this change on context CSIRO will discuss these matters with the other parties and if, consequentially, there is a need for a contract variation for any component of CSIRO's work (whether from the perspective of the other contracting party or from CSIRO) then CSIRO will work with the parties to identify a mutually agreeable variation to the contract.⁸⁸

Use of Private emails

2.78 At the Hobart hearing Dr Wonhas informed the committee that private email addresses had been used to plan and discuss the proposed job cuts:

Yes, private emails have been used as part of this planning process. We wanted to ensure that, frankly, this information stays within a small group of people to not cause distress and concern among staff.⁸⁹

2.79 The use of private email was discussed by several witnesses. Professor David Karoly, atmospheric scientist, appearing in a private capacity's' response to the use of private email by management was incredulous:

...my understanding is that CSIRO policy is that all communication on CSIRO business needs to be done on email addresses through CSIRO, and yet, as far as I am aware, answers to some of your committee's questions led to apparent information that the CSIRO chief executive has not followed CSIRO policy on communication.⁹⁰

2.80 Dr Pearman, a former member of the CSIRO Executive Committee, commented that he could not envisage a situation where using private emails would have been considered by the former executive.⁹¹

2.81 Ms Bennett told the committee that there is a policy in place about the use of CSIRO systems and network⁹² and conceded that it was not common for executives to use private email.⁹³

2.82 When asked whether the use of private email would affect the information requested as part of a Senate order for the production of documents, Dr Wonhas stressed that the relevant documents have been transferred to the corporate systems:

What we have subsequently done is that any relevant emails and documentation have been transferred to the official records of the organisation so that they are not lost.⁹⁴

88 CSIRO, answer to written question on notice 18, 7 April 2016 (received on 18 April 2016).

89 *Proof Committee Hansard*, 8 March 2016, p. 48.

90 *Proof Committee Hansard*, 11 March 2016, p. 21.

91 *Proof Committee Hansard*, 11 March 2016, p. 57.

92 In an answer to question on notice 6 from the 8 March 2016 Hobart hearing, received 17 March 2016, the CSIRO provided the policy on the 'Use and Management of Email Procedure'.

93 *Proof Committee Hansard*, 8 March 2016, p. 49.

94 *Proof Committee Hansard*, 8 March 2016, p. 48.

...

I have provided all of the private emails in relation to this matter into our corporate systems, so I can assure you that information has not disappeared—it is available.⁹⁵

2.83 The CSIRO email policy includes the following information:

Emails must be treated as official CSIRO records when they establish evidence of a decision or outcome for which CSIRO may be held accountable.⁹⁶

2.84 In relation to whether there was a directive issued to use private emails, Dr Wonhas responded:

I am trying to remember it. I think someone had suggested to use private emails to increase the security of the communication and keep it in a small circle. I think most of the discussion was actually on documents exchanged on the CSIRO system because, frankly, that was a more convenient way...⁹⁷

2.85 At the Melbourne hearing, Dr Craig informed the committee that, he was aware of staff at the level of research director using personal emails.⁹⁸

2.86 In answer to a question on notice, Dr Craig clarified that:

The request to Research Directors in Oceans and Atmosphere to use private email was made verbally at a meeting on 28 November by Dr Andreas Schiller (Deputy Director) and Dr Ken Lee (Director).⁹⁹

2.87 However, in an answer to a question on notice, CSIRO informed the committee that:

No directive was ever issued to use private emails. Dr Marshall did not use his private email.¹⁰⁰

2.88 This answer was subsequently updated by the CSIRO on 6 April 2016 to clarify the issue of whether there was a directive. It was noted:

In preparation for the "deep dive" discussions, the Ocean & Atmosphere business unit management team discussed how the information concerning any impacts to staff flowing from their strategic realignment proposal could be kept confidential. It was known that a number of these officers had granted a limited number of other CSIRO staff members access to their CSIRO email system, in order to conduct their normal work

95 *Proof Committee Hansard*, 8 March 2016, p. 49.

96 CSIRO, answer to question 6 on notice, 11 March 2016 (received 17 March 2016).

97 *Proof Committee Hansard*, 8 March 2016, p. 49.

98 *Proof Committee Hansard*, 11 March 2016, p. 45.

99 Dr Peter Craig, answer to question on notice from 11 March 2016 hearing, received 16 March 2016.

100 CSIRO, answer to question on notice number 9, 11 March 2016, received 17 March 2016.

responsibilities. This situation creates the risk that confidential information could be accessed.

CSIRO now understands that a team planning meeting was held on 28 November 2015 which was conducted with some in-person attendance and via video link. Whilst no specific instruction to use private email was issued, in order to maintain confidentiality the team discussed the options of receiving papers by hard copy, USB stick, private email or, where the team member had not granted access to other staff members, the use of their CSIRO email system. Individual team members chose their preference to receive papers accordingly.

This approach was for the purpose of ensuring confidentiality and avoiding undue stress to other staff not involved in the preparatory work, given that the options being prepared were preliminary, had not been discussed by CSIRO senior management and no decisions had been made. However, the potential to cause significant concern to staff members was present.

CSIRO was not aware of the above facts at the time of submitting its original response to this Question on Notice on 17 March 2016.¹⁰¹

2.89 CSIRO also provided information that following further investigation, 17 officers were identified as using private emails. Written statements were obtained from all but one¹⁰² about the comprehensiveness of the documents provided back into the official CSIRO record keeping system.¹⁰³

2.90 CSIRO admitted to the committee that the use of private email is contrary to CSIRO policy but not illegal.¹⁰⁴ The investigation by CSIRO into the use of private emails also looked at the security risks posed by the use.¹⁰⁵

2.91 The committee sought advice from the Clerk of the Senate on the options available to further investigate this matter. The Clerk noted the advice from Dr Wonhas regarding the subsequent capture of records and stated that '[a]lthough this subsequent capture may not be contrary to the requirements of the Archives Act (or national security), it looks like dubious administration and may be a breach of the organisation's Code of Conduct by senior staff.' The Clerk also observed that the use of private email accounts may create difficulties for the Senate or its committees when seeking information.¹⁰⁶

101 CSIRO, answer to question on notice number 9, 11 March 2016, received 6 April 2016.

102 However, all officers have responded verbally, see Ms Bennett, *Proof Committee Hansard*, 7 April 2016, p. 4.

103 Ms Bennett, *Proof Committee Hansard*, 7 April 2016, pp 3, 4.

104 Ms Bennett, *Proof Committee Hansard*, 7 April 2016, pp 7-8.

105 Ms Bennett, *Proof Committee Hansard*, 7 April 2016, p. 8.

106 Dr Rosemary Laing, Clerk of the Senate, advice received 15 March 2016.

Committee view

2.92 The committee believes the so called 'deep dive' process undertaken to determine the proposed staffing reductions was shallow and inadequate. The flow on effects do not appear to have been well understood at the time the decisions were taken. Dr Lee appears to have attempted to address a lack of knowledge and information about the areas in the sights of the executive team in his presentation to the executive in January 2016. The outcome makes the committee wonder if the areas to be cut were always a forgone conclusion. It is interesting to note that this decision to reduce staff in the key area of climate measurement and monitoring appears to line up with the current government's approach to climate change.

2.93 The committee was stunned by the inadequate level of briefing provided to the Minister's office in the lead up to the CSIRO's announcement. The initial brief provided to the Minister on 1 February was potentially misleading in indicating that CSIRO's public good research in climate change and areas of Land and Water responsibility could be taken over by the academic sector. It is clear from the evidence provided to this committee that CSIRO had not undertaken any consultation to support this position. Also of strong concern was the one page brief containing scant information provided on 24 February 2016, 20 days after the all-staff announcement. It is troubling that this significant shift in strategic direction for CSIRO was afforded so little consideration or questioning by government.

2.94 The committee does not believe the criteria used by CSIRO as part of the 'deep-dive' process is able to adequately capture the performance of and need for this climate measurement work. In addition, CSIRO appeared unable to clearly articulate the application of the criteria to the cuts in Oceans and Atmosphere area and its role in the decision by the executive to move from the suggested 35 staff cuts to 100.¹⁰⁷ It also appears that further cuts were being considered.¹⁰⁸

2.95 The committee is concerned that the role of the Board in a decision to cut staff in this vital area with all the flow on effects with staff and key stakeholders appears to have been reduced to that of a rubber stamp. Dr Marshall's email to the Board, recognising that he chose to inform the Board of significant changes via email, rather than at a Board meeting (to avoid a risk of information leaking to CSIRO staff) is disturbing. This concession by Dr Marshall highlights the reduced role of the Board in such a significant change of direction. Providing the Board, comprising of new members, including a new chair,¹⁰⁹ with less than two days to consider this significant announcement appears grossly inadequate to the committee. The fact that Dr Marshall

107 Ms Bennett, *Proof Committee Hansard*, 8 March 2016, p. 42.

108 CSIRO, answer to question on notice number 7, 8 March 2016, received 17 March 2016.

109 Several board members were new to the role while the 'deep-dive' process was occurring. Mr Thodey was appointed as Chairman on 15 October 2015, Board Member Professor Edwina Cornish was appointed on 26 November 2015, Board Member Professor Brian Watson was appointed on 14 September 2015 and Board Member Professor Tanya Monro was appointed on 29 February 2016.

subsequently made substantial changes to the email, including additional information without consulting the Board, should be a substantial concern to Board members.

2.96 The committee is concerned that the Board had not been appraised of the scale of job cuts being contemplated until February, when the process was well advanced.

2.97 It is clear to the committee that the Board expects to make a decision at its June meeting on the implementation of the proposed restructure, yet the executive team is proceeding as though approval has already been secured.

2.98 The committee was astounded by the lack of consultation with staff and key stakeholders which meant that the significant effects of the proposed cuts only became clear after the announcement. Wider consultation with staff should have been undertaken as well as much earlier engagement with key stakeholders. The committee understands that feedback about the implementation of the changes is only now being sought from staff with an internal staff email apparently sent on 16 March 2016 seeking feedback by 4 April 2016 which will be considered by the executive team.¹¹⁰ The committee is profoundly disappointed that this engagement with external partners is only now underway in order to find ways to keep key facilities such as Cape Grim operating. The need for collaboration in this area was stressed to the committee. Accordingly, this lack of consultation seems like a very arrogant and slip shod way to conduct business.

2.99 The committee found CSIRO's assurances to continue funding Cape Grim, albeit at significantly reduced levels, manifestly inadequate. The committee remains unconvinced that Cape Grim's reduced funding will be sufficient to ensure its continued operation. CSIRO's admission of its inability to locate an alternate funding source for Cape Grim only reinforces these concerns.

2.100 The committee heard that the scientific community understands that as budgets are constrained, work can't remain static and will be subject to review. It is also not the first time the CSIRO has undertaken organisational change. However, the committee heard that previous changes have involved a greater level of staff consultation and involvement. As consultation did not occur with staff or key stakeholders it seems likely that other more collaborative and less disruptive solutions have been missed. The committee is not clear whether less disruptive options such as voluntary redundancies or natural attrition over time were examined.

2.101 The committee was reassured that CSIRO will be honouring its contractual obligations such as those with the ACE CRC. However, the committee is uncertain what impact CSIRO's 'pull back' from discretionary work above that specified in contracts will have. The committee does not consider the reassurances provided by CSIRO on this point are sufficient.

2.102 The committee finds the use of private emails during the processes leading up to the announcement of staff cuts particularly concerning. First, there appears to be no

110 Peter Hannam@p_hannam 'Larry Marshall calls on #CSIRO staff to put needs of 'our organisation and nation ahead of personal need'#CSIROcuts', 16 March 2016.

agreed position between staff and CSIRO on whether there was a direction to use personal email. Second, the committee was not assuaged by the assertions of Dr Wonhas that relevant emails and documentation have been transferred to the official records of the organisation and are available for scrutiny. In addition, the committee does not accept reassurance from government that no sensitive information was deliberately or inadvertently disclosed to any third parties. We simply do not know.¹¹¹

2.103 In order to satisfy itself that the use of private email and subsequent capture in the official records is appropriate, the committee has decided to recommend that the Auditor-General investigate the matter.

Recommendation 1

2.104 The committee recommends that the Auditor-General investigate the use of private emails by CSIRO, as part of its processes to determine staffing reductions, in order to establish whether the CSIRO Executive has met its record keeping obligations in managing a significant restructure.

Recommendation 2

2.105 The committee recommends that the CSIRO Board delays the implementation of the proposed job cuts and undertakes a thorough review of the deep dive process and outcomes in light of the evidence received by this committee and feedback from staff and stakeholders.

Recommendation 3

2.106 The committee recommends that the government direct the CSIRO to cease implementation of its proposed restructure in light of the upcoming election and evidence that the alternative government would set different priorities for CSIRO through the Statement of Expectations process.

111 *Senate Hansard*, 15 March 2016, p. 28.

Chapter 3

What is at risk?

3.1 This chapter will cover what is at risk should these proposed cuts to CSIRO staff go ahead. This includes: Australia's ability to obtain and utilise climate data; using climate data to produce effective adaptation and mitigation policies; industry and organisations that rely on CSIRO climate data and the lasting impacts for Australia's educational sector and Tasmania's economy. The chapter also considers the effects the proposed cuts will have on Australia's international standing and environmental obligations and examines an identified trend of reducing investment in public good research.

Climate monitoring, modelling and data collection

3.2 While there was consensus among witnesses that 'no-one is arguing that the CSIRO should not do more in the area of mitigation and adaptation,'¹ scientists disagreed² with the Chief Executive of the CSIRO, Dr Larry Marshall's contention that as climate change was proven to be real, CSIRO could shift its focus to adaptation and mitigation.³

3.3 Dr Marshall, in a question-and-answer style video to staff on, 10 February 2016, indicated that the climate change science was proved and commented that:

CSIRO's direction has changed, and in the climate area we're shifting from measurement and modelling to mitigation, because that's where we believe we can have the most impact and deliver the most benefit.⁴

3.4 Dr Marshall's assertion that climate change has been established was refuted by Australia's leading scientists. Professor Richard Eckard, climate change agriculture expert appearing in a private capacity, for example, informed the committee that 'science is not static' and that climate measurement needs to continue.⁵

3.5 Moreover, witnesses explained that climate modelling is critical to the development of effective adaptation and mitigation strategies.⁶ Dr Barrie Pittock PSM, former CSIRO physicist, appearing in a private capacity, explained:

1 Professor Haymet, *Proof Committee Hansard*, 11 March 2016, p.60.

2 Mr Tim Moltmann, *Proof Committee Hansard*, 8 March 2016, p. 4.

3 *Estimates Hansard*, 11 February 2016, p. 56. See also Michael Slezak, "Senior CSIRO scientist derides chief executive's claim climate change is answered", *The Guardian*, 5 February 2016.

4 Video, Dr Marshall accessed via <http://www.smh.com.au/federal-politics/political-news/maybe-im-naive-csiros-larry-marshall-tries-again-to-explain-deep-staff-cuts-20160210-gmr03b.html#ixzz4329V9000> (accessed on 16 March 2016).

5 *Proof Committee Hansard*, 11 March 2016, p. 15.

6 Dr Peter Craig, *Proof Committee Hansard*, 11 March 2016, p. 44.

Crucial local effects need to be identified and quantified and relevant input data fed into impacts models so that adaptation can occur at minimum costs and risk.⁷

3.6 Professor Trevor McDougall, oceanographer, appearing in a private capacity also explained that successful climate research is a precursor to successful climate adaption.⁸ In addition, Dr John Church, CSIRO Fellow appearing in a private capacity, also stressed that:

Successful and cost-effective mitigation and adaptation require ongoing and, indeed, strengthened climate science. This is specifically recognised in the Paris agreement, in their call for strengthening scientific knowledge on climate.⁹

3.7 Dr Gwen Fenton, Chief Scientist, Australian Antarctic Division (AAD), from the Department of the Environment, used the Antarctic ice sheet and the Southern Ocean as examples to argue the connection between data collection and adaptation, emphasising that it is critical to know the rate of change:

Understanding the changes and how that could contribute to the globe is very important. The science for that is not all in. There is a lot of information that we still need to gather on that. The natural variability alone is quite impressive. You have to unpick all of that to understand the true signals, what is happening and the rate of change. The rate of change is probably the most important thing that we have understanding for regarding adaptation and mitigation in the future.¹⁰

3.8 Regarding the rate of climate change, on 21 March 2015, the World Meteorological Organization (WMO) released the 'Statement on the Status of the Climate in 2015'. At the release, the WMO Secretary-General Petteri Taalas stated that '[t]he alarming rate of change we are now witnessing in our climate as a result of greenhouse gas emissions is unprecedented in modern records'.¹¹

3.9 Professor David Karoly, atmospheric scientist, appearing in a private capacity echoed the need to continue monitoring climate change to effectively adapt:

The only proofs in science are in pure mathematics, and the only absolute statements come in mathematics. Science is about the collection of evidence, testing it over and over again, and using observations to test models as well as to update information...

7 Dr Barrie Pittock PSM, *Submission 78*, p. 1.

8 Professor Trevor McDougall, *Submission 77*, p. 2.

9 *Proof Committee Hansard*, 8 March 2016, p. 27.

10 *Proof Committee Hansard*, 8 March 2016, p. 11.

11 Available from: <http://public.wmo.int/en/media/press-release/state-of-climate-record-heat-and-weather-extremes> (accessed 29 March 2016)

...If you want to do mitigation, you need to know the system—you need to know how the system will respond—and you have to monitor whatever mitigation action you do.¹²

3.10 The Climate Alliance emphasised that Australia's atmosphere and ocean modelling for weather and climate forecasting are a result of close collaboration between CSIRO, Bureau of Meteorology (BOM) and the academic sector and 'continuity of service delivery is critical'.¹³

3.11 Dr Marshall explained the intent behind his statement on climate change, that it was proven to be real:

...my intent was simply to say there is no question that the climate is changing. There is no question. It is changing, and we have to do something about it. It absolutely was not saying that we do not need to continue doing modelling and measurement but, given the fact that it absolutely is changing, we need to start thinking about what we do to try and mitigate—ideally mitigate or, if we cannot mitigate, adapt.¹⁴

3.12 At an Additional Estimates hearing on 11 February 2016, Dr Marshall clarified that climate measurement would continue:

As I have said, we are continuing our measurements. It is not that we are stopping measuring. We are not the only people doing measurement. You are quite right: in order to know the impact of what we do in mitigation we need measurement, but there are also some things that we can do that we know will improve outcomes.¹⁵

3.13 However, Dr Marshall admitted that climate measurement and modelling would be reduced by approximately half.¹⁶

3.14 Dr Wonhas explained to the committee at a hearing in Hobart on 8 March 2016 that CSIRO are in discussions with key stakeholders regarding their measuring capability:

In those discussions, [with key stakeholders] what we are trying to achieve—given the constraints...—is to identify what the most appropriate capability is that we can maintain in Australia to conduct the vital work that we need to do in measuring and projecting our future climate.¹⁷

3.15 While CSIRO claims to be changing focus to adaption and mitigation, some of the cuts are to adaption too. In response to questions on notice CSIRO confirmed that part of the Land and Water business unit's role was to help Australian cities adapt

12 *Proof Committee Hansard*, 11 March 2016, p. 16. See also The Climate Alliance, *Submission 97*, pp 2-3.

13 *Submission 97*, pp 2-3.

14 *Proof Committee Hansard*, 7 April 2016, p. 23.

15 *Estimates Hansard*, 11 February 2016, p. 59.

16 *Proof Committee Hansard*, 7 April 2016, p. 25.

17 *Proof Committee Hansard*, 8 March 2016, p. 39.

to climate change. When questioned why the CSIRO was cutting jobs in an adaptation unit, CSIRO commented:

CSIRO's work on adaptation and climate change is conducted across several business units and is not confined to one program.¹⁸

3.16 CSIRO acknowledged that the Land and Water business unit works to improve urban systems and networks critical to GDP and productivity in cities. While changes will occur across the entire Land and Water business unit, the CSIRO outlined that:

...the majority of the redundancies will come from three research programs: Liveable, Sustainable and Resilient Cities, Biodiversity Ecosystems Knowledge and Services, and Adaptive Social and Economic Systems. The extent of impacts on all seven Land and Water research programs are not yet clear as CSIRO is still working through the details of the changes.¹⁹

Climate centre announced

3.17 On 26 April 2016, Dr Marshall announced the establishment of a National Climate Research Centre, employing 40 full time CSIRO scientists in Hobart, with 10 years of guaranteed research capability.²⁰

3.18 When queried about the choice of location, Dr Wonhas confirmed that climate modelling and projections, which are the core of this new centre, are currently done in Melbourne.²¹

3.19 Dr Marshall acknowledged that there has been a lot of 'external pressure' on CSIRO to maintain climate science research²² and outlined that the decision was a collaborative effort between CSIRO, BoM and the Chief Scientist Dr Alan Finkel AO:

The Chief Scientist had an idea for an Australian version of the Hadley Centre or Hadley down-under. We had an idea internally prior to that as one of the options we were looking. The Bureau of Meteorology had an idea about transferring people and setting up something slightly different to either of those. Largely speaking, they were three of the options that we looked at.²³

3.20 Dr Marshall outlined what the establishment of the National Climate Research Centre will mean:

It will mean a number of things; primarily the decadal commitment is a major shift. Generally our science programs are locked in for three years.

18 CSIRO, answer to question on notice, 7 April 2016 (received on 18 April 2016).

19 CSIRO, answer to question on notice, 7 April 2016 (received on 18 April 2016).

20 <http://www.csiro.au/en/News/News-releases/2016/CSIRO-Climate-Science-Centre-a-win-for-Australias-future?featured=27F6622E2C954B819F5E36ECE881FA68>

21 *Proof Committee Hansard*, 27 April 2016, p 25.

22 *Proof Committee Hansard*, 27 April 2016, p. 3.

23 *Proof Committee Hansard*, 27 April 2016, p. 18.

Locking it in for 10 years enables really long-term planning, securing all of the assets associated with that in addition to supporting the 40 dedicated climate scientists. For me, our new strategy, which is to substantially deepen our collaboration across innovation system, creating if you like a hub where all of the broader climate science community across the nation can actually come to visit, work collaboratively, will be really important. And then there will be the overarching independent steering committee, made up of people from across the nation who are experts in climate science, looking at not just what the CSIRO does but what the entire innovation system does and providing an independent perspective, independent coordination of national climate research.

Finally, there will be a deeper partnership with the UK meteorology office, possibly even having an exchange of staff between the two locations, giving us access to some of their unique modelling capability, particularly around decadal and seasonal modelling.²⁴

Areas that rely on CSIRO data

3.21 Witnesses outlined to the committee that CSIRO's research was not purely academic and that there are a number of practical applications which rely on CSIRO data, including in the areas of agriculture, wine and defence.

3.22 Professor Eckard explained that Australian agriculture is highly dependent on a stable and predictable climate and noted that:

Australia has some of the highest levels of naturally occurring climate variability year on year. We are 22 per cent more climatically variable than any other country in the world.²⁵

3.23 Professor Eckard indicated that he had spoken with both the National and Victorian Farmer's Federation who expressed their concern about the proposed job cuts.²⁶

3.24 Professor McDougall outlined that Australian industries are looking to CSIRO climate researchers to assist with their response to the climate:

How should we respond? Should I change my farm from being this type of farm to being this type of farm, because I know, as a farmer, I cannot withstand more than two years of drought every 10? If I go to three or four, I have got to change my farm. It is that information which needs to be provided.²⁷

3.25 Professors Stephen Wilson, Clare Murphy and David Griffith emphasised that as a result of the staff cuts to climate science, the real consequence will be a reduction in:

24 *Proof Committee Hansard*, 27 April 2016, p. 18.

25 *Proof Committee Hansard*, 11 March 2016, p. 15.

26 *Proof Committee Hansard*, 11 March 2016, p. 16.

27 *Proof Committee Hansard*, 8 March 2016, p. 34.

...the ability of Australians, especially farmers, those living on the coast or in areas threatened by bushfires, and those threatened by increased mortality from heatwaves, to adapt to climate change.²⁸

3.26 They argued that this information needs to be continually kept up to date, as:

Australia needs the best available information to plan for food security. This requires an understanding of the earth system that is underpinned by the work of CSIRO scientists.²⁹

3.27 Professor Snow Barlow used data from Brown Brothers wineries to show how climate modelling data helps to determine the sensitivity of the industry or region to projected changes in climates. He stressed that adaptation research is an iterative process for industries and communities.³⁰

3.28 Professors Barlow, Karoly and Eckard informed the committee that their research focuses on giving the agricultural and viticultural industry options to cope with changing climate and is therefore heavily dependent on the most up-to-date data to underpin adaptation assessment reviews:

We take the data from the CSIRO-BOM collaboration on regionally downscaled specific climate scenarios and apply that to various agricultural commodities. For example, we have been looking at the pastoral industry. I have some examples here of the scenarios we were running about five years ago showing how climate change would impact the pastoral industry. We have recently run the last 10 years of pasture growth in Victoria—and pasture growth in Victoria looks like our previous 2050 projections. The point is that science is not static. We are actually seeing climate change advancing faster than we thought and agriculture is starting to suffer the impacts already. If we were using projections from five years ago in what we are doing now, we would be wrong.³¹

3.29 Mr Tim Moltmann, Director of the IMOS, University of Tasmania, and Dr Peter Craig, Director, Collaboration for Australian Weather and Climate Research, respectively told the committee that climate modelling is important to Australia's national security. Australia's defence forces, particularly the Navy, use the up-to-date environmental information, provided by CSIRO for defence purposes:

So we are getting climate quality data but we are also getting operational quality data that can be used to give our Defence Force best environmental information in the field, which is incredibly important.³²

3.30 In relation to defence, Dr Matear stated:

28 Professor Neville Nicholls, *Submission 80*, p. 3-4.

29 Associate Professor Stephen Wilson, Associate Professor Clare Murphy and Professor David Griffith, *Submission 79*, p. 1.

30 *Proof Committee Hansard*, 8 March 2016, p. 14.

31 *Proof Committee Hansard*, 11 March 2016, p. 15.

32 *Proof Committee Hansard*, 8 March 2016, p. 6, 9 and *Proof Committee Hansard*, 11 March 2016, p. 44.

...the observations, again, are the same observations I have been talking about in the climate variability space, and this ocean information, this oceans intelligence we are delivering, will be fundamental to the Navy.³³

3.31 Professor Haymet spoke about other practical applications of this data to assist with adaptation over the longer term:

...there is no use setting up a group to help us adapt to climate change if we do not know whether we have 20 years or 50 years. How long do we have before all of our ports have to raise their infrastructure a metre? How long do we have before we have to recraft all the sewers on the east coast of Australia because their outlets are too low and they are going to get flooded at an average high tide? How long do we have before the Royal Australian Navy has to redo all of its facilities, which, not surprisingly, are all built at sea level? We have billions and billions of dollars of infrastructure issues, and the question is: how long do we have? If we have 10 years, we are in big trouble. If we have 50 years, it is a better story because we were probably going to replace that infrastructure over that time scale anyway. Sure, we can adapt to climate change—as long as we know what we are adapting to and how long we have to do it. That is exactly what this fundamental climate measurement and modelling will do for us.³⁴

3.32 Dr Matear emphasised that he viewed CSIRO's observations and modelling of our oceans and atmosphere as providing an insurance policy for Australia:

...I look at the work we are doing as providing an insurance policy for Australia. We have a huge economy, a trillion-dollar economy, with multitrillion dollars worth of infrastructure, and to think that we cannot invest a little bit into the fundamental research that will help maintain and support that effort and make us a more resilient and more productive nation is ridiculous.³⁵

ACCESS model

3.33 The Collaboration for Australian Weather and Climate Research is a partnership between CSIRO and BoM which has developed a climate model for Australia known as the Australian Community Climate and Earth System Simulator (ACCESS).³⁶ Dr Craig told the committee that the model:

...provides the basis for the bureau's weather forecasts every day, as you have heard; it is being set up for their seasonal forecasting, as you have heard; and CSIRO is taking primary responsibility [for] the development of the climate projection system. There are significant differences in the way ACCESS was set up for these different purposes. As you have heard again, CSIRO ran the greenhouse gas scenarios for the IPCC Fifth assessment

33 *Proof Committee Hansard*, 8 March 2016, p. 28.

34 *Proof Committee Hansard*, 11 March 2016, p. 62.

35 *Proof Committee Hansard*, 8 March 2016, pp 28-29.

36 See <http://www.csiro.au/en/Research/OandA/Areas/Assessing-our-climate/CAWCR/ACCESS> (accessed 22 March 2016)

report, and ACCESS is now being prepared for the next assessment report, which will be in the early 2020s.³⁷

3.34 Dr Craig also told the committee about the importance of a feature of ACCESS for land practice mitigation called CABLE:

That has been developed specifically for Australian conditions. It describes the soil, water and vegetation dynamics and it is used stand-alone as well as coupled into the ACCESS model. It has 103 registered users from 51 institutions in 13 countries. It is a widely acknowledged and accepted model. In Australia, CABLE is critical for our assessment of climate mitigation through changes in land practice.³⁸

3.35 In addition to CABLE there is a natural resources management website which has 750 registered users.³⁹

3.36 Dr Craig outlined the cuts to the area over the last 10 years which have seen staff numbers go from 26 to 18 and surmised that it is probable this number may be halved.⁴⁰

3.37 Professor Karoly questioned whether it will be possible to maintain and develop ACCESS:

The commitment and capabilities for the development and maintenance of the ACCESS model cannot be met by the Bureau of Meteorology, because their interest is in weather forecasting. It cannot be met by the universities, because they do not have that long-term capability. The ACCESS model will not be able to be maintained and developed in Australia in the future without significant funding commitments.⁴¹

3.38 Professor Karoly emphasised that maintaining and developing the system is critically important:

...because improved computing power allows there to be improvements in the representation of smaller scale processes through higher resolution. The model can be developed to take account of the advances in understanding of specific processes like extreme weather events, like tropical cyclones, like heavy precipitation and convection, like the link of cloud systems over the Southern Ocean, which are relatively poorly represented. The biggest biases in the current climate models are in the representation of clouds over the Southern Ocean. That is critically important to Australia, to Tasmania, and the water resources that have not been met in Tasmania recently.⁴²

37 *Proof Committee Hansard*, 11 March 2016, p. 43.

38 *Proof Committee Hansard*, 11 March 2016, p. 44.

39 *Proof Committee Hansard*, 11 March 2016, p. 44.

40 *Proof Committee Hansard*, 11 March 2016, p. 44.

41 *Proof Committee Hansard*, 11 March 2016, p. 22.

42 *Proof Committee Hansard*, 11 March 2016, p. 22. See also Dr Sophie Lewis, *Submission 92*, p. 2.

3.39 Dr Wonhas acknowledged that the job cuts are a catalyst for realigning how ACCESS is used:

There will be a reduction in activity. I think that, as I said before, with the current investment we will probably move ACCESS more into a delivery-mode model where we can still run and operate the model but probably we will not have the resources to do blue-sky science around that. And that is a loss.⁴³

Others cannot do this work

3.40 The committee discussed the suggestion that other institutions may be able to take up some of the work that is to be cut from CSIRO.⁴⁴ This was rejected in evidence to the committee. Dr Paul Durak, climate modelling research scientist, appearing in a private capacity, responded that universities do not have the longer funding time horizons required:

One of the key functions of government laboratories, such as the Lawrence Livermore laboratory [United States government funded laboratory]...is that these government labs generally have longer funding time horizons than a university-based researcher would have. Consequently it enables an institutional memory, which means that you can tackle some bigger, more ambitious questions than you would be able to on a much shorter funding time horizon.⁴⁵

3.41 Professor Karoly also made this point:

It would be inappropriate to think that universities could pick up the activities and capability that CSIRO has essentially done over the last 20 years in terms of climate science. Universities have a core role in undergraduate education, graduate education and research, but research is typically funded on a three-year cycle. It is almost impossible to develop very long-term projects or capabilities in universities because the funding cycles are designed around research and pushing the boundaries of research. In fact, blue sky research is the area that the minister for science, the former minister for science and others have said that the universities are best at. I would not expect universities to be able to develop any sort of major long-term capability that will replace the CSIRO capability. The universities would be happy to partner with any long-term institution, but it needs to be funded long term, and universities cannot do that on their own.⁴⁶

3.42 These views were echoed by Dr Karl Taylor:

I might add that, especially on the observational side, there are not a lot of substitutes, and it is hard to move things from a big organisation like CSIRO. I do not know who would take it over in Australia. With climate

43 *Proof Committee Hansard*, 8 March 2016, p. 46.

44 Dr Wonhas, *Proof Committee Hansard*, 8 March 2016, p. 41.

45 *Proof Committee Hansard*, 11 March 2016, p. 3. See also Dr Peter Craig, *Proof Committee Hansard*, 11 March 2016, p. 46.

46 *Proof Committee Hansard*, 11 March 2016, p. 18.

modelling, which is my interest, there is a certain amount of infrastructure that goes into supporting the modelling activity. It is not just the research scientists; it is the computers; it is a bunch of things. Again, you need to have a scale of effort and a longevity of effort to support something like that to make it viable. It is hard to support it. You could not do it at a university, for example. That has not happened successfully anywhere in the world.⁴⁷

3.43 The committee explored greater collaboration and working with the British Met Office for modelling capability [UK's national weather service]. It was emphasised to the committee that although CSIRO has a good relationship with the Met Office,⁴⁸ Australia would have to pay for such work and that the Met Office's current models have a focus on Europe and the UK, not Australia.⁴⁹

3.44 Dr Ayers spoke to the suggestion that outsourcing of the modelling could go to the Met Office:

[It] would not be consistent with my experience in negotiating with the Met Office. My memory of the unified model—I do not know what the current arrangements are—from when we first wrote an agreement with them, when I was with the bureau, is that the office is protected by Her Majesty's Stationery Office, and its use can be sold to other people. But the British taxpayers are not going to be permitted by the British government to produce intellectual property in that form and for that to be given away freely. They have to get the return on investment. That is quite reasonable for any country. Originally, when we first spoke to them, the cost of bringing the unified model to Australia was quite high, at what might be called a commercial rate or something like that. How the arrangement then went was for us to use it and become partners in the development and assist the Met Office itself in developing the model. Having it tested in Australia...the Met Office is focusing heavily on Europe and the UK, of course—is a great advantage to them, to have CSIRO and the bureau [BoM] and potentially university folks involved in the centre of excellence, all providing scientific advances that can flow back to the Met Office. That is precisely how we ended up writing the original agreement.⁵⁰

3.45 In addition, Professor McDougall emphasised to the committee that country and region specific climate change research will not be done by other nations:

No-one overseas has any reason to start playing with the way the clouds, the topography or the mountain ranges are affecting the climate in the

47 *Proof Committee Hansard*, 11 March 2016, pp 3-4.

48 Dr Taylor, *Proof Committee Hansard*, 11 March 2016, p. 4.

49 Professor Karoly, *Proof Committee Hansard*, 11 March 2016, p. 22; Dr Gregory Ayers, *Proof Committee Hansard*, 11 March 2016, p. 29.

50 *Proof Committee Hansard*, 11 March 2016, pp 28-29.

Murray-Darling Basin, except Australia. And they will not. It is only our local scientists who will do that.⁵¹

3.46 In an answer to questions on notice, regarding the outsourcing of climate modelling to the UK Met Office, the CSIRO indicated:

There are no plans by CSIRO to outsource the provision of climate modelling to another country. CSIRO is involved in ongoing discussions with a number of partners and collaborators, including the UK Met Office, about creating synergies climate science.⁵²

Knowledge base

Loss of capability

3.47 The committee was informed that there was a real risk that staff cut from CSIRO would leave Australia taking decades of climate research experience with them which would erode Australia's knowledge base in this area.

3.48 Dr Tony Press, Adjunct Professor at the Antarctic Climate and Ecosystems Cooperative Research Centre, appearing in a private capacity, commented that CSIRO's best climate scientists would most likely be looking to work in other leading institutions around the world rather than staying in Australia.⁵³ Professor Anthony Worby, Chief Executive Officer, Antarctic Climate and Ecosystems Cooperative Research Centre, outlined:

The primary opportunities would be in Europe and the United States. There may be opportunities in any number of the Asian countries as well. There are emerging universities with deep pockets in many of the Asian countries. There may very well be interest from those countries in picking up world-class people. They are very much trying to establish their credentials as authorities in different fields of research, so there may be opportunities there. There is clearly a huge amount of climate research done in Europe as well as in the US, notwithstanding political and budget pressures in both of those places.⁵⁴

3.49 Mr John Brennan, Chair, Tasmanian Polar Network (TPN)⁵⁵ agreed that these qualified individuals are likely to leave Tasmania:

51 *Proof Committee Hansard*, 8 March 2016, p. 36. See also Professor Trevor McDougall, *Submission 77*, p. 2.

52 CSIRO, answer to written question on notice 19, 7 April 2016 (received on 18 April 2016).

53 *Proof Committee Hansard*, 8 March 2016, p. 66.

54 *Proof Committee Hansard*, 11 March 2016, p. 11.

55 The Tasmanian Polar Network was formed over 20 years ago between the industry that was supplying goods and services to the Antarctic and Southern Ocean sector and the state government. The TPN has upward of 70 members and works to promote further collaboration and partnership with other countries. The TPN promotes Tasmania and what it has to offer to the Antarctic and Southern Ocean sector. *Proof Committee Hansard*, 8 March 2016, p. 75.

...if we lose 100 people and they are educated people who are sought elsewhere, we are going to have a brain drain. They are not going to sit there and go on the dole. I would suggest that they are going to go out there and they are going to get into the market. They will either go to the mainland or they will be headhunted [by] international players.⁵⁶

3.50 Dr Forgan highlighted that CSIRO was facing a loss of corporate knowledge which would take years to recover.⁵⁷ Professor Karoly commented that the loss of corporate knowledge, research and expertise is estimated:

...in the order of 1,000 person-years of experience—20 years of experience and approximately 50 people, or more—which is at least \$100 million of investment. That is just directly, in salaries, and not counting the other things. It appears to have been thrown away or put into a rubbish bin.⁵⁸

3.51 In relation to the movement of affected staff, Dr Marshall, when discussing the long standing expertise of his CSIRO staff, suggested that those unable to be reallocated into a different area within CSIRO could be transferred to other employers:

It's completely understandable that someone who's spent 20 years, for example, studying climate change, measuring climate change or modelling climate change, it's perfectly understandable that they don't want to stop doing that and we must respect that, and we must find a place for them in the rest of the innovation system, perhaps in an university, where they can continue to pursue their passion.⁵⁹

3.52 Dr Press outlined that none of CSIRO's current collaborators had been consulted about transitioning some of CSIRO's science capability in climate measurement and monitoring to their research organisations. Further, Dr Press suggested that:

The University of Tasmania cannot absorb anywhere near whatever the figure is; I still could not work out today whether it was 70 or 100. But, whatever the figure is, there is no way that the University of Tasmania could take that number of people and there is probably no way that all of the universities in Australia combined could take that number of people...

...none of the institutions that I know that have the national mandate to do that kind of work have the capacity to take that number of people.⁶⁰

3.53 Dr Fenton recognised that the AAD would be incapable of taking on the climate scientists from CSIRO:

56 *Proof Committee Hansard*, 8 March 2016, p. 77.

57 *Proof Committee Hansard*, 11 March 2016, p. 38.

58 *Proof Committee Hansard*, 11 March 2016, p. 14.

59 Video, Dr Marshall accessed via <http://www.smh.com.au/federal-politics/political-news/maybe-im-naive-csiros-larry-marshall-tries-again-to-explain-deep-staff-cuts-20160210-gmr03b.html#ixzz4329V9000> (accessed on 16 March 2016).

60 *Proof Committee Hansard*, 8 March 2016, p. 66.

As it is, we only have 100 in our whole science branch. Our whole premise is to work collaboratively. It is a hybrid model of bringing in scientists with the expertise to help on all the questions. They are all funnelled through the same process to address the science strategic plan, and we draw in all these collaborators to do that. We do not have the capacity or funding to bring in that sort of number of people.⁶¹

Impacts on students

3.54 The committee heard that the job losses would affect students in several ways. The CSIRO staff in areas facing job losses supervise students across a range of academic fields and the announcement has caused great uncertainty for them. For example, Professor Worby outlined that the Antarctic Climate and Ecosystems Cooperative Research Centre relies on CSIRO staff to supervise early career researchers and students.⁶²

3.55 Professor Brigid Heywood Deputy Vice-Chancellor (Research), University of Tasmania noted that about a third of current science students would require major reconsiderations of the constitution of their supervisory teams if the proposed cuts proceed:

I recognise that that is quite disturbing if you are quite a long way into your program and, as a doctoral candidate, you have built up a particular relationship with a particular researcher, academic scientist et cetera.⁶³

3.56 Noting the collaboration between the CSIRO and the University of Tasmania the committee heard that students are now considering whether to attend the University of Tasmania. Professor Richard Coleman, Executive Director, Institute for Marine and Antarctic Studies (IMAS), The University of Tasmania, outlined to the committee that:

If Hobart is not seen as the site for Southern Ocean and Antarctic research, the students will go somewhere else. We have now developed a brand, and IMAS is part of that. It is now drawing—and I think we are up to—about 185 PhD students within the institute. We have just about filled the building. So, at some level, the capacity will continue to grow, and it is being able to say: it still the place that you can do this sort of science.⁶⁴

3.57 Professors Coleman and Nathan Bindoff, University of Tasmania, informed the committee that the University of Tasmania's relationship with CSIRO is vital with Professor Bindoff, Head, Oceans and Cryosphere Program, IMAS, reporting that students see a possible career progression from PhD to work with CSIRO. He also

61 *Proof Committee Hansard*, 8 March 2016, p. 11.

62 *Proof Committee Hansard*, 11 March 2016, p. 6.

63 *Proof Committee Hansard*, 8 March 2016, p. 55.

64 *Proof Committee Hansard*, 8 March 2016, p. 25.

indicated that they have had at least one student inquiry seeking advice about whether they should even start the PhD program.⁶⁵

3.58 Dr Church, also told the committee about an international student who has decided not to come to Hobart as a result of the proposed job losses:

We had a Chinese student lined up to come in a couple of month[s] time. Since this announcement, that student has decided they will not come to Australia, to Hobart; they will instead go to the USA. That is an example, and we are still in the very early stages of this.⁶⁶

3.59 In broader terms, Dr Taylor commented that the proposed cuts were having a negative impact on future generations of scientists:

...it is clearly a signal to those younger scientists in Australia coming up that this is not the land of opportunity anymore where you can become a climate scientist and make your mark. I think that would be a shame because it would mean that that scientific reputation that has been built over decades would be pretty quickly dissipated.⁶⁷

Tasmanian economy

3.60 Professor Worby noted that climate science research is now an 'integral part of the Tasmanian economy'.⁶⁸ Similarly, Mr Brennan informed the committee that CSIRO's presence in Hobart for Antarctic climate research contributes significantly to the Tasmanian economy and that Tasmanian jobs losses will result in a considerable financial impact.⁶⁹

3.61 Professor Worby and the TPN, respectively, reported that the Antarctic sector delivers \$5.50 of total economic return for every dollar invested in the sector.⁷⁰ The TPN indicated their view that the decisions being made by CSIRO were at:

...a level where there is little or no grounded understanding about the interconnectedness of CSIRO to the Antarctic and Southern Ocean sector and the importance of its role to the Tasmanian economy and its community. State Growth figures indicate that the Antarctic and Southern Ocean organisations contributed.⁷¹

65 *Proof Committee Hansard*, 8 March 2016, p. 23. See also *The Young Earth Scientists, Submission 90*, p. 1.

66 *Proof Committee Hansard*, 8 March 2016, p. 31.

67 *Proof Committee Hansard*, 11 March 2016, p. 5.

68 *Proof Committee Hansard*, 11 March 2016, p. 7.

69 *Proof Committee Hansard*, 8 March 2016, p. 74.

70 Tasmanian Polar Network, *Submission 81*, p. 4. *Proof Committee Hansard*, 11 March 2016, p. 7.

71 Tasmanian Polar Network, *Submission 81*, p. 1.

3.62 The TPN stressed the need for the CSIRO executive to understand the significant financial impact the proposed cuts would have on the Tasmanian economy.⁷²

3.63 In a similar vein, Professor Bindoff, told the committee that currently 70 percent of students in the PhD programs were international students, which contributes significantly to the Hobart economy.⁷³

International standing

3.64 The committee heard that the proposed reduction in climate researchers would damage Australia's reputation as having an 'Olympic gold team' which is providing a leading role in many aspects of climate research.⁷⁴ The World Meteorological Organisation stated that if key research programs were lost:

Australia will find itself isolated from the community of nations and researchers devoting serious attention to climate change.⁷⁵

3.65 Professor Bindoff⁷⁶ and Mr Moltmann recently attended the Ocean Sciences conference in the United States, run by the American Geophysical Union attended by 4,200 international ocean scientists. Mr Moltmann noted that:

[T]here was a lot of surprise and shock expressed by international colleagues that that would happen. One thing it stressed for me was how highly valued the work that the CSIRO had done in this area by the international community.⁷⁷

3.66 Witnesses such as Mr Moltmann suggested that given Australia is reliant on international collaborations we should be mindful of maintaining our contribution:

...I am quite concerned about how this affects our international relationships. As I said, the IMOS [Integrated Marine Observing System] program and many types of science that we do here are highly reliant on those international collaborations. Australia has no domestic satellite capability and we have a very modest vessel fleet, given that we have the third largest ocean territory on earth. We are highly reliant on these international collaborations, and we have to be pulling our weight at some level, otherwise I think the world sees us as freeloaders. We are not and should not be and, scientifically, we are much better than that. We are actually seen as a valuable partner in the global enterprise.⁷⁸

72 Mr John Brennan, *Proof Committee Hansard*, 8 March 2016, p. 74.

73 *Proof Committee Hansard*, 8 March 2016, p. 23.

74 Dr Durack, *Proof Committee Hansard*, 11 March 2016, p. 3.

75 Peter Hannam, 'Australia to be 'isolated' from global research after CSIRO climate cuts:WMO', *Sydney Morning Herald*, 9 February 2016.

76 *Proof Committee Hansard*, 8 March 2016, p. 19.

77 *Proof Committee Hansard*, 8 March 2016, p. 8.

78 *Proof Committee Hansard*, 8 March 2016, p. 4.

3.67 Concerns were also expressed by Dr Church and Dr Richard Matear in relation to the impact of the proposed cuts on Australia's international reputation.⁷⁹ The committee also notes the open letter from the international climate community to the Australian Government and the CSIRO Board conveying the alarm of the global climate research community at the proposed cuts.⁸⁰

3.68 Concerns were also raised that the cuts would affect Australia's ability to meet international obligations.⁸¹ Dr Church commented that the agreement reached in Paris indicates that climate science is more important than ever and it is critical to cost-effective mitigation and adaptation. He argued that:

The proposed cuts in CSIRO would break commitments made in Paris just last December, only a few months ago.⁸²

3.69 In relation to criticisms from overseas institutions such as Scripps, Dr Marshall responded:

I have spent 26 years in the United States and I have spent some time at Scripps. It is a wonderful research institution. The reason I was surprised about the comments from the US was that it is a matter of fact that the United States invests 75 per cent of its dollar investment in the environmental area into mitigation, and only 25 per cent into modelling and measurement. Over the last decade, the investment in the US into modelling and measurement has changed hardly at all—roughly four per cent a year—while in contrast the investment in mitigation technologies has increased 40 per cent per year. Given the US are playing a lead in a major shift in research priorities, this was a big part of our thinking in following that leading trend, so it surprised me to be criticised by someone who led the trend.⁸³

3.70 Dr Marshall indicated that he was surprised at the international response and emphasised that the CSIRO was not planning to completely withdraw from measuring or modelling, but to redirect its attention to mitigation:

We are not saying that modelling and measurement are not important. We are saying that modelling and measurement is not more important than mitigation, and we have chosen to shift our emphasis to mitigation...⁸⁴

79 *Proof Committee Hansard*, 8 March 2016, p. 30.

80 Dr Paul Durack, *Submission 86*.

81 Cape Grim's capacity as a public good research base was important in providing data and analysis for Australia's commitments under the UN Framework Convention on Climate Change. Several witnesses told the committee that Australia's commitments and reporting on international conventions either will not be possible or will be severely handicapped by the proposed cuts. See: Dr Bruce Forgan, *Proof Committee Hansard*, 11 March 2016, p. 37; Dr Paul Fraser, *Proof Committee Hansard*, 11 March 2016, p. 34.

82 *Proof Committee Hansard*, 8 March 2016, p. 27.

83 *Estimates Hansard*, 11 February 2016, p. 55.

84 *Estimates Hansard*, 11 February 2016, p. 55.

3.71 Regarding the ability of Australia to contribute to international bodies such as the IPCC, Dr Wonhas responded:

...I do understand that the reduction of investment in the climate science space will reduce, but certainly not eliminate, our capability to contribute to things like the IPCC process. So that is maybe a down-tick. However, I very firmly believe that we can do a very meaningful contribution in the adaptation and mitigation space, and that is what we are driving towards. That is kind of like the up-tick.⁸⁵

Public good research

3.72 Professor Worby expressed a view that the CSIRO strategy reflected a wider trend of moving away from investment in public good research.⁸⁶

3.73 Similarly, Professor Karoly indicated that he thought the shift away from public good research was in response to the need to make money:

...has shifted over the last 20 years from public-good science into research that can make a buck, and particularly make a buck for industry, not demonstrate that this research will avoid costs—for instance, avoid the costs of climate change—but directly make a buck, develop a new product, a new widget or a new activity. I think that the decision appears to have been made by the chief executive of CSIRO that the S in CSIRO is no longer important, and it should be C-I-R-O, with an emphasis on industry research.⁸⁷

3.74 Professor McDougall told the committee that he had seen a reduction in the prioritisation of and funding for public-good science over the years and that this is accelerating:

So, 25 years ago there was no requirement to earn any external money, and then, under a previous CEO, called John Stocker, a rather small target of 20 per cent was introduced, and now, from the point of view of the researcher, it is basically 50 per cent; you have to match dollar for dollar. The upshot of that is that when the external funding goes down then this area of research needs to be abandoned...In 2003 the division of atmospheric research retrenched 15 or so really top people with world-class reputations, and then there was my redundancy in 2011, and then following that, in Hobart, 30 or so have been let go in the past two or three years. So yes, there has been a steady drip of people leaving, so that the effort now is far below where it should be to give industry credible indicators for the future.⁸⁸

3.75 Dr Fraser offered the suggestion that '[p]erhaps...CSIRO has to decide whether it is going to be involved in the public good research or not'.⁸⁹

85 *Proof Committee Hansard*, 8 March 2016, p. 45.

86 *Proof Committee Hansard*, 11 March 2016, p. 6.

87 *Proof Committee Hansard*, 11 March 2016, p. 19.

88 *Proof Committee Hansard*, 8 March 2016, p. 35.

89 *Proof Committee Hansard*, 11 March 2016, p. 32.

3.76 Dr Church outlined to the committee CSIRO's extensive history of producing public-good research to address major issues facing Australia:

Under the Science and Industry Research Act 1949, CSIRO is charged with doing research to assist Australian industry but also to contribute to the achievement of national objectives or the performance of national and international responsibilities. These functions and also the science strategy clearly include research on major issues facing Australia, such as climate change, and other public-good research.⁹⁰

3.77 In response to this contention Dr Wonhas responded:

I think, in this debate, it can appear that CSIRO is pulling out of public-good research. I really want to categorically say, 'This is not our intent.' I think public-good research has been absolutely the foundation of what CSIRO has been doing over its very long history. [I] would say several thousand of our employees are committed to continuing to do public-good research. It is probably a fair criticism that we maybe have not articulated that position sufficiently well, especially in the last couple of weeks. But I can assure you that that is something that we are working on and that we endeavour to rectify.⁹¹

3.78 Dr Marshall told the committee that with the establishment of new strategic direction CSIRO's forward budgets substantially increase the investment in pure science.⁹²

3.79 Ms Bennett further outlined the future financial investment by CSIRO in public good science:

Currently we have approximately eight or nine underpinning science platforms that we believe need to form a large part of our investment. In that program we estimated that investment in 2015-16 would be in the order of \$4 million. As Dr Marshall has said, that will increase so that in 2019-20 that investment will be in the order of \$40 million. That is in that year. So it will move up in its per-annum-spent trajectory.⁹³

External revenue

3.80 The committee noted the emphasis on external revenue in the documents made available as part of the Order for the Production of Documents process. However, Ms Bennett did not agree with suggestions that the CSIRO is driving an increase in external revenue:

It is incorrect to assert that we have been driving—which I think is a very strong word—an increase in external revenue and external earnings. It is a really important part for us to maintain the scale and the quantity of our research...and we certainly acknowledge that fact. But I think to try and

90 *Proof Committee Hansard*, 8 March 2016, p. 27.

91 *Proof Committee Hansard*, 8 March 2016, p. 40.

92 *Proof Committee Hansard*, 27 April 2016, p. 4.

93 *Proof Committee Hansard*, 27 April 2016, p. 4.

indicate that our decisions are based on a drive for external revenue, the history does not bear it out and nor do our forward budgets.⁹⁴

3.81 Dr Marshall also spoke on revenue and the need for co-investment:

I want to address the market and revenues, as it is a key part of understanding this issue. In addition to indicating market demand, the co-investment financial support is also an important factor for us in a very practical way. You will understand from previous evidence that CSIRO's financial ability to conduct research activities requires co-investment funding.⁹⁵

Conclusion

3.82 The committee received powerful evidence in relation to the significant effects the proposed cuts would have in a variety of areas. Witnesses were very clear about the far-reaching consequences for the nation of decreasing CSIRO's climate measurement capability.

3.83 It was evident to the committee that the contention by Dr Marshall that climate change has been proven to be real so CSIRO can move to focus on adaptation is simplistic and naïve. Climate measurement data is not static. Robust data around the rate of climate change, for example, is critical to the development of successful and cost-effective adaptation and mitigation strategies.

3.84 The committee notes this data has real world applicability to many industries such as agriculture and wine production and for defence purposes. Moreover it assists in determining the sensitivity of an industry or region to projected changes. The committee understands that it is critical for these industries to know what climate change they are adapting to and how long they have to adapt.

3.85 It was clear to the committee that at the highest levels of the current CSIRO management there is a lack of understanding about the true value of maintaining decades of climate research and its return on investment for Australia in the long-term. Given the discussed range of risks to the nation from a changing climate in the areas of food security, energy security, infrastructure planning, and defence, the committee sees leadership decisions made by CSIRO management or the Federal Government without this understanding as a possible danger to the future economic and social wellbeing of Australia.

3.86 The committee is concerned that the job cuts planned for the CSIRO have been so rushed and without proper consultation that matters of national defence may have been overlooked.

3.87 The committee is thus greatly concerned that proposed cuts to the Land and Water business unit is directly contrary to CSIRO's new objective of focusing on climate change mitigation and adaptation. The committee believes that cuts to

94 *Proof Committee Hansard*, 8 March 2016, pp 43-44.

95 *Proof Committee Hansard*, 7 April 2016, pp 1-2.

CSIRO's climate change adaptation work evidences a hasty and ill-advised attempt to reduce CSIRO staffing numbers.

3.88 The committee believes the suggestion that other institutions can pick up some of this work is fanciful. It was emphasised to the committee that universities do not have the funding time lines to do this work. Funding time lines for University research of around three years make it almost impossible to develop long term capabilities that could replace what CSIRO has already developed in terms of knowledge and infrastructure for climate modelling. The suggestion that Australia could go to the British Met Office was also given short shrift by witnesses who emphasised that Australia would have to pay for information and pointed out the focus for the Met Office models is understandably the UK and Europe, not Australia. Very simply, if we are not measuring our climate, no other nation has a compelling reason to take this on. Furthermore, the committee cannot fathom how funding British scientists to conduct climate research for Australia would be value for money for Australian taxpayers.

3.89 The committee did not find CSIRO's assurances that they had no plans to outsource climate modelling to another country reassuring. The committee notes that CSIRO has indicated that it is involved in discussions with a number of partners and collaborators about climate modelling. The committee considers that CSIRO has failed to provide an adequate explanation as to who could provide critical, regional specific climate modelling better than Australian CSIRO scientists.

3.90 The announcement on 26 April 2016 of the establishment of a National Climate Research Centre in Hobart is clearly a response to the domestic and international criticism of the proposed cuts rather than some new collaborative effort that had been in the works for some time. From what the committee heard from witnesses, collaboration has always been the key foundation for this work.

3.91 The committee heard that if these proposed cuts go ahead Australia will lose scientists to other countries as institutions in Australia do not have the capacity to absorb such large numbers of scientists. The committee also heard troubling reports that students, particularly international students, are thinking twice about going to Hobart to study since the proposed cuts were announced. This is a great loss not only for the economy of Hobart but for the scientific community given the ongoing efforts to encourage more students to take up scientific studies.

3.92 It was very clear to the committee that the effective work in this area is collaborative, not only between institutions in Australia but also with international organisations. In order to continue to benefit from these collaborations Australia needs to maintain its contribution and commitments. CSIRO has acknowledged that the decreased investment will reduce Australia's capacity to contribute to forums such as the IPCC process and the committee is very concerned that this diminished capability will hinder Australia's ability to meaningfully participate and represent its national interest.

3.93 The committee is also very concerned that these proposed cuts are part of a wider trend to reduce public good research in favour of generating income. Retaining

this capability is critical to the nation and its ability to successfully adapt to climate change.

3.94 In short, the proposed cuts represent a very short-sighted approach in generating moderate savings to CSIRO in the medium term at significant cost to the nation in the long term.

Recommendation 4

3.95 The committee recommends that a suitable independent agency be tasked with investigating the economic value of CSIRO climate measurement and research, including the return on investment for Australia and the benefits of better timed and placed adaptation and mitigation measures.

Recommendation 5

3.96 The committee recommends that the Department of Defence reports to the Minister of Defence and the Minister for Industry, Innovation and Science on the future ocean intelligence requirements needed to maintain tactical advantages for all its operations, including the entire operating life of the future submarine fleet.

Senator Peter Whish-Wilson

Chair

Government senators' dissenting report

Questioning the basis for the inquiry

1.1 Government senators reject the committee majority report. The inquiry process on this issue has been a blatantly wasteful use of scarce Senate resources. Government senators question the validity of the inquiry given the CSIRO restructure has nothing to do with government budget measures but is the result of a strategic shift following the development of the CSIRO Strategy 2020: Australia's Innovation Catalyst.

A process is underway, not completed

1.2 The development of the CSIRO Strategy 2020 is the CSIRO response to the Australian economy in transition and its role in Australia's innovation system. It has resulted in a redirection and realignment of its capability.¹ This is a normal process. In a constrained budgetary environment strategic direction and programs should be periodically evaluated and adjustments made.

1.3 The announcement on 4 February 2016 indicating people's jobs could be affected was just the start of the process. There is more work to be undertaken to ensure a smooth transition. Dr Marshall has explained that this process will be undertaken over two financial years and the result in overall staffing levels will be the same or slightly higher.² There will be no net job cuts. Some staff, up to 350, will be affected but there will be opportunities to reskill or redeploy within the organisation in the first instance. If they cannot or do so, or do not wish to, then staff may elect to leave.³

1.4 Dr Marshall explained the process underway at February estimates hearings:

Moving from setting the high-level strategic science priorities as a first phase, to working out the detail of how to execute this with our staff and stakeholders in its second phase, and then executing the changes. We are currently in the second phase of this process, consulting with our staff and our stakeholders in order to resolve the details, a process which we are committed to undertaking. Until this is complete and the precise information is known, speculating on potential outcomes is not fair to our staff.⁴

1.5 Dr Marshall confirmed:

This change is a refresh and a redirection of capability and of CSIRO, not cuts to staffing levels.⁵

1 *Estimates Hansard*, 11 February 2016, p. 54.

2 *Estimates Hansard*, 11 February 2016, p. 54.

3 *Estimates Hansard*, 11 February 2016, p. 54.

4 *Estimates Hansard*, 11 February 2016, p. 54.

5 *Estimates Hansard*, 11 February 2016, p. 54.

1.6 At the 7 April 2016 hearing with the committee, Dr Marshall stressed that CSIRO is only half way through the process underway. Therefore much of the public discussion, including from the documents released through the Senate Order for the Production of Documents process, was based on incomplete information and misinformation. He emphasised the long-established process for CSIRO investment decisions.⁶

1.7 Mr Craig Roy, Deputy Chief Executive, CSIRO, explained the current processes underway, emphasising the awareness of the executive to address the uncertainty for staff and stakeholders as soon as possible:

There are multiple phases to it, and it is a well-worn track for us, unfortunately, but it is a well-worn track. The next thing is that we will get the feedback that we are getting at the moment. There will be a decision at high-level—executive team type level—as to whether we will change any of those parameters that are there, and they will be based on the feedback and the advice of the business unit leaders, as well. Then we move into a phase where teams, programs and individuals are advised if it impacts them directly. The feedback I am getting is that people are yearning for that advice at the moment, because there is a lot of uncertainty across people who have no need to have uncertainty over this.⁷

1.8 Dr Marshall indicated that CSIRO needed to provide early advice on the maximum numbers of staff who may be affected but assured the committee that CSIRO would be doing its best to make sure the actual number of staff affected is as small as possible.⁸

1.9 Dr Marshall told the committee that ultimately staffing numbers will be a combination of factors:

The final resting place for a number of people is governed, for example, by how many people we can afford to keep based on the external envelope, and by: 'What people do we have to keep in order to support national critical infrastructure?' So, if you like, they are the boundaries. And then it is: 'How many people can we shift to support the new directions that we want to invest in?'⁹

Discussions underway with stakeholders

1.10 The committee heard discussion is now underway with stakeholders and staff. Dr Alex Wonhas, Executive Director of Environment, Energy and Resources, CSIRO, described the interaction with stakeholders since the announcement on 4 February 2016:

6 *Proof Committee Hansard*, 7 April 2016, p. 1.

7 *Proof Committee Hansard*, 7 April 2016, p. 21.

8 *Proof Committee Hansard*, 7 April 2016, p. 22.

9 *Proof Committee Hansard*, 7 April 2016, p. 23.

I am aware that this decision has occurred fairly quickly and that therefore people have a great need for information. I think—as we might outline in the further discussion—we are actually going through a formal process to answer all of these questions. That said, I think there have been a number of discussions since the announcement. We had very deep interactions, in particular, with the Bureau of Meteorology. They are, obviously, a key partner of ours in the climate-modelling space. We had all sorts of discussions with a range of different stakeholders. I had discussions with the ARC Centre of Excellence for Climate System Science. There were also discussions with the AAD and the ACE CRC, and I think that is probably contrary to the record that was given this morning.

I personally had a number of discussions with Dr Vertessy from the bureau and with his deputy, Graham Hawke. I spoke to Professor Pitman from the ARC centre of excellence. I understand that the director of the Oceans and Atmosphere Flagship, Dr Lee, had discussions with the ACE CRC and the AAD at a hearing committee meeting, probably a week ago. I actually spoke this morning with Dr Nick Gales. I can certainly provide you with a list of interactions that we had.

In those discussions, what we are trying to achieve—given the constraints which Ms Bennett also outlined—is to identify what the most appropriate capability is that we can maintain in Australia to conduct the vital work that we need to do in measuring and projecting our future climate.¹⁰

Discussions underway with staff

1.11 CSIRO acknowledged the effect this realignment will have on staff and have been attempting to manage it sensitively. The process is still underway and speculating on the potential outcomes is not helpful to staff.

1.12 Ms Hazel Bennett, Chief Finance Officer told the committee:

...we would like to acknowledge the impact of the CSIRO changes on our staff. It is a very difficult time for them. We are acutely aware of the need for us to continue with the process as swiftly as we can to give them and other stakeholders certainty.¹¹

1.13 Ms Bennett also clarified the scope of the proposed changes, reporting that there are currently 420 staff in the Oceans and Atmosphere business unit:

At the moment the proposals are potentially to impact 100 staff. With 35 recruitments, that leaves a net 355. The impact will be across the whole of the Oceans and Atmosphere business unit, with the highest impact being felt across two programs in which there are 140 staff at present. That impact could be as much as 50 per cent, which would leave 70 staff in those two programs. We therefore have a continued commitment—albeit at a smaller

10 *Proof Committee Hansard*, 8 March 2016, p. 39.

11 *Proof Committee Hansard*, 8 March 2016, p. 38.

scale—to climate activity. In terms of the locations impacted, they are primarily at Hobart, Aspendale, and Yarralumla in Canberra.¹²

1.14 The committee was aware that feedback about the implementation of the changes was being sought from staff and that it would be considered by the executive team.¹³ Dr Wonhas emphasised that no final decisions about the exact allocation of staffing reductions have been taken.¹⁴

1.15 Dr Wonhas explained the current stage of the process:

Dr Lee and his leadership team are currently applying the criteria that Ms Bennett has referred to across the whole of his business unit. They are trying to identify the specific areas that will be impacted on. Once we understand that we will obviously have a discussion with staff in the first instance to make them aware of the specific areas that will be impacted on. At this point in time we believe it is going to happen soon—sometime this month. Following that, we will have more detailed discussions to identify the actual individuals who will sadly be impacted on by this change. That will be happening at the beginning of April. That is the current time line that we are working towards. Once individuals have been identified, we will make every endeavour to find redeployment opportunities within CSIRO. But I think in this particular case we are also exploring a number of different options, including maybe finding other institutional homes for this vital capability.¹⁵

1.16 Dr Marshall stressed to the committee that he appreciates change is not easy and his focus is on giving staff certainty about the changes as soon as possible.¹⁶

Consultation with the board

1.17 The committee majority appear to think that government should interfere in decisions made by an independent agency. The Board and management are responsible for the allocation of resources. The CSIRO indicated that the Board was appropriately consulted by the Chief Executive:

Under the Board Directions to the Chief Executive...the Chief Executive is required to consult with the Board on certain matters, including the structure of business units and submit more detailed strategies and investment proposals, preferably at the concept stage, to support delivery of the Corporate Plan.

The method of consultation is not specified. The Chief Executive works through the Chairman to determine the method of communication and an

12 *Proof Committee Hansard*, 8 March 2016, p. 38.

13 Peter Hannam@p_hannam 'Larry Marshall calls on #CSIRO staff to put needs of 'our organisation and nation ahead of personal need'#CSIROcuts', 16 March 2016.

14 Dr Wonhas, *Proof Committee Hansard*, 8 March 2016, p. 40.

15 Dr Wonhas, *Proof Committee Hansard*, 8 March 2016, pp 40-41.

16 *Proof Committee Hansard*, 7 April 2016, p. 1.

appropriate time to respond. The normal timeframe is three working days or less in the case of an urgent matter.

In this instance, preliminary investment directions were shared with the Board at their formal Board meeting on 8 December 2015; and the Board were provided with further information by email on 2 February 2016 seeking support to announce the investment directions to staff. Board support was provided before the staff communication was made on 4 February 2016.¹⁷

1.18 That appropriate processes were followed was confirmed by CSIRO:

Had the message been seeking approval for the changes, a circular resolution process including three day time for response would have been applicable. However the message of 2 February was not seeking consideration or approval of any resolution and therefore did not require the circular resolution procedure to be invoked. In any case, responses from Board members were received on 3 February 2016.¹⁸

1.19 Responding to questions about whether the Chief Executive has complied with the requirements outlined by the Board in their directions to him CSIRO provided a list of all the actions undertaken by the Chief Executive:

- Paper for December 2015 Board Meeting - Investment Process for FY 2016/17 – 2019/20: informing the Board on the process and approach to investment decisions and next steps regarding the "deep dive" process;
- Paper for December 2015 Board Meeting – Science Health and Excellence Report;
- At December 2015 Board Meeting – Verbal update and discussion on "deep dive" process, including the preliminary investment directions emerging from these;
- Email on 2 February 2016 to Board members, seeking support to announce the investment directions to staff and including attached 5 page summary of the proposed changes;
- Paper for March 2016 Board Meeting - Investment & Deep Dive Process and Outcomes: FY2016/17 – 19/20: informing the Board of the outcomes of the Executive Team investment decisions and "deep dive" discussions (including summaries by Business Unit), as well as next steps regarding consultation and communication with key stakeholders;
- March 17th Board telephone discussion – providing a verbal update on feedback in relation to the changes;

17 CSIRO Answer to question on notice number 10 from 8 March 2016 hearing (received 17 March 2016).

18 CSIRO, answer to written question on notice number 2, 7 April 2016 (received on 15 April 2016).

- Ongoing fortnightly face-to-face conversations with the Chairman. These run for 2 hours each fortnight or longer if necessary. Additional phone and daily emails interactions also take place as necessary. These meetings address contemporaneous issues, including the science investment topic.¹⁹

Consultation with the Minister

1.20 CSIRO addressed contentions that the government was not advised of changes to CSIRO. The committee was informed that the minister's office was provided formal briefing on the proposed changes on 1 and 9 February, with a further update provided on 24 February 2016.²⁰

1.21 In response to questions on notice Ms Bennett outlined that she has regular discussions with the minister's office, including a meeting with the minister's office and department representatives on 31 March 2015.²¹

1.22 Dr Marshall has communicated with government ministers regularly since the announcement and has:

...communicated by phone with Minister Pyne on 12 and 23 February 2016 and with either the Chief of Staff or Minister on March 30.

Dr Marshall also met with Assistant Minister Andrews on 9 February 2016 and 23 February 2016 and with Assistant Minister Roy on 23 February 2016.²²

1.23 CSIRO confirmed that it has met the requirements of the statement of expectations from the minister.²³

CSIRO funding

1.24 The CFO addressed the assertion that government funding goes to overheads saying this is incorrect:

From the CSIRO appropriation we fund the majority of our work looking after the national facilities and collections. We also fund work, including our work in education. From the appropriation we also fund our building infrastructure and IT infrastructure.²⁴

External earnings

1.25 Ms Bennett addressed the issue of external earnings:

In the last five years, up to and including the 2014-15 year, we have generated between 37 per cent and 41 per cent of our total revenue from non-appropriation sources, the so-called external earnings, excluding one-

19 CSIRO, answer to question 10 on notice, 7 April 2016 (received 16 April 2016).

20 Ms Bennett, *Proof Committee Hansard*, 7 April 2016, p. 20.

21 CSIRO, answer to question on notice 12, 7 April 2016 (received on 18 April 2016).

22 CSIRO, answer to written question on notice 12, 7 April 2016 (received on 18 April 2016).

23 CSIRO, answer to question on notice 16, 7 April 2016 (received on 20 April 2016).

24 *Proof Committee Hansard*, 8 March 2016, p. 38.

off WLAN licensing. So 37 per cent to 41 per cent is frankly very consistent. In absolute terms that is somewhere between \$460 million and \$500 million out of \$1.25 billion to \$1.29 billion.²⁵

Co-investment

1.26 The CFO also addressed contentions about co-investment:

The business units do science with no or low coinvestment. Amongst other things, we run a postgraduate program and postdoctoral program of approximately \$22 million per annum and a transformational capability program of approximately \$10 million to \$14 million a year.

... at the end of the day approximately \$400 million or so of external revenue is matched, on average, one-for-one with CSIRO appropriation. The point made that we are, therefore, very much of a scale and size dictated by external revenue is also true. If that external revenue were not there we would do half as much science as we do today. However, it is a co-funded model. That coinvestment or co-funded model goes right across the Australian system. There are other players in the system who use grants and co-funding models to do their science, and CSIRO is no different.

The point...about whether coinvestment is the right model for climate science is one that we acknowledge. We think it is a very good discussion to be having. We note that we run the national facilities and collections on behalf of the nation. We have endeavoured in the last few years to move that away from a coinvestment model to a more sustainable model for funding with long-term partners, underpinned by a memorandum of understanding and with firm financial commitments. That is not always successful, and it is certainly not easy.²⁶

1.27 Ms Bennett then detailed funding from co-investment, a subset of total external earnings:

...co-investment raised a new sort of co-funding model—if you like \$1 from CSIRO and \$1 from someone else—as a percentage of total revenue over the same five-year period. It has been 34 per cent, 33 per cent, 34 per cent, 32 per cent and 31 per cent. In the four-year forward estimates, it is running at 33 per cent to 34 per cent.²⁷

1.28 The CFO rejected the assertion that the CSIRO is driving an increase in external revenue:

It is incorrect to assert that we have been driving—which I think is a very strong word—an increase in external revenue and external earnings. It is a really important part for us to maintain the scale and the quantity of our research...and we certainly acknowledge that fact. But I think to try and

25 *Proof Committee Hansard*, 8 March 2016, p. 43.

26 *Proof Committee Hansard*, 8 March 2016, p. 38.

27 *Proof Committee Hansard*, 8 March 2016, p. 43.

indicate that our decisions are based on a drive for external revenue, the history does not bear it out and nor do our forward budgets.²⁸

1.29 Dr Marshall also spoke to the committee on this issue:

I want to address the market and revenues, as it is a key part of understanding this issue. In addition to indicating market demand, the co-investment financial support is also an important factor for us in a very practical way. You will understand from previous evidence that CSIRO's financial ability to conduct research activities requires co-investment funding.²⁹

1.30 Dr Marshall provided the following figures which have been factored into the staffing decisions:

In 2014-15, CSIRO conducted roughly \$1¼ billion in research, of which about a quarter of a billion was dedicated to national research infrastructure which we share on the basis of merit with the entire university system. The remaining \$1 billion is split, roughly: \$435 million from external revenue and the remainder from appropriations. In other words, a roughly 50/50 co-investment model, although this varies across our portfolio.

There has been no change in the current year's budget in CSIRO's block appropriation funding. However, the financial reality is that for CSIRO to continue to conduct its current level of research, external revenue has been, and will continue to be, a very practical factor. CSIRO's investment decision options include this critical factor. This is also the case in the climate science area, as you have heard evidence from other witnesses. An immediate issue is that CSIRO is not in a financial position from its appropriation funding to make up a shortfall in external funding, whether it is a decrease in funding from the private sector sources or from other external collaborators. The decisions in relation to the oceans and atmosphere unit and its climate science programs have therefore been made taking into account not only funding support for our research in this area but also the strategic shift—that we wish increasingly to focus on mitigation and adaption.³⁰

Addressing alarmist concerns

1.31 A number of fanciful and alarmist assertions have been put forward during the inquiry which were clearly addressed by CSIRO.

Climate measurement

1.32 The Chief Executive Dr Marshall has made clear that climate measurement will continue:

28 *Proof Committee Hansard*, 8 March 2016, pp. 43-44

29 *Proof Committee Hansard*, 7 April 2016, pp 1-2.

30 *Proof Committee Hansard*, 7 April 2016, p. 2.

For the record: we are not planning to withdraw from measuring or modelling, but we are reducing our effort in that area in an effort to redirect our attentions to mitigation.³¹

1.33 Dr Marshall made this point several times:

As I have said, we are continuing our measurements. It is not that we are stopping measuring. We are not the only people doing measurement. You are quite right: in order to know the impact of what we do in mitigation we need measurement, but there are also some things that we can do that we know will improve outcomes.³²

1.34 Dr Marshall added:

We are not saying that modelling and measurement are not important. We are saying that modelling and measurement is not more important than mitigation, and we have chosen to shift our emphasis to mitigation...³³

1.35 At the 7 April hearing Dr Marshall again clarified this point:

...my intent was simply to say there is no question that the climate is changing. There is no question. It is changing, and we have to do something about it. It absolutely was not saying that we do not need to continue doing modelling and measurement but, given the fact that it absolutely is changing, we need to start thinking about what we do to try and mitigate—ideally mitigate or, if we cannot mitigate, adapt.³⁴

1.36 Contrary to assertions that climate modelling may be outsourced to the UK Met Office, the CSIRO indicated:

There are no plans by CSIRO to outsource the provision of climate modelling to another country. CSIRO is involved in ongoing discussions with a number of partners and collaborators, including the US Met Office, about creating synergies climate science.³⁵

1.37 On 26 April 2016, CSIRO announced the establishment of a National Climate Research Centre, employing 40 full time CSIRO scientists in Hobart.³⁶ The centre will:

...focus on climate modelling and projections for Australia, drawing on both national and international research expertise.

31 *Estimates Hansard*, 11 February 2016, p. 55.

32 *Estimates Hansard*, 11 February 2016, p. 59.

33 *Estimates Hansard*, 11 February 2016, p. 55.

34 *Proof Committee Hansard*, 7 April 2016, p. 23.

35 CSIRO, answer to written question on notice 19, 7 April 2016 (received on 18 April 2016).

36 CSIRO Media release, 'CSIRO Climate Science Centre a win for Australia's future', 26 April 2016, available at: <http://www.csiro.au/en/News/News-releases/2016/CSIRO-Climate-Science-Centre-a-win-for-Australias-future?featured=27F6622E2C954B819F5E36ECE881FA68>

"Our Strategy 2020 is focussed on collaboration, global connection, excellent science and innovation – all four of these pillars are at work in this Centre," Dr Marshall said.

"As I indicated at the start of CSIRO's current broader change process, it is critical that we retain the capability that underpins our national climate research effort."

"The announcement today is a culmination of the ongoing consultation and feedback we've had from our staff and stakeholders, and this new Centre is a reflection of the strong collaboration and support right across our system and the global community."

Operating as part of CSIRO Oceans and Atmosphere, the new CSIRO Climate Science Centre has a guaranteed research capability for 10 years and will focus CSIRO's climate measurement and modelling researchers and resources.

Collaboration and partnership will be a cornerstone of this decadal commitment for Australia. In recognition of this, the Minister for Industry, Innovation and Science has agreed that an independent National Climate Science Advisory Committee will be established.

The Committee will have representation from CSIRO, the Bureau of Meteorology and other experts from Australia and overseas.³⁷

Public good research

1.38 It was also made abundantly clear to the committee that the CSIRO is not withdrawing from public good research:

I think, in this debate, it can appear that CSIRO is pulling out of public-good research. I really want to categorically say, 'This is not our intent.' I think public-good research has been absolutely the foundation of what CSIRO has been doing over its very long history. I and I would say several thousand of our employees are committed to continuing to do public-good research. It is probably a fair criticism that we maybe have not articulated that position sufficiently well, especially in the last couple of weeks. But I can assure you that that is something that we are working on and that we endeavour to rectify.³⁸

1.39 Dr Marshall emphasised this to the committee again:

Reports in the media that we are moving away from public-good research are very disturbing and confusing for our people, not least because it is not true. Our people believe that what they do is for the benefit of the Australian public. This is true whether their research is purely government funded, helping industry be more productive or contributing more broadly to solving national priorities.³⁹

37 CSIRO Media release, 'CSIRO Climate Science Centre a win for Australia's future', 26 April 2016.

38 *Proof Committee Hansard*, 8 March 2016, p. 40.

39 *Proof Committee Hansard*, 7 April 2016, p. 1.

1.40 He summarised:

Turning to some of the issues that have been speculated upon in your hearings today: does this decision result from CSIRO prioritising CSIRO's own commercial returns above a more appropriate use of appropriation for public research? The answer is no, but, as I have explained, the ability to fund the research with the necessary contribution from external revenues is a very practical reality. This research area has been funded with external revenues over at least the past five-year period. What is happening now is a shift in market support.⁴⁰

Cape Grim

1.41 Dr Wonhas has also clarified that activities at Cape Grim will continue:

It is obviously clear that the reason we are having the discussion is that there is a reduction in activity. With regard to the Cape Grim activities, may I say that I am cautiously optimistic that we are progressing with a solution that stakeholders believe will provide adequate measurements.⁴¹

1.42 In response to questions on notice, the CSIRO made it clear to the committee that they intend to fund 'the same direct contribution to Cape Grim in 2016-17 as in 2015-16'.⁴²

International commitments

1.43 Dr Wonhas addressed the statements that the changes will weaken international commitments:

We certainly had discussions with the minister and the Department of the Environment, which I understand is ultimately the custodian of Australia's commitment. From a climate modelling point of view, obviously part of the Paris accord is another round of IPCC projections that we obviously endeavour in an appropriate way to be part of into the future. As you know, the other very strong breakthrough at Paris is that there is a at least global aspiration to limit temperature increases ideally to 1.5 degrees Celsius. To achieve those outcomes we obviously need a lot of mitigation technologies and approaches. That is certainly an area in which the CSIRO is continuing to make, I would hope, a very strong contribution.

There is also a strong focus on adaptation, given that there is probably some impact from climate change that at this point is now unavoidable. As we have also said, that is an area that we are very actively pursuing. In fact, given all of the discussions and the feedback we have got—both internal and external discussions—we are actually very actively considering establishing a dedicated group that looks at both climate services as well as adaptation work. All in all, as one of the many contributors to Australia's

40 *Proof Committee Hansard*, 7 April 2016, p. 2.

41 *Proof Committee Hansard*, 8 March 2016, p. 43.

42 CSIRO, answer to written question on notice 20, 7 April 2016 (received on 18 April 2016).

response I hope that we can make a very meaningful contribution to what is the Paris accord.⁴³

1.44 Dr Wonhas summarised:

...I do understand that the reduction of investment in the climate science space will reduce, but certainly not eliminate, our capability to contribute to things like the IPCC process. So that is maybe a down-tick. However, I very firmly believe that we can do a very meaningful contribution in the adaptation and mitigation space, and that is what we are driving towards. That is kind of like the up-tick. It is hard to distinguish what the net result is...⁴⁴

International concerns

1.45 Dr Marshall indicated that he had seen a number of sensational media articles regarding the level of international concern. However, he reported to the committee that this has not been reflected in his interactions with organisations in the US.⁴⁵

Role of the government

1.46 The role of government in these changes was addressed comprehensively by Dr Marshall:

In the February estimates session and in your hearings, the question raised has been about the role of government in the decisions. CSIRO is guided by the ministerial statement of expectations and the response from our chair in the statement of intent. CSIRO's strategy has been to become an innovation catalyst for Australia—launched in July 2015. It is absolutely aligned with that statement of intent, and we now see that CSIRO's strategy is well-aligned with the National Innovation and Science Agenda that the government announced in December last year.

In relation to the operational decisions, the investment intention decisions made by CSIRO were advised to the minister's office in December and February, as described previously in estimates. This was not a situation of there being any instruction to CSIRO from the minister, either formal or informal. These decisions were made by CSIRO's executive team with input from our leadership teams across the organisation and then endorsed by our board. The decisions were made in the context of our new strategy, of our analysis as to the application of the strategy across the organisation, of the science health report, of SICOM and of the deep dive planning process by the executive team, with a discussion at the CSIRO board.⁴⁶

43 *Proof Committee Hansard*, 8 March 2016, p. 44.

44 *Proof Committee Hansard*, 8 March 2016, p. 45.

45 *Proof Committee Hansard*, 7 April 2016, p. 27.

46 *Proof Committee Hansard*, 7 April 2016, p. 2.

The use of private emails

1.47 The committee was reassured that relevant private emails have been transferred into the corporate system and are available.⁴⁷ This was confirmed by the Cabinet Secretary and Minister Assisting the Prime Minister for the Public Service, Senator the Hon Arthur Sinodinos:

In relation to CSIRO's record-keeping obligations, the Archives Act and the Freedom of Information Act apply to emails where personal email addresses are used. The CSIRO are ensuring that any emails falling within this scope are collected and incorporated appropriately into the CSIRO's record-keeping system so that they can be accessed by CSIRO. An initial assessment by CSIRO's legal function indicates use of personal emails would not breach the Crimes Act as no information was disclosed to any third parties.⁴⁸

1.48 The process by which this occurred was outlined by CSIRO:

Fundamentally, it started with requests to seek verbal assurance from the officers. The first request went out in an email from Dr Wonhas to his leadership team. Essentially, that enabled us to identify the number of officers who had potentially used private emails. The next level of request was in writing for them to provide those emails to an executive officer. The next level of detail was to ask those officers to confirm to us, in writing, the fact that they had provided any or all emails that were sent or received via private email in connection with the deep-dive process, the date on which they placed the emails into the CSIRO official record keeping system, and that emails were not disclosed to any external parties.

In regard to the risk that there was potential retrieval of emails that had been deleted from private systems, we also asked the officers to ask their private email provider, if the emails could be retrieved, to advise, as far as they could recall, the nature and distribution of those emails that had been deleted and to see if they could be captured through the emails provided, essentially, through the recipients' end. That process, as I said, which is a written confirmation from 17 officers, is substantially complete—fully complete verbally—with one written confirmation outstanding as at current date.⁴⁹

Conclusion

1.49 Returning to our first point, government senators believe this committee has initiated an inquiry which does not fall within its terms of reference and has overstepped its remit. In doing so it has created additional uncertainty, confusion and stress for staff and stakeholders. The CSIRO is working through a process where it is consulting with staff and stakeholders and final decisions are yet to be made. Decisions around staffing will be handled in a sensitive and respectful way.

47 Dr Wonhas, *Proof Committee Hansard*, 8 March 2016, pp 48-49.

48 *Senate Hansard*, 15 March 2016, p. 28.

49 Ms Bennett, *Proof Committee Hansard*, 7 April 2016, p. 4.

1.50 Government senators note that Dr Marshall rightly rejected the offensive assertions that the restructure was a done deal before the deep dive process began, that the areas affected were already identified and that these decisions were based on commercial considerations.⁵⁰ The CSIRO is an independent agency with the board and management responsible for allocating resources. The organisation has been through a comprehensive process with the development of the Strategy 2020 and these changes in direction are an outcome of that process.

1.51 This dissenting report has addressed the alarmist assertions in the evidence put forward in the committee majority report. These have been comprehensively addressed by CSIRO at estimates hearings and through the committee inquiry. However, the committee majority seem intent on ignoring the explanations and reassurances to instead provoke further speculation.

1.52 Government senators believe this committee set up by the ALP and the Australian Greens, which does not require a government member as part of its quorum, deliberations or hearings, has not been representative and should not continue.

Senator Dean Smith

Senator Sean Edwards

Senator James Paterson

50 *Proof Committee Hansard*, 7 April 2016, p. 21.

APPENDIX 1

Submissions and additional information received by the committee

Submissions

- 1 Queensland Association of Independent Legal Services
- 2 Mr Chris Hamill
- 3 Mr Frank Stilwell
- 4 Association for Good Government
- 5 Aboriginal Legal Service (NSW/ACT) Limited
- 6 Reconciliation Australia
- 7 Youth Connections National Network
- 8 Australian Medical Students' Association
- 9 Isolated Children's Parents' Association of Australia Inc.
- 10 Australasian Railway Association
- 11 National Aboriginal and Torres Strait Islander Legal Services
- 12 St Vincent de Paul Society
- 13 United Services Union
- 14 Victorian Principals Association
- 15 Federation of Ethnic Communities' Councils of Australia
- 16 National Family Violence Prevention Legal Services
- 17 Australian Parents Council
- 18 Australian Council of Trade Unions
- 19 South West Group
- 20 Australian Manufacturing Workers' Union
- 21 National Association of Community Legal Centres
- 22 Australian National Audit Office
- 23 Equity Practitioners in Higher Education Australasia
- 24 Refugee Council of Australia
- 25 The Australian Psychological Society Limited
- 26 Australian Council of Social Service

27	Mr Rodger Gibson
28	The Australia Institute
29	People for Public Transport
30	ABC
31	Australian Medical Association
32	Queensland Nurses' Union
33	Australian Council of State School Organisations
34	Community and Public Sector Union
35	Australian Nursing and Midwifery Federation
36	ACT Government
37	Universities Australia
38	Australian Education Union
39	Australian Nursing and Midwifery Federation
40	COTA
41	United Voice
42	Associate Professor Philip Laird
43	Aboriginal Peak Organisations Northern Territory
44	Grattan Institute
45	South Australian Government
46	National Union of Students
47	Australian Automobile Association
48	Mr Andrew Herington
49	Public Transport Users Association
50	Reclink Australia
51	Free TV Australia
52	Save Our SBS Inc
53	Mr Quentin Dempster
54	National Sea Highway
55	Australian Womensport and Recreation Association
56	Womensport and Recreation Tasmania Inc
57	Mr Colin H.Howlett
58	Mrs Susan Macdonald
59	Ms Val Sterling

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- 60 Professor John Freebairn
- 61 Local Government Association of South Australia
- 62 South Australian Government
- 63 Standard & Poor's Ratings Services
- 64 Professor Steve Keen
- 65 Marion Terrill, Transport Program Director, Grattan Institute
- 66 Dr Robert Bianchi, Associate Professor of Finance, Griffith University
- 67 Prosper Australia
- 68 Industry Super Australia
- 69 City of Ballarat
- 70 The Tasmanian Polar Network
- 71 Mr Robert D M Cotgrove
- 72 Western Australian Local Government Association
- 73 Australian Airports Association
- 74 Mr George Burrows
- 75 Hobart Airport
- 76 Citi Research
- 77 Scientia Professor Trevor McDougall
- 78 Dr Barrie Pittock PSM
- 79 Associate Professor Stephen Wilson, Associate Professor Clare Murphy
and Professor David Griffith
- 80 Professor Neville Nicholls
- 81 Tasmanian Polar Network
- 82 Australian Meteorological and Oceanographic Society (AMOS)
- 83 Ms Mary Voice
- 84 National Growth Areas Alliance (NGAA)
- 85 Dr Paul Fraser
- 86 Dr Paul Durack
- 87 CSIRO Staff Association
- 88 Mrs Mary Wilkinson
- 89 UNSW Climate Change Research Centre
- 90 Young Earth System Scientists Community
- 91 Dr Alex Sen Gupta

92	Dr Sophie Lewis
93	Mr Gavin A. O'Brien
94	Dr Nerilie Abram
95	Mr James Ricketts
96	Mrs Elly Spark
97	Climate Alliance Limited
98	Royal Zoological Society of NSW
99	Professor Peter Banks
100	Ms Kate Summers
101	Mr David Arthur
102	Associate Professor Irene Penesis
103	World Climate Research Programme
104	Mr Michael Davis
105	Mr John Curnow
106	Friends of CSIRO (ACT)
107	Mr Brian Thomas
108	Dr Gösta Lyngå
109	Ms Joanna Jones
110	Dr Fiona Bruce
111	Ms Angela Lindstad
112	Friends of CSIRO (VIC)
113	Friends of CSIRO (QLD
114	Ms Robyn Erwin)

Additional information

- 1 Additional information from Reclink Australia, received 5 February 2015
- 2 Correction to evidence from Canberra Public hearing, 18 March 2015, provided by the Department of Treasury, received 15 April 2015
- 3 Correction to evidence from Hobart Public hearing, 8 March 2016, provided by CSIRO, received 15 March 2016
- 4 Advice provided by the Clerk of the Senate, received on 15 March 2016
- 5 Correction to evidence from Canberra Public hearing, 7 April 2016, provided by CSIRO, Dr Larry Marshall, received 21 April 2016

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- 6 Correction to evidence from Canberra Public hearing, 7 April 2016, provided by CSIRO, Ms Hazel Bennett, received 21 April 2016

Correspondence

- 1 Correspondence received from CSIRO, dated 3 May 2016

Answers to Questions on Notice

- 1 Answers to questions taken on notice from Canberra Public hearing, 16 October 2014, provided by the Australian Council of Social Service, received 14 November 2014
- 2 Answers to questions taken on notice from Canberra Public hearing, 16 October 2014, provided by the Australian Education Union, received 14 November 2014
- 3 Answers to questions taken on notice from Canberra Public hearing, 16 October 2014, provided by the Australian Council of Trade Union, received 14 November 2014
- 4 Answers to questions taken on notice from Canberra Public hearing, 16 October 2014, provided by Anglicare NSW South, NSW West and ACT, received 14 November 2014
- 5 Answer to question taken on notice from Canberra Public hearing, 25 November 2014, provided by Reclink Australia, received 9 December 2014
- 6 Answers to questions taken on notice from Canberra Public hearing, 26 March 2015, provided by Australian Securities and Investments Commission, received 14 March 2015
- 7 Answer to question taken on notice from Melbourne public hearing on 11 March 2016, provided by Dr Peter Craig, received 16 March 2016
- 8 Answers to questions taken on notice from Hobart public hearing on 8 March, provided by CSIRO on 17 March, 6 April and 22 April 2016
- 9 Answer to question taken on notice from Melbourne public hearing on 11 March 2016, provided by Professor Karoly, received 20 March 2016
- 10 Answers to questions taken on notice from Canberra public hearing on 7 April 2016, provided by CSIRO, received 16,18, 20, 21, 26 and 27 April 2016
- 11 Answers to written questions taken on notice following Canberra Public hearing, 7 April 2016, provided by CSIRO, received 15, 18 and 26 April 2016

Tabled documents

- 1 Planning Institute Australia, Tabled Document 1, Melbourne 13 November 2014

- 2 Planning Institute Australia, Tabled Document 2, Melbourne 13 November 2014
- 3 Mr Andrew Herington, Tabled Document 1, Melbourne 13 November 2014
- 4 Australian Broadcasting Corporation, Tabled Document 1, Canberra 12 December 2014
- 5 Friends of the ABC, Tabled Document 1, Canberra 12 December 2014
- 6 Mr Saul Eslake, Tabled document 1, Sydney 14 August 2015
- 7 Western Australian Members of the National Growth Areas Alliance WA, Tabled document 1, Perth 09 October 2015
- 8 Professor Peter Newman, Tabled document 1, Perth 09 October 2015
- 9 Pracsys Consultants, Tabled document 1, Perth 09 October 2015
- 10 Professor Snow Barlow, Tabled document 1, Melbourne 11 March 2016
- 11 CSIRO Opening Statement, Tabled document 1, Canberra 7 April 2016
- 12 Digital Tasmania, Tabled document 1, Hobart 14 April 2016
- 13 Tasmanian Labor, Tabled document 1, Hobart 14 April 2016
- 14 Engineers Australia, opening statement, Tabled document 1, Hobart 14 April 2016
- 15 Tasmanian Unions, Tabled document 1, Hobart 14 April 2016
- 16 CSIRO, Tabled document 1, Canberra 27 April 2016

APPENDIX 2

Public Hearings

Thursday, 16 October 2014
Senate Committee room 2S3
Parliament House, Canberra

Witnesses

Australian Council of Social Service

Dr Cassandra Goldie, Chief Executive Officer
Ms Jacqueline Phillips, Director of Policy

Anglicare ACT Youth Connections

Ms Jennier Kitchin, Director, Community Services ACT
Ms Shyanne Watson, Coordinator, Youth and Educational Support Services
Canberra

National Tertiary Education Union (NTEU)

Mr Paul Kniest, Policy and Research Coordinator

Women in Adult Vocational Education (WAVE)

Ms Linda Simon, National Convenor
Ms Jozefa Sobski, Member

Australian Education Union

Mr Angelo Gavrielatos, Federal President
Ms Jennifer Devereaux, Federal Research Officer

Ballarat Grammar

Mr Stephen Higgs, Headmaster

St Vincent de Paul Society

Dr John Falzon, Chief Executive Officer

Australian Medical Students' Association

Ms Jessica Dean, President
Mr Kunal Luthra, Vice President External

National Union of Students

Ms Deanna Taylor

Australian Council of Trade Unions

Mr Dave Oliver, Secretary
Mr Matt Cowgill, Economic Policy Officer
Ms Pat Forward, ACTU National VET Committee
Mr Tim Shipstone, Industrial Officer
Mr Ian Curry, National Coordinator, Skills, Training & Apprenticeships,
Mr Arthur Rorris, NSW South Coast Labour Council
Mr Lance McCallum, National Policy Officer, Electrical Trades Union of
Australia

Australian Chamber of Commerce and Industry

Ms Jenny Lambert, Director, Employment, Education and Training
Mr John Osborn, Director, Economics and Industry Policy

*Thursday, 13 November 2014
Legislative Council Committee Room
Parliament House, Melbourne*

Witnesses

Victorian Local Governance Association

Councillor Sebastian Klein, President of the Victorian Local Governance
Association
Mr Andrew Hollows, Chief Executive Officer

Professor Jago Dodson, Professor of Urban Policy, RMIT University

Mr William McDougall, Private capacity

Eastern Transport Coalition

Councillor Peter Lockwood, Chair
Mr Matthew Hanrahan, Manager of Sustainable Infrastructure, Knox City
Council

Public Transport Users Association

Ms Cait Jones, Campaign Director

Planning Institute Australia

Mr Brendan Nelson, President Elect, President Elect

Mr Andrew Herington, Private capacity

Professor Peter Newman, Private capacity

McKell Institute

Mr Sam Crosby, Executive Director

*Tuesday, 25 November 2014
Senate Committee room 2S3
Parliament House, Canberra*

Witnesses**Reclink Australia**

Mr Rod Butterss, Director
Mr John Ballis, Interim Chief Executive Officer
Mr Peter Cullen, Founder
Mr Brian Millett, Participant

*Friday, 12 December 2014
Senate Committee room 2S3
Parliament House, Canberra*

Witnesses**Australian Broadcasting Corporation**

Mr Mark Scott, Managing Director
Mr Michael Millett, Director, Corporate Affairs
Mr David Anderson, Director, Corporate Strategy and Planning

SBS

Mr Michael Ebeid, Managing Director
Mr James Taylor, Chief Financial Officer

Community and Public Sector Union

Mr Michael Tull, National President
Ms Sarah Hunt, Lead Organiser for Public Broadcasting (ABC)

Media, Entertainment and Arts Alliance

Mr Christopher Warren, Federal Secretary
Mr Paul Murphy, Director, Media

Mr Quentin Dempster, Journalist, author and broadcaster

Dr Andrew Ford, Radio National broadcaster, writer and composer

Department of Communications

Ms Nerida O'Loughlin, Deputy Secretary

Dr Simon Pelling, First Assistant Secretary, Consumer and Content Division
Ms Ann Campton, Assistant Secretary, Media

Creative Industries Faculty, Queensland University of Technology (via teleconference)

Professor Brian McNair, Professor of Journalism
Dr Adam Swift, Senior Research Associate
Dr Ben Goldsmith, Senior Research Fellow

ABC Friends (via teleconference)

Ms Glenys Stradijot, National Spokesperson

Save Our SBS (via teleconference)

Mr Steve Aujard, President

Wednesday, 18 March 2015
Senate Committee room 2S1
Parliament House, Canberra

Witnesses

Department of Treasury

Mr Nigel Ray, Deputy Secretary, Fiscal Group
Mr Matthew Flavel, General Manager, Budget Policy Division
Mr Matt Crooke, Principal Adviser, Budget Policy Division

Thursday, 26 March 2015
Senate Committee room 2S3
Parliament House, Canberra

Australian Securities and Investments Commission

Mr Carlos Iglesias, Chief of Operations

Friday, 14 August 2015
Jubilee Room
Parliament House, New South Wales

Witnesses

Mr Saul Eslake, Economist

Professor Phillip O'Neill, Director and Professorial Research Fellow, Centre for Western Sydney, University of Western Sydney

**Dr Joseph Drew, Research Fellow in Local Government, Business School,
University of New England**

**Professor John Hewson, Professor/Chair, Tax and Transfer Policy Institute,
Australian National University**

**Mr Martin Locke, Adjunct Professor, Faculty of the Built Environment,
University of New South Wales**

Friday, 9 October 2015

Cliftons

Perth, WA

Witnesses

**Western Australian Members of the National Growth Areas Alliance WA Outer
Metropolitan Councils**

Mr Mike Foley, Chief Executive Officer, City of Swan

Mr Ray Tame, Chief Executive Officer, City of Armadale

Dr Ian Martinus, Economic Development Manager, City of Wanneroo

**Professor Peter Newman, Professor of Sustainability, Curtin University
Sustainability Policy Institute (via teleconference)**

**Ms Jemma Green, Research Fellow and Doctoral Candidate, Curtin University
Sustainability Policy Institute**

Urban Development Institute of Australia (WA Division)

Ms Debra Goostrey, Chief Executive Officer

Mr Jeremy Cordina, Chair, UDIA (WA) Infrastructure Committee

Associate Professor Paul McLeod, Director, Economic Research Associates

Property Council of Western Australia

Mr Lino Iacomella, Property Council of Australia Deputy Executive Director

Ms Rebecca Douthwaite, Policy Advisor

Pracsys Consultants

Mr Michael Chappell, Managing Director and Founder

Mr Jason McFarlane, Principal Consultant (WA)

Thursday, 5 November 2015
Room G1
Parliament House, Melbourne

Witnesses

Grattan Institute

Ms Marion Terrill, Transport Program Director

Industry Super Australia (Submission 68)

Ms Jane McGill, Senior Adviser, Infrastructure

Municipal Association of Victoria (Submission 69)

Mr Anthony Schink, Chief Executive Officer, City of Ballarat

Mr Sean Cameron, Manager Economic Development

Standard and Poor's Ratings Services (Submission 63)

Ms Fabienne Michaux, Head of Developed Markets Asia-Pacific

Mr Thomas Jacquot, Director, Corporate and Government Ratings

Mr Craig Michaels, Director, Sovereign and Public Finance Ratings

SMSF Association

Ms Andrea Slattery, Managing Director, Chief Executive Officer

Mr Jordan George, Head of Policy

Prosper Australia

Ms Catherine Cashmor, President

Mr Karl Fitzgerald, Project Director

Friday, 6 November 2015

Room 1

Parliament House, Tasmania

Witnesses

Glenorchy City Council

Mayor Kristie Johnston

Southern Tasmanian Councils Authority

Lord Mayor Ms Sue Hickey, Chair of STCA

Mayor Deirdre Flint OAM, Board Member of STCA

Mr Brenton West, Chief Executive Officer

Hobart International Airport

Ms Melinda Percival, General Manager Corporate Affairs

Luti Consulting

Mr James McIntosh, Transport Planner and Economist

The Tasmanian Polar Network (Submission 70)

Mr John Brennan, Chairman

Hobart Northern Suburbs Rail Action Group (Via teleconference)

Mr Ben Johnston, President

Tuesday, 1 March 2016

Senate Committee Room 2S3

Parliament House, Canberra

Witnesses**Infrastructure Australia**

Mr Phil Davies, Chief Executive Officer

Mr Adrian Dwyer, Executive Director – Policy and Research

Tuesday, 8 March 2016

Room 1

Parliament House, Tasmania

Witnesses**Integrated Marine Observing System**

Mr Tim Moltmann, Director

Department of the Environment

Dr Gwen Fenton, Chief Scientist, Australian Antarctic Division

Institute for Marine and Antarctic Studies

Professor Richard Coleman, Executive Director

Professor Nathan Bindoff, Head of the Oceans and Cryosphere Program

Dr John Church, Private capacity**Dr Richard Matear, Private capacity****Scientia Professor Trevor McDougall (via teleconference)****CSIRO**

Ms Hazel Bennett, Chief Finance Officer

Dr Alex Wonhas, Executive Director, Environment, Energy and Resources (via teleconference)

Professor Brigid Heywood, Deputy Vice-Chancellor (Research), University of Tasmania

Dr Tony Press, Private capacity

CPSU – CSIRO Staff Association

Ms Jessica Munday, CPSU Regional Secretary

Mr Mark Green, CSIRO Tasmania Section Councillor

Tasmanian Polar Network

Mr John Brennan, Chairman

Friday, 11 March 2016

Room G3

Parliament House, Melbourne

Witnesses

Dr Karl Taylor, Private capacity (via teleconference)

Dr Paul Durack, Private capacity (via teleconference)

Antarctic Climate and Ecosystems Co-operative Research Centre

Professor Tony Worby, Chief Executive Officer

Professor David Karoly, Private capacity

Professor Snow Barlow, Private capacity

Professor Richard Eckard, Private capacity

Dr Greg Ayers, Private capacity

Dr Paul Fraser, Private capacity

Dr Bruce Forgan, Private capacity

Dr Peter Craig, Director of the Collaboration for Australian Weather and Climate Research

Dr Graeme Pearman, Private consultant and Senior Research Fellow, Monash University

Scripps Institution of Oceanography (via teleconference)

Professor Tony Haymet, Distinguished Professor of Oceanography, Emeritus Vice-Chancellor and Director, UC San Diego

Thursday, 7 April 2016
Senate Committee Room 2S3
Parliament House, Canberra

Witnesses**CSIRO**

Dr Larry Marshall, Chief Executive Officer
Mr Craig Roy, Deputy Chief Executive Officer
Ms Hazel Bennett, Chief Financial Officer

Thursday, 14 April 2016
Hobart Function and Conference Centre
Hobart, Tasmania

Witnesses**Digital Tasmania**

Mr Andrew Connor, Spokesperson

Tasmanian Renewable Energy Alliance

Mr Jack Gilding, Public and Executive Officer

Mr John Lawrence**Tasmanian Greens**

Ms Cassy O'Connor MP, Leader of the Greens, Member for Denison

Tasmanian Minerals and Energy Council

Mr Wayne Bould, Chief Executive Officer (via teleconference)
Mr Ray Mostogl, Chair of TMEC Energy Sub Group
Mr Greg Zooeff, member

TASICT

Mr William Kestin, Chief Executive Officer
Mr Alan Rosevear, Vice President

Tasmanian Labor

The Hon Bryan Green MP, Leader of the Opposition, Member for Braddon

Tasmanian Minister for State Growth, Minister for Energy and Minister for Environment, Parks and Heritage

The Hon Matthew Groom MP, Liberal Member for Denison

Engineers Australia

Dr Vicki Gardiner, General Manager Tasmania Division

Professor Michael Negnevitsky

Unions Tasmania

Mr Steve Walsh, Secretary

Mr Trevor Gauld, Secretary CEPU

Mr Luke Crowley, Professionals Australia

Wednesday, 27 April 2016

Senate Committee Room 2S1

Parliament House, Canberra

Witnesses

CSIRO

Dr Larry Marshall, Chief Executive

Mr Craig Roy, Deputy Chief Executive

Ms Hazel Bennett, Chief Financial Officer

Dr Alex Wonhas, Executive Director, Environment, Energy and Resources