



COMMONWEALTH OF AUSTRALIA

Proof Committee Hansard

SENATE

ECONOMICS LEGISLATION COMMITTEE

Estimates

(Public)

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ECONOMICS LEGISLATION COMMITTEE

Thursday, 7 April 2022

Members in attendance: Senators Cox [by video link], McDonald, Patrick [by video link], Rennick, Roberts, Scarr, Walsh

INDUSTRY, SCIENCE, ENERGY AND RESOURCES PORTFOLIO

In Attendance

Senator Stoker, Assistant Minister to the Attorney-General, Assistant Minister for Industrial Relations, Assistant Minister for Women

Department of Industry, Science, Energy and Resources

Mr David Fredericks, Secretary
Mr Sean Sullivan, Deputy Secretary
Ms Jo Evans, Deputy Secretary
Ms Luise McCulloch, Deputy Secretary
Mr David Williamson, Deputy Secretary [by video link]
Ms Mary Wiley-Smith, Deputy Secretary

Analysis and Insights

Mr Russ Campbell, Head of Division, Chief Economist
Mr David Thurtell, Acting General Manager, Resources and Energy Insights
Mr Wayne Calder, General Manager, Economics and Industry Analysis
Mr Tim Beard, Acting General Manager, Data Policy

AusIndustry

Ms Emma Greenwood, Head of Division
Ms Rebecca Lannen, General Manager, Entrepreneurs' Program
Ms Tia Stevens, General Manager, Portfolio Program Delivery
Ms Claire Forsyth, General Manager, Business Outreach and Engagement
Ms Kirsty Gowans, General Manager, Research and Development Tax Incentive

Australian Building Codes Board

Mr Gary Rake, Chief Executive Officer [by video link]

Australian Radioactive Waste Agency

Mr Sam Usher, Chief Executive Officer
Ms Jodie McAlister, General Manager, Governance and Policy

Australian Space Agency

Mr Enrico Palermo, Agency Head [by video link]
Mr Paul Trotman, Deputy Head
Mr Chris Hewett, General Manager, Space Strategy
Mr Christopher De Luis, General Manager, Office of the Space Regulator [by video link]

Corporate and Digital

Mr Robert Hanlon, Chief Finance Officer
Ms Rebecca Lee, Chief Information Officer
Ms Kylie Bryant, Chief Operating Officer
Mr Nathan Hannigan, General Manager, People
Ms Deborah Miliszewski, General Counsel
Ms Virginia Dove, Acting General Manager, Communications

Critical Minerals and Major Projects

Mr Matthew Crawshaw, General Manager, Major Projects
Mr Andrew Hutchinson, General Manager, Critical Minerals Facilitation Office

Industry Growth

Ms Donna Looney, Head of Division
Mr David Luchetti, General Manager, mRNA Vaccine Implementation

Mr Mark Weaver, General Manager, Strategic Industry Policy

Ms Sabrena King, Acting General Manager, Industry Capability and Participation

Ms Judith Blake, Acting General Manager, Industry Settings

Manufacturing

Ms Narelle Luchetti, Head of Division [by video link]

Ms Joanne Mulder, General Manager, Strategy Implementation

Mr Nick Purtell, General Manager, Manufacturing Supply Chains and International

Ms Rebecca Manen, General Manger, Strategy and Analysis

National Measurement Institute

Dr Bruce Warrington, Chief Executive Officer and Chief Metrologist

Office of the Chief Scientist

Dr Cathy Foley, Chief Scientist

Ms Nicole Henry, Chief of Staff

Offshore Resources and Liquid Fuels

Mr Shane Gaddes, Head of Division

Ms Marie Illman, General Manager, Offshore Resources

Mr Graeme Waters, General Manager, National Offshore Petroleum Titles Administrator

Ms Victoria Bergmann, General Manager, Northern Endeavour

Onshore Resources

Ms Michelle Croker, Head of Division

Mr David Lawrence, General Manager, Commodities and International

Mr Daniel Quinn, General Manager, Resources Strategy

Mr Stuart Richardson, General Manager, Gas Markets

Mr Chris Videroni, Acting General Manager, Gas Infrastructure, Planning and Policy

Questacon

Professor Graham Durant, Director

Ms Kate Driver, Deputy Director [by video link]

Dr Bobby Cerini, Deputy Director [by video link]

Science and Commercialisation

Ms Janean Richards, Head of Division

Ms Michele Graham, General Manager, Science Policy and Governance [by video link]

Ms Shanan Gillies, General Manager, Science Policy and Governance

Ms Steph Gorecki Natic, General Manager, International Science and Astronomy

Mr Frank Tonkin, Acting General Manager, Commercialisation

Mr Martin Dent, Acting General Manager, Research and Collaboration

Strategic Policy

Ms Helen Bennett, Head of Division

Ms Lila Oldmeadow, General Manager, Strategic Policy

Ms Dana Sutton, General Manager, Ministerial Liaison and Governance

Ms Alison Drury, General Manager, Trade and International

Technology and National Security

Mr Anthony Murfett, Head of Division

Ms Camille de Burgh, General Manager, Technology Policy and Engagement

Mr Geoff Mason, Acting General Manager, Emerging Technologies and Adoption

Commonwealth Scientific and Industrial Research Organisation

Dr Larry Marshall, Chief Executive

Mr Tom Munyard, Acting Chief Operations Officer

Dr Peter Mayfield, Executive Director, Environment, Energy and Resources

Ms Kirsten Rose, Executive Director Future Industries [by video link]

Professor Elanor Huntington, Executive Director, Digital, National Facilities and Collections

National Offshore Petroleum Safety and Environmental Management Authority

Mr Stuart Smith, Chief Executive Officer [by video link]

Mr Derrick O'Keeffe, Head of Division—Safety and Integrity [by video link]

Mr Cameron Grebe, Head of Division—Environment, Renewables and Decommissioning [by video link]

Committee met at 09:00

CHAIR (Senator Scarr): Good morning, everyone. I declare open this meeting of the Senate Economics Legislation Committee. The Senate has referred to the committee the particulars of proposed expenditure for 2022-23 and related documents for the Treasury portfolio, the Industry, Science, Energy and Resources portfolio and elements of the Infrastructure, Transport, Regional Development and Communications portfolio. The committee may also examine the annual reports of the departments and agencies appearing before it.

The committee has set 14 April 2022 as the date by which senators are to submit written questions on notice and 27 May 2022 as the date for the return of answers to questions taken on notice. Under standing order 26, the committee must take all evidence in public session. This includes answers to questions on notice.

I remind all witnesses that in giving evidence to the committee they are protected by parliamentary privilege. It is unlawful for anyone to threaten or disadvantage a witness on account of evidence given to a committee, and such action may be treated by the Senate as a contempt. It is also a contempt to give false or misleading evidence to a committee.

The Senate by resolution in 1999 endorsed the following test of relevance of questions at estimates hearings: any questions going to the operations or financial positions of the departments and agencies which are seeking funds in the estimates are relevant questions for the purposes of estimates hearings. I remind officers that the Senate has resolved that there are no areas in connection with the expenditure of public funds where any person has the discretion to withhold details or explanations from the parliament or its committees unless the parliament has expressly provided otherwise. The Senate has resolved also that an officer of a department of the Commonwealth shall not be asked to give opinions on matters of policy and shall be given a reasonable opportunity to refer questions asked of the officer to superior officers or to a minister. This resolution prohibits only questions asking for opinions on matters of policy and does not preclude questions asking for explanations of policies or factual questions about when and how policies were adopted.

In particular I draw the attention of witnesses to an order of the Senate of 13 May 2009 specifying the process by which a claim of public interest immunity should be raised, which I now incorporate in *Hansard*.

The extract read as follows—

Public interest immunity claims

That the Senate—

(a) notes that ministers and officers have continued to refuse to provide information to Senate committees without properly raising claims of public interest immunity as required by past resolutions of the Senate;

(b) reaffirms the principles of past resolutions of the Senate by this order, to provide ministers and officers with guidance as to the proper process for raising public interest immunity claims and to consolidate those past resolutions of the Senate;

(c) orders that the following operate as an order of continuing effect:

(1) If:

(a) a Senate committee, or a senator in the course of proceedings of a committee, requests information or a document from a Commonwealth department or agency; and

(b) an officer of the department or agency to whom the request is directed believes that it may not be in the public interest to disclose the information or document to the committee, the officer shall state to the committee the ground on which the officer believes that it may not be in the public interest to disclose the information or document to the committee, and specify the harm to the public interest that could result from the disclosure of the information or document.

(2) If, after receiving the officer's statement under paragraph (1), the committee or the senator requests the officer to refer the question of the disclosure of the information or document to a responsible minister, the officer shall refer that question to the minister.

(3) If a minister, on a reference by an officer under paragraph (2), concludes that it would not be in the public interest to disclose the information or document to the committee, the minister shall provide to the committee a statement of the ground for that conclusion, specifying the harm to the public interest that could result from the disclosure of the information or document.

(4) A minister, in a statement under paragraph (3), shall indicate whether the harm to the public interest that could result from the disclosure of the information or document to the committee could result only from the publication of the information or document by the committee, or could result, equally or in part, from the disclosure of the information or document to the committee as in camera evidence.

(5) If, after considering a statement by a minister provided under paragraph (3), the committee concludes that the statement does not sufficiently justify the withholding of the information or document from the committee, the committee shall report the matter to the Senate.

(6) A decision by a committee not to report a matter to the Senate under paragraph (5) does not prevent a senator from raising the matter in the Senate in accordance with other procedures of the Senate.

(7) A statement that information or a document is not published, or is confidential, or consists of advice to, or internal deliberations of, government, in the absence of specification of the harm to the public interest that could result from the disclosure of the information or document, is not a statement that meets the requirements of paragraph (1) or (4).

(8) If a minister concludes that a statement under paragraph (3) should more appropriately be made by the head of an agency, by reason of the independence of that agency from ministerial direction or control, the minister shall inform the committee of that conclusion and the reason for that conclusion, and shall refer the matter to the head of the agency, who shall then be required to provide a statement in accordance with paragraph (3).

(d) requires the Procedure Committee to review the operation of this order and report to the Senate by 20 August 2009.

(13 May 2009 J.1941)

(Extract, Senate Standing Orders)

CHAIR: Witnesses are specifically reminded that a statement that information or a document is confidential or consists of advice to government is not a statement that meets the requirements of the 2009 order. Instead, witnesses are required to provide some specific indication of the harm to the public interest that could result from the disclosure of the information or the document.

I remind senators and witnesses in the hearing room that microphones remain live unless I instruct otherwise, for example, at suspension or adjournment. I ask members of the media to follow the established media guidelines and the instructions of the committee secretariat. As set out in the guidelines, senators' and witnesses' laptops, mobile phones, other devices and personal papers are not to be filmed or photographed. I remind everyone in the gallery that they are not permitted to speak or interfere with the proceedings or with witnesses at any point during the hearing. Security is present and they will be asked to remove anyone who does not follow these instructions.

Witnesses and senators who are seeking to table documents during the committee's hearing were requested to provide an electronic copy of those documents the day prior to the hearing so that the documents could be circulated electronically during the hearing. Please liaise with the secretariat if you need assistance. The committee's proceedings today will commence with the Industry, Science, Energy and Resources portfolio, beginning with programs 1.1 and 1.2. The hearing will then follow the order as set out in the circulated program.

Department of Industry, Science, Energy and Resources

[09:04]

CHAIR: I now welcome Senator the Hon. Amanda Stoker, Minister representing the Minister for Industry, Energy and Emissions Reduction and the Minister for Science and Technology. I also welcome officers from the Department of Industry, Science, Energy and Resources, and Mr Fredericks. Ministers or officers, would you like to make an opening statement?

Senator Stoker: No opening statement from me.

CHAIR: Mr Fredericks?

Mr Fredericks: No, thank you.

CHAIR: Senator Walsh, you have the call.

Senator WALSH: This question is probably for Mr Fredericks. I have some questions about the Modern Manufacturing Strategy.

Mr Fredericks: I will ask a couple of my colleagues to join me. I should say, too, that Ms Luchetti, who is very well known to you and will probably take a lot of these questions, is in isolation as of this morning. She is online, as is Mr Williamson. The MMI team is in isolation, but we'll do our best.

Senator Stoker: No disrespect intended to you by their presence electronically.

Senator WALSH: Indeed. I'll save all of my detailed questions on the Modern Manufacturing Initiative for you, Minister.

Senator Stoker: Excellent.

Senator WALSH: I've had a couple of interactions with the Food and Grocery Council about how the Modern Manufacturing Initiative is playing out in their sector. One of those interactions was as part of the economics references manufacturing inquiry. They came to a hearing in December last year and said that, in relation to the Modern Manufacturing Initiative:

The sector has been disappointed. The pace at getting the dollars rolled out has been slower than anticipated, and the level of funding coming forward has been lower than anticipated.

Further:

I know many companies are very disappointed as they put a lot of effort into grant applications. Had they known such a small amount was forthcoming, they may not have bothered. There has been disappointment around that.

Has DISER followed up with the Food and Grocery Council about their concerns or had separate interactions with them about their concerns?

Mr Fredericks: I will ask my colleagues to answer that question on the specifics, that is, the follow-up, but I may need to address that more generally. But in fairness to you, I'll get an answer to your question first.

Mr Purtell: Could I double-check the date of that?

Senator WALSH: It's 8 December.

Mr Purtell: I thought it was. The first thing to note, of course, is that predated a lot of the announcements that Ms Luchetti spoke about last time, the fact that there have been a lot of announcements in January, February and March. But in answer to your specific question, yes, we engage with the AFGC regularly. In fact, the head of the AFGC was one of the members of the food and beverage roadmap task force. Tanya Barden was on the food and beverage roadmap task force that developed that document. We meet with them regularly to talk about food and beverage, but they also participate in our supply chain roundtable. We're having the next one this afternoon. That's every two to four weeks. AFGC is always there.

Senator WALSH: Have they expressed these concerns to you? I acknowledge what I'm about to say is a little unfair, which is that met with them a couple of weeks ago, and they said the same thing. I don't think any announcements in between have changed their view. But have they expressed that view to you?

Mr Purtell: We saw some of those comments. I think some of them were in public hearings, if I'm not mistaken.

Senator WALSH: Yes, it was public.

Mr Purtell: We certainly saw those. I was aware of them but, no, they haven't raised it with me. I would have thought that the announcements that took place in the last couple of months would have addressed them. Obviously, I'll raise that with them next time I meet with them.

Senator WALSH: So, it would be your role to respond to the criticisms that they made, but you didn't specifically seek to do so?

Mr Purtell: I think it's our role to engage with companies and with industry bodies who operate in manufacturing to get feedback on the processes, but from my perspective as well to make sure that the policy is correctly lined up, is correctly finetuned; that's probably the No. 1 reason we would engage with the AFGC.

Senator WALSH: No-one specifically went to them and said, 'We've seen these concerns. Can we work them through with you?' But you are engaging with them in a fairly substantial way?

Mr Purtell: That's correct.

Senator WALSH: Mr Fredericks, I guess there's a broader analysis there. You indicated that you may want to address that. I've heard from a few different employers in different sectors the notion that, 'If you want to give us a grant, we like that—that's nice—but we can't really bank on it', and it's a lot of work to get what they might consider to be a fairly small grant. What they're looking for is a longer term strategy. Have you had that feedback, and what's your analysis?

Mr Fredericks: If you don't mind, I will deal with the broader point. The critique there perhaps could be defined as, firstly the speed of rollout. I won't belabour this one, because I did deal with this at the last Senate estimates. At the end of the day, the Public Service in these situations do our very best to strike a balance in the speed of rollout of these programs. I'm very conscious to make sure that we're getting value for money, that we're doing everything that probity requires us to do. They're important considerations that take time in the planning

and the rollout of grants programs like these. It's fair, though, to say that has to be balanced against getting the program out at a reasonable speed, because that's the expectation of the people who engage with us. In fairness, you have to have some empathy for companies that want to engage and potentially receive grant funding as quickly as possible. We do our best to explain the broader probity and circumstances that we work within. By and large that reaches a pretty satisfactory conclusion. But I can say that I am personally satisfied with the balance that we struck between speed of delivery, attention to probity and other due diligence issues in the rollout of the program.

One thing on the quantum—quantum is not easy. One of the criticisms I think the Food and Grocery Council made, softly, was around the quantum that was available. There are a couple of points to make about that. When the guidelines go out for particular programs, the aggregate quantum of funding that's available is publicly known. We do that because, in fairness, we do need to give potential applicants an understanding of the pool of money for which they're competing. Of course, we also give an indication of the scale of potential funding. As an example, for the collaboration stream we made it clear in the guidelines that \$800 million was the pool available and we made it clear that the scale of grant—the team will correct me if I'm wrong—was around \$80 million and \$20 to \$100 million.

Senator WALSH: Sorry to interrupt you. Can you repeat that? When you stated the scale of the grant, was that an average?

Mr Fredericks: Yes, we try to give a range of what the potential grant could be.

Senator WALSH: What was it, sorry?

Ms Mulder: In the grant guidelines the grant amount was from \$20 million to \$200 million. Certainly in our narrative we spoke around, as the secretary just said, an average being \$80 million or something like that. That was the narrative, not what was in the guidelines.

Mr Fredericks: We're conscious of that. To be fair, we kind of do that in order to give the best transparency we can to applicants about the quantum of pool of funding that they're bidding into, and the sort of scale of the bid that they should be positioning. I do firmly believe there's very strong transparency about the quantum of funding that's available. What you can't then judge is how many applicants you receive. We do our best to understand that. But the truth of the matter is that these programs, to be really frank with you, have been so successful that the level of applications to them has been very strong. Consequently, a range of potential applicants haven't been successful. We have to manage that, but we do everything we can to set proper expectations so that the notion that the funding that is available was lower than we thought, objectively, can't really be sustained.

Senator WALSH: You've gone to the speed of the rollout and the quantum, in response to Ms Barden's comments from the Food and Grocery Council that, had they known such a small amount was forthcoming, they may not have bothered; even if they were successful, they may not have bothered. I think I was also trying raise a larger point. In my consultation with manufacturing, they talk about a big difference between the short-term grants that are rolled out of the kind that this strategy is and that you've described, versus being able to count on or bank on a longer term partnership with government. I was seeking to ask whether you have had feedback about that from industry; that essentially they have this analysis that, 'If you're going to give us grants, that's good. We'll apply. We like that. But we're also interested in ...' Given that particularly advanced manufacturing have massive long-term capital outlay and they have to go to investors with long-term plans, have you had feedback that they're also interested in a longer term partnership with government and longer term investment opportunities?

Mr Fredericks: That's a very good question. I'll ask whichever of the team is ready to go to answer that question in terms of what has been sought from us, and then again I might add something.

Mr Purtell: I understand the critique you're making. Of course, the grants are just the financial component of the modern manufacturing strategy itself, which is a 10-year strategy. In my discussions with industry, from the beginning but also more recently, I think we've always tried to make clear that the 10-year strategy, including the roadmaps and the other policy documents, are the starting point, and that is a long-term partnership, as you say. The vehicle through which we deliver assistance to industry has been through competitive grants, but what I hear from many companies is that the fact that the government has put out a marker to say that it's supporting manufacturing helps them with those investment positions, because even if they can't be completely confident, of course, that they're going to be successful in a particular grant round, they know that there is a 10-year commitment there with future financial options of various sorts.

Senator WALSH: When you say there's a 10-year commitment, the strategy is 10 years, two years, five years, 10 years. At the 10-year mark, the words say 'lock in productive and competitive firms with high-impact sectoral growth'. Do we know at this stage that there are going to be grants available in 10 years?

Mr Purtell: I think the short answer to that is, no, because of the nature of budgetary cycles and the fact that money is allocated over the forward estimates. But there were, as mentioned at the last estimates, some more funding announcements relating to manufacturing in the Budget that go beyond the initial four-year period.

Senator WALSH: Yes, and there has been about an extra billion dollars, with \$700 million targeted to regions.

Mr Purtell: That's roughly it.

Senator WALSH: But as you say, that is tied up in Budget cycles. If you're a company today, because of the nature of the grant based approach that the government has taken, you can see that there's a 10-year time frame in your strategy, but you really don't know what capital might be available to you beyond the budget cycle?

Mr Purtell: That's true, and in fact it's even more than that, because the grants are allocated to competitive processes, so even if you know for sure there's money in a particular Budget year you don't know for sure that it's coming to you. I think the point to emphasise here is that the sorts of capital investment you're talking about that these companies are needing to do is very, very large, money raised in the capital markets, et cetera. In many cases, the grants that government provide are only a small component of that. Indeed, a key part of the strategy is that it's not just about grants, it is about those enabling conditions. That's the first pillar of the strategy, getting the economic conditions right for businesses. A whole lot of things that government has done, including instant asset tax write-off, et cetera, and ongoing work in the macroeconomic space, is part of the manufacturing strategy for that reason.

Senator WALSH: Basically, in this strategy, there's no long-term component of the strategy like a long-term financing vehicle. That's just a fact. It's just not the policy. The policy is not to have a long-term financing vehicle?

Mr Purtell: That's correct. The only nuance I'd put on to that is noting that there is an overlap between manufacturing and a number of other parts of government policy. For example, we have a clean energy priority and we have a critical minerals priority. There are government financing entities—debt financing entities I think is what you're referring to; and of course ARENA as well—that operate in those spaces over the longer term. So, there is some of that longer term, larger scale debt finance available, but it's not strictly tied to manufacturing. That's correct.

Senator WALSH: Essentially, the strategy is a range of short-term grants within the Budget cycle, and there are parts of industry that are saying that is too little and that it has been delivered too late. We've just had another announcement, which is the billion dollars, but it's on the same sort of model that you've already been running on. There's not really anything to give industry certainty that there's going to be funding in the long term or investment support in long term at the 10-year end of the strategy.

Mr Fredericks: Just to round this off, it's a legitimate question for everybody to ask, including for us to ask of ourselves: what settings could be put in place in order to secure longer term financial arrangements in the manufacturing support sector? Mr Purtell has identified those that exist in some other sectors that can be available. That's a legitimate discussion around what other vehicles there may be to secure longer term support for manufacturing. I don't think it's legitimate say that what the government has done thus far is too little, too late. I accept the legitimacy of the query about the longer term, but I don't think it's legitimate to say it's too little, too late. The amount of money that has been put through these programs stands apart from funding that's been given before. It's quite considerably more. There was a very considered process, policy development and program development process, working with industry to develop these programs. They were essentially worked up in almost a codesign with industry. At the end of the day, of course, the Budget requires us to structure these programs along these ways. I think these are very substantial programs, and they will be found to be very, very successful. I think that will be a majority view, with legitimate questions around, what next?

CHAIR: Senator Walsh, I do need to give the call to Senator McDonald. Do you have one more question before we share the call?

Senator WALSH: Again, I would say that there's no question about what the policy is. It's a series of grants that are contained within a Budget cycle that are relatively short term. That's the strategy.

Mr Purtell: I'm not sure that's right. The strategy isn't the grants. The Modern Manufacturing Strategy is a document that sets out a number of policy goals or analysis of the manufacturing sector, the fact that in Australia we should be competing on value, not price, the fact that there's room for government and industry to work together to scale up because of the various geographic challenges that we've traditionally faced. That's in the strategy document itself. That's supplemented by the roadmaps, which go into more detail about the strategy for each of the six priority areas. I think that's the strategy. The Modern Manufacturing Initiative, the funding

program, is the current way to find that. As the secretary said, there could be other ways over the 10-year strategy to take that ahead. But the strategy is not just the grants, I guess.

Senator WALSH: I guess I am talking about the financing vehicle here, which is the grants program, within the MMI. The financing vehicle is grants, and you've chosen not to go the other way and do something like a CEFC model, which you've referenced is something manufacturing companies can engage with if they might fit within the remit of CEFC. Getting my language correct here, given the financing vehicle within MMI is a series of short-term grants attached to a Budget cycle, what can government point to that manufacturing can look to for a 10-year horizon in terms of actual financing vehicles? If you're a manufacturing firm today, and you want to go to market, you want to look for investment, do you say, 'I've got a \$20 million or \$80 million grant. Partner with me for 10 years'? What do companies do under this financing vehicle to have a long-term strategy, a 10-year strategy? What is government doing to assist financing in this sector over a much longer term horizon?

Senator Stoker: Senator Walsh—I beg your pardon, Mr Fredericks—the questions you ask are fine insofar as the financing side of things goes, but I think it's really important to observe that there is more to the Modern Manufacturing Strategy than just those grants. It has four key limbs.

Senator WALSH: Yes, Mr Purtell did take us through that, and then—

Senator Stoker: But I think that is part of the answer to the question.

Senator WALSH: and then I went back to the financing vehicle.

Senator Stoker: If I can finish, please. You asked, what is it that somebody who is participating in the manufacturing market can look to? They can look to the fact that this isn't just a short-term grant strategy. This is about getting the economic conditions right for business in a way that means, as I say, more than just grants. It's about delivering affordable and reliable energy, lowering taxes, making science and technology work for industry and for jobs so that the research and innovation coming out aligns with areas of focus like, for instance, new energy technologies. It also involves focusing on areas of advantage, our six manufacturing priorities, including medical products, defence, food and beverage, manufacturing. Of course, you've mentioned food and beverage.

Senator WALSH: Yes.

Senator Stoker: Critical minerals, clean energy and space.

Senator WALSH: In terms of financing, it's just a short-term grants process, though, isn't it?

Senator Stoker: If I could just finish.

Senator WALSH: In terms of financing, it is a short-term grants process. It's just a policy. It's not controversial.

Senator Stoker: I don't think there's anything wrong with observing that grants are a part of that strategy. But ultimately this is about building the longer term national resilience that delivers a strong economy for the long term so that supply chains are more resilient, and we have more diversification in our manufacturing sector. That will pay dividends for people throughout the manufacturing market. It will make the investment climate more enthusiastic. It will build people's trust that in a sovereign sense this is a good environment to engage in, the manufacturing business. All of those things support an environment where financing becomes a much easier thing to get.

CHAIR: I have to share the call.

Senator WALSH: The minister just gave quite a long answer.

CHAIR: Sorry, Senator Walsh. You've had the call for 25 minutes.

Senator WALSH: I'll just say that—

CHAIR: I'm sorry. Senator Walsh—

Senator WALSH: The minister has given quite a long answer.

CHAIR: Sorry, Senator Walsh. This is not a debate.

Senator WALSH: I just have to respond that after nine years in government you took seven years to come up with a strategy of short-term grants and cash splashes.

CHAIR: Order!

Senator Stoker: That's—

CHAIR: Order! Minister, please don't engage. Senator McDonald, you have the call. Then we need to move to Senator Patrick, who's participating remotely. Senator McDonald.

Senator McDONALD: This year's budget builds on the government's investments in science, research and innovation. There was \$12 billion in the 2020-21 year and \$11.8 billion in last year's budget, which were two of the largest single investments in science, innovation and research that I'm aware of. I want to turn to the onshore mRNA manufacturing, particularly in light of my interest in developing a vaccine for lumpy skin and its impact on northern Australia and the economy.

Mr Luchetti: Good morning.

Senator McDONALD: Sorry, Mr Luchetti; I am going to go off talking about human vaccines. I want to talk about how these vaccines will assist us in developing vaccine capability into other diseases.

Mr Luchetti: Certainly. I may not be able to help you a great deal with that. Our focus has been predominantly on human vaccines. But I am aware that in Australia we do develop vaccines for animals. We have capabilities spread around the country. We undertook an audit back in August 2020 to understand Australia's vaccine capability. That audit showed we did have some capability in Australia in regard to animal vaccines. At this stage, we haven't looked at engaging Moderna and entering into the agreement with Moderna. Moderna, as far as I'm aware, only work on human vaccines. But as I said, what we're hoping to develop is an ecosystem in support of the Moderna investment. One of the things that we have targeted—not that we've done a great deal on it at the moment, but we would like to move into this—is the opportunities around animal vaccines.

Senator McDONALD: I shan't press that too much further, because that's what I was hoping for—that we were developing capability in that sector. Can you talk to me about AdBlue and manufacturing capability in that space? Last year there were shortages of the diesel additive AdBlue reported. However, Australia was able to manage through that with sensible ordering processes. Can you update the committee on the work being undertaken by the government in consultation with industry to address this issue and secure additional and ongoing adequate supply of AdBlue?

Mr Purtell: Yes, you're exactly right. There was a shortage. To a certain extent it was global but it was largely a regional shortage of AdBlue last year. That was because the key ingredient, technical-grade urea, became difficult to come by. In essence, that was caused by a Chinese export ban not directed at technical-grade urea but at fertiliser-grade urea. Inadvertently it was caught up. That had very big impacts in a couple of countries in the region, particularly South Korea. It would have had a very big impact in Australia. We were looking at a situation in December where in a couple of months—by the end of January, let's say—there would have been a very dire situation based on what companies were able to access in terms of those imports of technical-grade urea.

There were essentially three things that government did with industry, as you rightly said. No. 1: we did work with industry to identify other international sources of technical-grade urea, TGU, particularly in Indonesia. There was an announcement there of about five thousand metric tonnes that government helped negotiate. But it was also from other places as well, particularly in the Middle East. The second thing that we did was negotiate an agreement with Incitec Pivot Limited, IPL, which was announced in December, where essentially they took what had previously been a very small production capability of AdBlue in their Gibson Island plant and scaled it up. It's currently producing about 80 per cent of what Australia needs. So, with some imports, that's enough.

The third thing, I think it's really worth emphasising as well, is that even with Incitec Pivot coming online it took them, naturally enough, a few weeks—most of December and January—to scale up that capability. So there was a period over the summer where the country was never going to run short but there were regionalised shortages, as I'm sure you are aware.

We set up something we called the suppliers working group. It was a subgroup of the National Coordination Mechanism and it featured AdBlue manufacturers and Incitec Pivot as well, of course, but also the fuel retailers. Most people would get AdBlue through fuel retailers directly or indirectly. We worked together over that December-January period, most intensively between Christmas and New Year. We had daily meetings or daily contact with the group to identify which regions were running low and where one of those retailers or suppliers could step in. As a result of that, over that difficult December-January period, we were able to ensure that no entire region ever ran out. There were many service stations that ran out, but we were always able to make sure that someone else could pivot supply into that region. Since then, since late January when Incitec Pivot reached its maximum production capability, as I said, between that and the imports of technical-grade urea there is now well and truly enough AdBlue in Australia. Indeed, the retailers are telling us that they're back to pre-December levels.

Senator McDONALD: This is an important discussion, because whilst AdBlue might not be something that mums and dads across Australia are thinking about, given our discovery of just how many movements trucks manage for us, this conversation was incredibly important over that break. To now know that we have 80 per cent of our own production—this is exactly what Australia has been talking about, reinvesting in our own capability.

Finally, on the NAIF grant for the loan for the Perdaman project in WA—whilst that's a fertiliser-grade urea project, I assume that will also take pressure off the tech-grade urea?

Mr Purtell: I think that's right. The truth is it is a little bit early to say because Perdaman is still a couple of years away, as you know, from going operational. I believe they are investigating the possibility of either producing technical-grade urea or supplying urea to others who would do that conversion process. It is possible to convert very good quality agricultural-grade urea—sometimes we call it industrial-grade urea—into TGU, it's not straightforward and no-one does it in Australia at the moment.

Senator McDONALD: Finally, I want to turn back to the Modern Manufacturing Strategy progress. The thing that I'm most excited about with this budget is the step-change in coordination of all levels of government, particularly around our capability and investing in the places where we make our money. I'm already seeing the Modern Manufacturing Strategy start to flourish, particularly with a company in Brisbane—a medical technology company. I'm excited about the benefits also domestically, in Australia; the minister is well aware of that. What they're doing is so exciting for human medical assessment, regional and remote places. I think it's terrific. I wanted to ask you about this concept of how we seed fund these Australian innovative ideas. We don't necessarily need to fund them for the rest of their lifetime but enable them to get to a point where they're commercially investable. Can you provide us with examples of projects that are being funded under the MMI and how these projects are supporting investment, innovation and growth across the sector?

Mr Fredericks: If Ms Luchetti were in the room, I know she would grab this question. Ms Luchetti, could you take that one, please.

Ms Luchetti: Thank you. Apologies for appearing remotely. Can you ask the question again, please.

Senator McDONALD: I want you to speak to examples of projects that have been funded under the MMI and how these projects are supporting investment, innovation and growth across the MMPs, but more broadly the sector.

Ms Luchetti: I will ask Ms Mulder to come to the table, because she can talk in greater depth to the actual programs. Thank you very much. Under the Modern Manufacturing Strategy we've invested an enormous amount of money in assisting manufacturers to grow, to invest in their businesses, and to modernise. So far we have had grants for round 1 of integration translation; we had 765 applications, which is an enormous amount. Right across Australia there were fantastic ideas. All of the programs so far have been oversubscribed. Through that, we had 34 applicants who were successful. Linking back to your previous question around diesel exhaust fluid, through the Modern Manufacturing Strategy we were actually able to find another company in Western Australia looking at making technical-grade urea through another one of our grant programs. We're seeing an enormous amount of opportunities coming through the program. Ms Mulder is probably at the table now. We can talk about the dollars invested thus far, what we're seeing, and also some of the great projects that are coming through.

Mr Fredericks: I think we'll focus on the projects.

Ms Mulder: I can give you a couple of examples of what the Modern Manufacturing Initiative has funded thus far. For example, we have grant funding of \$52 million that's gone to Gilmore Space. This has been awarded to one of Australia's largest sovereign space manufacturers. The funding will go towards their \$157 million Australian Space Manufacturing Network, with the mission to advance local space manufacturing and future launches in Australia. As one of Australia's largest sovereign space manufacturers, Gilmore Space Technologies will work with a range of partners and universities to create a manufacturing and test hub, and an advanced facility to produce launch vehicles and satellites. The funding will also support Bowen Orbital Spaceport in North Queensland, preparing its launchpad to fire rockets into orbit. That is one exciting program announced so far in the collaborations stream. I can talk further.

Senator McDONALD: We could talk about this for hours. The interesting part about the space program is that, in the Northern Territory, with the Nhulunbuy space launches, they're expecting to have tens of thousands of space tourists go to that region. Charles Darwin University's 3D printing project will enable building of rocket parts that weren't available in Australia before. I think this ecosystem development is something that we don't talk about often enough when we talk about specific grants. We don't have time to talk about what these investments are doing. Let me ask then on the ecosystem—

CHAIR: Last question.

Senator McDONALD: How has the private sector responded to the government's investment under the MMI to date? Is it supporting the program with co-investment and to what extent? What sort of leverage are we getting?

Ms Mulder: To date, \$946.5 million has been publicly committed to 214 projects, valued at \$3.47 billion, which leverages \$2.53 billion in private sector investments.

Mr Fredericks: That's a big number.

Senator McDONALD: It's a very big number.

Mr Fredericks: That's exceeded our expectations.

Senator McDONALD: That's the bit that we are not hearing out of this budget, the incredible private sector engagement with government seed funding into this incredibly important part of—

CHAIR: Thank you.

Senator McDONALD: I could talk about it all day.

CHAIR: Senator Patrick.

Senator PATRICK: I have a question initially for the department on an IT related issue. I go back to a question that I put to the department in June last year asking about what traffic was taking place in and around the department's network. In that answer to BI18 from the budget estimates it said that the 10 top countries that DISER had detected on its network traffic, I think is the term that's used, is the United States, Netherlands, China, Germany and the Russian Federation. I notice circumstances have changed. What exactly is the talking traffic taking place between the department and Russia?

Mr Fredericks: I don't think the right people are in the room to answer that question. Can I be honest with you: I'm nervous about answering that question in any sort of detail in a public forum like this. I'm happy to take that on notice, but not on the basis of coming back to you in too long a time. Knowing your interest in this area, it is important perhaps to work out a way to get some information and advice to you about that sooner rather than later.

Senator PATRICK: I might ask some questions and we'll talk around this. I'm not after methods that are used in terms of monitoring. You've obviously already given me the data, that they're in the top five. You would understand I now have a concern as to what that exchange of data is, and whether or not there's been an effect or change since the invasion of Ukraine, and if indeed it was legitimate traffic whether or not the department has acted to stop that, consistent with some of the other activities the Australian government is doing to support Ukraine. If you could come back maybe online and paint whatever picture you can, with whatever you can, I would be grateful.

Mr Fredericks: We will do that. I should say, just in the generality, you can have confidence that the department of course has complied with all the requirements of the Australian government's response and regime vis-a-vis Russia. I need to make sure I put that on the record. Yes, I appreciate your forbearance on that. I know you're sensitive to these issues. We'll work out a way to be able to give you some advice about that issue in a less public forum.

Senator PATRICK: Thank you. Chair, I also have some questions for the Space Agency. I don't know whether this is the right time?

CHAIR: It is the right time, absolutely. It's always the right time to have questions for the Space Agency.

Mr Fredericks: Mr Palermo will be online, because he is currently in the US sealing the deal announced yesterday with NASA for the Space Agency. Mr Palermo, can you hear us?

Mr Palermo: Yes, I'm here.

CHAIR: Is it signed, sealed and delivered, Mr Palermo?

Mr Palermo: Yes, we signed the agreement with the Deputy Administrator of NASA.

CHAIR: Congratulations. Senator Patrick.

Senator PATRICK: Senator Scarr, you've just destroyed a government announcement. Anyway—

CHAIR: I'm always trying to be helpful, Senator Patrick.

Senator PATRICK: It's noted that the budget included further funding to offset the cost of launch permits, which is really good to see. It's something we've been discussing. At the moment, this seems to be an almost annual assessment. I wonder if it's not better off being a longer fixed period so that you really do establish the industry first. These 12-month funding arrangements keep everybody on edge, basically. I wonder if that's being considered?

Mr Palermo: With respect, if I may clarify, the Australian government has decided as part of the measure to abolish the fees permanently.

Senator PATRICK: Thank you for putting that on the record. That's fantastic. As you know, I've talked a fair bit to members of the space industry around Australia. Firstly, when you are dealing with launches, is it only the permits that you deal with? Do you deal with other things around the infrastructure associated with launch activities?

Mr Palermo: Sorry. I don't know if it's the audio at my end, but could you just repeat the question.

Senator PATRICK: I'm just trying to find out what the scope of your work around launch is. Is it just launch permits or do you engage with companies in relation to infrastructure related issues?

Mr Palermo: There are multiple aspects to how we deal with launch. The first area I'd touch on is access to space, which includes launch. This is a priority of the space strategy. This year we are developing a technical roadmap that will define the aspiration and vision for the nation, the targets for where we see launch and other elements of access to space going. As you know, we are the regulator for launches and returns, which includes the launch of Australian satellites overseas under the Space (Launches and Returns) Act 2018. That's a role that we take very seriously under our responsibility pillar. What I would signal is a recent announcement by the government in what we call the fast-tracking access to space measure. Within this \$65 million measure, there is approximately \$30 million that will see the government co-invest in spaceport infrastructure. We have not released guidelines for this. We're working on the guidelines right now but that will see us work with commercial proponents on compelling proposals for coinvestment in spaceport infrastructure.

Senator PATRICK: The burden of my question—and I didn't articulate this very clearly—goes to the fact that the space industry has told me that, when they go to establish a launch site, they have to deal with a whole range of different government entities, be it local government, state government or federal government. That is a bit different to, say, when you're talking about airports, where there's federal jurisdiction and, once you look at something and say, 'That's an airport', it all comes under the one jurisdiction and it's much easier to work with. Is that approach being considered by the Space Agency?

Mr Palermo: We're aware of that feedback. We've received it directly from the launch providers. One of the other measures that was announced recently was the competitive regulations measures, really looking at how we position the opportunity to launch from Australia both for domestic providers and international providers to be much more competitive. As part of that, there is additional resourcing in the Office of the Space Regulator. We have reorganised the team to address that in particular. It is a multijurisdictional approach today, if you think about our state and territory aspects, environmental approvals and land considerations. What we've established as an agency is what we call a regulatory engagement function. We're trying to simplify quite an extensive process. We've worked well with Southern Launch, and we've received feedback on the number of proponents and government entities they need to talk to. We've structured to really improve that going into the future. We're aware of the feedback and have reorganised how we operate to improve that.

Senator PATRICK: Are you aware of any issues that have affected launch opportunities associated with things like shipping and transport? Has that been raised with you at all?

Mr Palermo: We work closely with AMSA. I'm not familiar with a specific challenge with shipping. That was something in the attempted launch last year that I think was coordinated. If you have more details, I can certainly address it.

Senator PATRICK: I might come back to you. Finally, can I switch across to the hypersonics announcement that was made yesterday. Senator McDonald talked a little bit about this—that is, there is capability in Australia in relation to things like propulsion and rocket manufacturing. Are you having any interaction with the government in relation to that hypersonic weapons program and being able to link Australian industry back into some of these programs?

Mr Palermo: We're aware of the great capabilities in the nation in hypersonics. I think it's a very exciting thing for Australia to be developing. We are the civil Space Agency, but there are actually civil applications of hypersonics. Where we will intersect with that, as our mandate to grow and support the sector, is to help companies connect and help them make international partnerships. In fact, one of the main hypersonics companies is here with me in Colorado Springs at the Space Symposium, building international collaboration. Where we will intersect is via our research programs and our grant programs. Also, often, to test a hypersonic vehicle you need to accelerate it to very fast speeds in the first place, and then you need a launch permit, for example, to do that, given the altitude, velocity and energy of these vehicles, potentially.

Senator PATRICK: As to where I'm coming from—and this is a frustration I have with Defence, not with the Space Agency—yesterday I asked Defence about what their plans are in terms of looking at industry contributions from an early stage right through to the very end. They kind of looked at me and said, 'We don't do that, Senator.'

We're just in the R&D phase.' Actually, that's perfunctory in nature in terms of trying to drive industry and help industry, which I know you have a better record at doing. This is about whether or not you've sat down with Defence—and I presume you've got all the relevant clearances—and being able to say, 'What is it that's in your program? I'm aware of these industries here that could contribute and offer expertise to Defence', to push along Australian industry into those programs. So, rather than just connecting, actually driving that. It doesn't just help the Defence program; of course, it helps the space program, because you can amortise costs and get work across a whole range of different areas. This is a question about driving rather than sitting back and looking. Have you engaged with Defence at all?

Mr Palermo: We're about to have a very close relationship with Defence. I think at the last estimates session I walked you through that. Obviously Space Command was formed in recent weeks. One of the other things—and it's a big priority for the agency this year—was the Space Strategic Update that Minister Price announced at the Australian Space Forum about a month ago. The Space Strategic Update is led by the Australian Space Agency, and it's addressing calls for a national space strategy. The purpose of the national space strategy is to make sure the way we develop the sector for Defence and civil are aligned. Defence will have their strategy, and that's appropriate. But how do we make sure horizontals such as what you're talking about, which is commercialisation or pathways to development, are aligned? We will lead that from a whole-of-government perspective, and we're doing that right now, but very closely with Defence. We engage in this a lot. Defence has supported the national mission that was announced for satellites. That interaction is very close; many of our objectives are aligned around accelerating sovereign capability for the nation.

CHAIR: Senator Patrick, we do need to move on to the next lot of witnesses. We are 10 to 15 minutes over time. Do you have one final question?

Senator PATRICK: Yes. What is the program today? Do we conclude at 23.00 tonight?

CHAIR: No, it's concluding at 12 o'clock, in two hours.

Senator PATRICK: I only have one more question. It's really for the department. I thank the Space Agency. I just hope you drive that more on behalf of industry, noting your ability to connect in. To the department: where is the national EV strategy? That was promised. We just haven't seen it. Can somebody tell me what's going on with that? Then we wouldn't have an AdBlue problem.

Mr Fredericks: The relevant people who can answer that question aren't in this estimates. That's in the environment committee estimates that happened on Monday. But what I will do is take it on notice so we can get a good answer back to you on that one.

Senator PATRICK: Thank you.

CHAIR: Thank you, Senator Patrick. Thank you, Mr Fredericks, for taking that on notice. We now have CSIRO.

Mr Fredericks: Chair, can we formally excuse the staff relevant to outcomes 1.1 and 1.2?

CHAIR: We can do that, Mr Fredericks. So, everyone involved in outcomes 1.1 and 1.2, you're now excused. Thank you for your attendance.

Commonwealth Scientific and Industrial Research Organisation

[10:00]

CHAIR: We now have CSIRO. Hello, Dr Marshall. Do you have an opening statement to make?

Dr Marshall: A very short one.

CHAIR: Over to you.

Dr Marshall: It's been a couple of months since CSIRO was here at estimates in February, but, despite the short time, it's been a very busy time at the national science agency.

In March we joined partners across industry and the research sector to launch our fifth nationally collaborative mission, this time to end plastic waste. Under this mission, we aim to reduce the plastic entering the Australian environment by 80 per cent within the decade. That follows the launch of our earlier missions around solving drought, future protein, increasing agrifood exports and creating a hydrogen industry, which we've all done over the last year or so.

Last month we also launched a new national research lab for Australia right here in Canberra, the National Bushfire Behaviour Research Laboratory, which enables us to simulate bushfires anywhere across the country, to bring together industry research and government to harness the latest findings in science so that we can get ahead of the threat of bushfires.

While it's important to plan for bushfires in the future, our hearts go out to all of the communities that have been impacted by floods along the east coast of Australia. Under last week's federal budget, CSIRO will expand its existing expertise in flood modelling and mitigation to identify more options and opportunities for mitigating risk and building national resilience, particularly in the Northern Rivers region of Australia. National disasters will also be front and centre as part of the new National Space Mission for Earth Observation. CSIRO will bring more than 60 years of experience in space to the partnership led by the Australian Space Agency, along with GA, the BOM and Defence, to build and operate four new satellites for our country.

Finally, CSIRO's key role in supporting Australia's commercialisation of world-class research will see us support our universities through the Trailblazer Universities Program, new investment in our Industry PhD program and an additional investment in the Innovation Fund's Main Sequence to support our nations deep-tech companies. CSIRO will also expand our ON accelerator program to help researchers more effectively turn science into real solutions for Australia, and thereby commercialise their inventions and drive our economy.

I'm incredibly proud of team CSIRO and the role our scientists are playing in supporting Australia. Thank you, Chair, for giving me the chance to share that with the committee.

CHAIR: Thank you, Dr Marshall.

Senator RENNICK: Do we have any biolabs in Australia? Do we have any biolabs doing work on bioweapons or anything like that?

Dr Marshall: In CSIRO we have the Australian Centre for Disease Preparedness, but it's about defending against biological elements, generally natural ones. We don't work on weapons, that I'm aware of, Senator. You're familiar with the work we did during the pandemic to test one of the world's first vaccines, and I think still the most used vaccine at that time, to protect Australians from COVID-19.

Senator RENNICK: Which vaccine was that?

Dr Marshall: The AstraZeneca vaccine.

Senator RENNICK: Thanks. Are you aware of Albert Einstein's 1917 paper *The quantum theory of radiation*?

Dr Marshall: I am.

Senator RENNICK: So you're familiar with his concluding remarks:

... the momentum transferred by radiation is so small that it always drops out as compared to that from other dynamical processes.

Which would be convection and conduction. I'm interested, given that Einstein thinks that radiation is such a small part of the heat-transfer process, why there's this belief that radiation from carbon dioxide, which is only 0.04 per cent of the atmosphere, is such a threat to human life.

Dr Marshall: A photon has no rest mass, because it's travelling literally at the speed of light, so it's basically all energy. But it still has momentum. In classical physics, momentum equals mass times velocity. In quantum mechanics it still has a momentum value, which is determined by its energy. I think it's Planck's constant, h times the frequency of light—

Senator RENNICK: $E=hf$. I know it well.

Dr Marshall: I'm trying to understand how that connects to—

Senator RENNICK: Einstein himself says that radiation is an insignificant form of energy compared to convection and conduction.

Senator McDONALD: This is not relevant to estimates.

Senator RENNICK: If we go back to the second law of thermodynamics, which says the entropy of a system always increases, at the end of the day convection—the idea under climate change is that, effectively, carbon dioxide traps heat in the atmosphere, even though heat's kinetic energy, which is the energy of motion, so that's a moronic statement in itself.

Senator McDONALD: What's this got to do with estimates?

Senator RENNICK: Ultimately, we're always going to come back to a dry adiabatic lapse rate of about six degrees per kilometre.

Senator McDONALD: Point of order, Chair: it's a fascinating question, Senator Rennick, but we've got very limited time with these agencies. I want to ask questions of the budget.

Senator RENNICK: Senator McDonald, we have just signed up to net zero. In the last set of estimates we were told there were 40 different—

Senator McDONALD: I don't need you to debate it with me. Please just ask him a question.

Senator RENNICK: There are 40 different climate models, and I'm trying to ascertain what model and what algorithm and what methods we are going to be using in order to track our carbon emissions and how much heat. Because at the end of the day carbon is a means to an end, which is limiting the increase in temperature of the atmosphere. The question is: how are we going to actually audit this process whereby we expend over \$30 billion in subsidies on renewable energies, despite the fact that we're supposed to believe in the free market? How are we actually going to design a model that is efficiently going to track the amount of heat that's radiated out of the Australian mainland?

Dr Marshall: My agency's—which is all of your national science agency—focus with respect to climate change is recognising there's an existential threat to many of our greatest industries. If the world does shift to net zero, it will be very difficult for us to export some of the products that have made this country's economy so strong. Essentially, we're trying to figure out either how to mitigate the carbon—we have a number of projects for CCS and CCUS in the Northern Territory, for example, to help capture the carbon and store it or use it somewhere else. We've tried to re-invent products like coal—

Senator RENNICK: I will pick you up there because mitigating carbon—this is the point I'm getting at. The amount of radiation and heat emitted from carbon is very small. My question is: how much carbon do you think, if you mitigate it, is going to actually reduce the temperature of the atmosphere by 1½ degrees by 2050 or whatever the target is?

Dr Marshall: I'm going to go back a little bit. It will only take a minute. The CO₂ in our atmosphere basically insulates us from the absolute zero of space. It's really important for life on the planet. We know that the temperature of the earth is about 16 degrees warmer today than it was a very long time ago. That has been good for us, because that has given us a good climate. That's the natural equilibrium as the earth developed. The challenge at the moment is that the level of CO₂ in the atmosphere and the particular isotope that comes from the burning of fossil fuels has increased significantly over the last century. That's leading to a very small increase in global temperatures.

Senator RENNICK: So where—

CHAIR: Senator Rennick, if you could just let Dr Marshall answer the question, please.

Dr Marshall: It's that small increase that we're worried about. The actual principle of how we know that CO₂ has this insulating effect is because of the long history of the earth.

Senator RENNICK: I understand the theory of CO₂ and how it works. But we been in the Holocene period for 20,000 years. The earth has been warming for 20,000 years. It hasn't just started 150 years ago. It's called the Holocene period; you'd be aware of it. It's like excess debt. How much of this minute temperature increase for the last 150 years has actually been down to the warming period anyway versus what's been happening from human activity?

Dr Marshall: From the data that we've measured, both from us, CSIRO, for the ocean temperature in the southern oceans; and the BOM for the air temperature, which—

Senator RENNICK: You can't rely on the BOM, because those numbers—

CHAIR: Sorry, Senator Rennick, just let Dr Marshall answer the question.

Dr Marshall: We know that we're about one degree warmer than we would otherwise be as a result of the CO₂. The good news about that, now that we've understood that, is that there's an opportunity to turn it around. It is a global issue. Australia is roughly one per cent of—

Senator RENNICK: That's fine, but I want to know how you are going to audit it. Despite the mantra being 'the science is settled' there are still 40 different models. I would have thought if the science was settled that there weren't 40 different models to begin with.

Dr Marshall: For us, it's not about how you measure it; it's about how we work with the coal industry and the oil and gas industry to figure out how to either reinvent their product, so that they can keep exporting a different product that doesn't have emissions, or mitigate their emissions—how we keep those industries healthy as a result of this huge global market shift.

Senator RENNICK: What gets measured—

CHAIR: Senator Rennick, one last question. I need to share the call.

Senator RENNICK: I'll just say that what gets measured gets improved, so to say that your job is not to measure it, as the CSIRO—I would dispute that, because I would have thought that that's a very scientific process. But I'll just finish with this: if the atmosphere is 10 to the power of 15 and carbon dioxide is 0.84 per cent of that, for two by 10 to the power of 12, and the Earth emits 800 billion tonnes of CO₂ each year, of which only five per cent is human-made, or four or five per cent is human-emitted, that's a recycle rate of 2½ times the specific density of 1½, so that's a recycle rate of about every four years. Surely, photosynthesis in itself has a higher rate of recycling carbon dioxide than lithium batteries or anything like that.

Dr Marshall: The plants absorb the CO₂ that we exhale—

Senator RENNICK: Yes, I know all that.

Dr Marshall: and produce oxygen, and we breathe that in, so we have that wonderful equilibrium that helps us manage that. We do measure the CO₂ in the atmosphere at Cape Grim—that's one of the data points we have—but, in terms of the carbon accounting, I'm pretty sure that's a job for government, isn't it?

Dr Mayfield: There are two different types of modelling here, Senator. The first one you referred to is around how we know whether we're actually reducing emissions. That's done through the National Greenhouse Gas Inventory accounts. DISER manage those. That's done through industry reporting and understanding those changes. So that's how you know what's being emitted and whether we're improving on that.

The second piece, which is around the physics of the situation, is done through the climate models that you were referring to before. In Australia, we operate the ACCESS model. That's CSIRO plus our partners at BOM and other organisations. That's the guidance that we'll use. It's basically a transient heat and mass balance model. The transient part, which happens over time, is really crucial because small imbalances in energy flow over time will lead to a change in temperature of the system. If the imbalance is net out then the system will actually decrease in temperature; if it's net in, it increases. We're in the 'net in' situation. That's what we're monitoring. And it happens over time.

Senator RENNICK: I realise that. But won't the entropy of a system always decrease? So, effectively, any excess heat in the atmosphere will eventually blow off into outer space.

Dr Mayfield: Entropy always increases.

Senator RENNICK: Increases, sorry, yes.

Dr Mayfield: But, essentially, if you put the Earth as the control volume, there's no mass being exchanged, but there is energy being exchanged.

Senator RENNICK: Yes, I'm aware of that.

Dr Mayfield: That's what we are measuring. In the particular problem that you specified, radiation has an enormous role to play. The difference between conduction, convection and radiation is that it varies with which situation you want to look at, what you want to model. So it can have a significant input. There's a different context for the—

Senator RENNICK: Okay. So is the model that we use recognised by the IPCC—

CHAIR: Senator Rennick—

Senator RENNICK: It's a fair question.

CHAIR: I'm not saying it's not, Senator Rennick. I just need to share the call. Senator Roberts.

Senator ROBERTS: Thank you all for being here again. Minister, last time Senator Seselja was in your chair he failed to answer, with any specific quantities, any of my questions as to the basis of the government's climate policies and the consequent policies on energy and agriculture. I specifically asked about the government's change to its 2050 net zero policy—the complete reversal of it. We've got \$6.9 billion in subsidies per annum, at a total cost to the country of \$19 billion. They're the government's own figures, which Alan Moran, the respected economist, has assembled. Minister Seselja was unable to answer the basic questions, but he did say this: 'Obviously we went through quite a detailed process to arrive at the decision to reverse our net zero policy.' Could I have the process details, please.

Senator Stoker: I can take that on notice for you.

Senator ROBERTS: Yes, that's fine. Thank you. So it's the process by which the government changed its policy, because he said there was 'quite a bit of input'. Then he said:

As I said, the government was not prepared to commit to such a policy without being able to do the work as to how we would get there and how we would do so in a responsible way.

That was the job that Minister Taylor in particular was tasked with and that was the work that fed into the government decision.

He couldn't elaborate on the detail. On notice, could I have the conclusions and advice from the various departments that fed into Minister Taylor's process for coming up with the decision to reverse the policy?

Senator Stoker: I'll take that on notice.

Senator ROBERTS: Is Ms Jo Evans here?

Mr Fredericks: No, Senator. Because the minister has been taking these questions on notice, I haven't interfered, but the questions you're asking belong in another program.

Senator Roberts interjecting—

Mr Fredericks: The questions you're asking belong in another program in this department. They're in the environment committee, where we deal with energy and emissions reduction. So all the staff relevant to those questions aren't here because they appear in the environment committee. We're here for CSIRO at the moment.

Senator ROBERTS: So Ms Evans isn't here?

Mr Fredericks: Ms Evans isn't here today, no.

Senator ROBERTS: Okay. I'll put a question on notice to her.

Mr Fredericks: Yes, 100 per cent. And we'll take that and I will work with the Senate to probably take it across to the environment committee.

Senator Stoker: But to the extent that it's relevant to CSIRO, I'm happy to take it on notice and have the minister—

Senator ROBERTS: Well, perhaps you could focus on CSIRO's input into the decision-making to change the 2050 net zero policy.

Senator Stoker: Yes, to the extent that CSIRO is relevant to those things, I am very happy to take that on notice.

Senator ROBERTS: Senator Seselja also said:

What we've seen, under our government, in the last few years is energy prices coming down—

he meant electricity prices—

year on year, and coming down quarter on quarter.

That's been due to the COVID recession, due to state and federal governments restrictions on COVID. Is he aware of the electricity prices, quarter by quarter, since 1996?

Senator Stoker: I expect he is but, given I can't speak to what's in his brain at this moment in time, I will take it on notice.

Senator ROBERTS: Thank you. Minister, the Bureau of Meteorology and CSIRO work together producing the *State of the climate* reports. In February 2022—it might have been early March—Senate estimates, the Bureau of Meteorology's head, Dr Andrew Johnson, confirmed that the joint CSIRO and BOM *State of the climate* reports are for presenting climate data and make no attempt to link human carbon dioxide with temperature. And yet many government MPs, including ministers, and many Labor and Greens MPs have cited the *State of the climate* reports as evidence for their advocacy for policies to cut human carbon dioxide. There doesn't seem to be any basis for it. Dr Johnson said there was no basis.

Senator Stoker: It wouldn't be the first time politicians in this place had used data in ways that don't necessarily align with how it was intended. I'd suggest that's a reflection of human failings and human differences in interpretation.

Senator ROBERTS: Thank you. On which publication from CSIRO or BOM or any Australian or international agency does the government rely on for its policies cutting human carbon dioxide production from the electricity sector, transport, agriculture, industry? Could I have the publication title, the author, publisher and date?

Mr Fredericks: The department should take that one on notice. We'll take that on notice.

Senator ROBERTS: Thank you very much. And for each report, Mr Fredericks, can you please specify the position—that is, the page number—within the publication of the empirical scientific evidence within a logical framework proving causation and impact.

Mr Fredericks: We'll take that on notice.

Senator ROBERTS: Thank you. I have questions for the chief executive. Are you aware of how much money has been ploughed into unreliaables—that is, renewable energy—for the last 15 years?

Dr Marshall: I'm not sure I can answer that question—what are you actually asking me?

Senator ROBERTS: I'm asking: are you aware of how much money has been pumped into unreliable forms of energy?

Dr Marshall: Around the world?

Senator ROBERTS: In Australia.

Dr Mayfield: What do you mean by 'unreliable energy'?

Senator ROBERTS: Solar and wind. I don't call them 'renewables'; I call them 'unreliaables'.

Dr Mayfield: They're variable renewable energy sources. They're not unreliable; they're variable.

Senator ROBERTS: How much money has been ploughed into them?

Dr Mayfield: I don't have a number to give you, Senator. Let me take that on notice.

Senator ROBERTS: Okay. Thank you.

Dr Marshall: Australia leads the world in the deployment of rooftop solar, for example. I'm not sure we have the numbers for how much individual citizens have paid—is that the question you're asking, Senator?

Senator ROBERTS: No. The question is how much money has been pumped into the use of unreliaables, or 'renewables' as Dr Mayfield says?

CHAIR: Senator Roberts, you say 'pumped in'. Money can be invested in variable energy mechanisms through private individuals investing money, government perhaps providing grants—there are all sorts of mechanisms by which money could be paid.

Senator ROBERTS: That's true. The figures I have are that from 2007 to 2014 it was an estimated \$30 billion. From 2015 to 2020 it was an estimated \$33.8 billion. In 15 years we've spent \$74 billion.

CHAIR: Right, so when you say—

Senator ROBERTS: And I am wondering if CSIRO could—

CHAIR: I think Dr Marshall is just asking for better definition around the question. Are you seeking federal government support—

Senator ROBERTS: Both—federal government and private.

CHAIR: Right.

Senator ROBERTS: And I'm particularly keen to know whether you knew that.

CHAIR: Dr Marshall, is that something that falls within CSIRO's bailiwick?

Dr Marshall: I think it falls within my bailiwick in another committee, but we'll take it on notice and we'll do our best.

Senator ROBERTS: Thank you. What is Australia's annual spending on unreliaables, or, as Dr Mayfield calls them, 'renewables'?

Mr Fredericks: We'll take that on notice.

Senator ROBERTS: Thank you. What's the trend in electricity pricing among nations increasing unreliaables as a percentage of electricity supply?

Mr Fredericks: We'll take that on notice.

Senator ROBERTS: Now, I take it CSIRO is not a finance or accountancy agency—correct?

Dr Marshall: We're the national science agency—actually, your national science agency, Senator.

Senator ROBERTS: Well I've seen little evidence of science in some fields. CSIRO used to have a very high reputation.

Dr Marshall: It still has a very high reputation.

Senator ROBERTS: In some areas it certainly has got a high reputation, but it's being tarnished. I understand that CSIRO allocates considerable resources to estimating the cost of a wide array of different electricity generation technologies. Conveniently for those who contend that renewable energy is the future, this claims the lowest-cost supplies are wind and solar. Can you explain why?

Dr Marshall: Senator, are you referring to our *GenCost* report?

Senator ROBERTS: I'm referring to your work advising governments on the use of unreliaables, renewables.

Dr Marshall: Each year, or every two years, I guess—

Dr Mayfield: Annually.

Dr Marshall: annually—we publish a document which compares the cost of various types of energy to help the community better understand how the markets are changing between traditional energy sources and new energy sources. I think that's the document you're referencing.

Senator ROBERTS: In determining that wind or solar have superior costs to hydrocarbon sources, CSIRO does not proceed to explain why these generator sources have, and require, subsidies that amount to some \$7 billion a year and comprise half the revenues of wind and solar. Why do they need subsidies?

Dr Marshall: I think the question of a subsidy is actually a policy question. We can answer a science question, but not really a policy question.

Senator ROBERTS: Okay.

Dr Mayfield: The objective of the *GenCost* report is to look at different technologies and understand what it would cost to basically install that technology in its current state of the art—

Senator ROBERTS: I'll get to that.

Dr Mayfield: It's about a technology cost. It doesn't go into how you invest, who invests or where that money comes from. It's about what it currently costs. 'If you want to build one of these, this is what it currently costs based on the best available data in the market and in engineering firms.'

Senator ROBERTS: So, let's get to that.

CHAIR: Senator Roberts, I do need to share the call. Senator Walsh has some questions, Senator McDonald has some questions and we've only got—

Senator ROBERTS: I have another two questions, Chair. I have got a few more, but two for now will do.

CHAIR: Thank you.

Senator ROBERTS: Many factors and assumptions are involved in estimating what you just said, Dr Mayfield—the cost of electricity from various generation sources, and comparing those costs of different technologies. Among these is the discount rate of capital, the price of electricity, the cost of inputs, and maintenance and availability. On what factors does the CSIRO's estimates of electricity costs rely, the primary factors? Take that on notice if you want.

Dr Mayfield: We can do that. The report itself actually goes through the assumptions that are used and the framework that is used to do the calculations. It's important that you're able to work your way back and find out how they're generated. There are assumptions around all of those sorts of inputs to the calculation—

Senator ROBERTS: That's what I'd like to get at.

Dr Mayfield: You'll find links in the report, which give you the available data.

Senator ROBERTS: I'd like to get them from the CSIRO because there are significant economists who disagree completely with your findings. And could I have the numerical values of the assumptions and the factors, please?

Dr Mayfield: We'll be able to give you the link to the data.

Senator ROBERTS: That would be fine. Thank you.

Dr Marshall: We'll send you the report with them.

Senator ROBERTS: Last question: as the chief executive, do you stand by the assumptions and methods used to develop CSIRO's estimates of electricity prices using various technologies?

Dr Marshall: I stand by our published report, which is the *GenCost* report.

Senator WALSH: The federal budget announced funding for a virtual National Critical Minerals Research and Development Centre. I'm just chasing a bit more detail from CSIRO about that and your role. We asked DISER some questions about it on Friday, and they described CSIRO's role as hosting this funded virtual National Critical Minerals Research and Development Centre. I'm just wondering if you have more details at this stage.

Dr Marshall: We also released a report looking at the future of supply and demand of critical minerals—really important for Australia. We could send you that report if that would be helpful. The National Critical Minerals Research and Development Centre is actually a partnership between ourselves, Geoscience Australia and ANSTO. It was roughly a \$50 million item in the budget. Essentially it's looking at the future and where we

will get our critical minerals from and what we might need to assure Australia has access to the critical minerals that we need for the things that we want to do in the future.

Dr Mayfield: It's early stages at this stage. The intent is to bring together the ecosystem in Australia—the capability that sits in universities and that sits in the two agencies that Dr Marshall just mentioned—and let us work on those problems together. I think that's the best outcome that we can have—that it's a national approach. Our expectation is that the expertise and the different strengths in those organisations will complement each other. The intent is to bring them together, have those planning decisions, work out where the R&D priorities are and then enable those pieces of R&D to be undertaken, ultimately.

Senator WALSH: I understand that it's early stages. Is anyone in charge of it? What's the governance arrangement for it?

Dr Mayfield: In terms of specific governance arrangement, I think that's part of the engagement we have to do with all the various interested stakeholders at this stage. But, from our side, our minerals director, Dr Rob Hough, is leading that work, with his team. They will do an engagement process with all the stakeholders—they work with them regularly—and put in place the right model.

Senator WALSH: This work will get done after the election. That's the time frame. Has there been any work done about setting it up to date?

Dr Mayfield: There have been discussions with various representatives about the potential for such an idea. But, in terms of actually having approval or funding to go out and make it happen, that hasn't started yet. But that will be starting very soon.

Senator WALSH: Starting soon?

Dr Mayfield: It's been announced. The team were aware of that coming. It's just a matter of putting in place the right engagement plan.

Senator WALSH: It's something that CSIRO were consulted about and helped develop the concept part of?

Dr Mayfield: It's been a discussion that's been running for quite a while. We have a lot of involvement with the Critical Minerals Facilitation Office. That's been an ongoing dialogue. I think there's a pretty clear idea of what it could look like, and now we have to go out and engage with the stakeholders and then implement that.

Senator WALSH: Dr Marshall, in your opening statement you talked about—

CHAIR: Senator Walsh, are you moving on to another subject? I've received a request for a five-minute break.

Senator WALSH: I'm just processing the amount of time we've just spent elsewhere.

CHAIR: I'm not intending to interrupt your call; I've just received a request that we have a five-minute break. I was just wondering if this was a convenient point for it.

Senator WALSH: I have more questions for CSIRO, but they are on a different topic.

CHAIR: I understand. We'll adjourn for five minutes and then we will be back with Senator Walsh.

Proceedings suspended from 10:29 to 10:38

CHAIR: Senator Walsh, you still have the call.

Senator WALSH: Dr Marshall, in your opening statement you talked about expanding your existing expertise in flood modelling and mitigation to try to assist with preventing or managing the types of flood crises, with dreadful tolls, that we're seeing in the Northern Rivers region at the moment. Are you able to tell is a bit more about where your focus will be there? Is this primarily a hydrology exercise, or is it broader than that?

Dr Marshall: It's a number of things. My understanding—and Dr Mayfield can expand—is that, in the first place, it is to support the flood affected communities around the Northern Rivers. Is the item you are talking about the \$10.4 million in the budget?

Senator WALSH: Yes. I think that is what you were referring to in your opening statement.

Dr Marshall: Yes.

Dr Mayfield: And just appreciate that the work is currently being scoped, but the intent of that work is probably twofold, and it's being done in conjunction with the NRRRA as well as parts of the New South Wales government. Hydrology studies are part of that, and trying to understand where you might be able to find some measures for mitigations to minimise the impacts. Then there is an aspect of it that is related to community impacts, because whatever you do also would need to have the community involved. So it is a combination of the two, and that is how we do a lot of our science anyway—you look at the raw science, then you also need to make

sure that what you're coming up with is actually implementable. That's going to happen over two years. The team is heading up that way next week with NRRA to start looking at some of the detail. It's the sort of work we have done in various ways in the past, but we probably haven't had a consistent approach. Our intent would be that whatever we come up with through this process we would push into the toolkit of the Australian Climate Service, of which we are one of the partners. We see that as being an important way of deploying these things into other localities in the future as the focus on trying to understand preventative measures and resilience building grows.

Senator WALSH: It was roughly \$10 million, was it?

Dr Mayfield: It was \$10.4 million.

Senator WALSH: It has been attached to flood modelling and mitigation and resilience, but you already do work on that. I am trying to wrap my head around, in the dying days of this parliament, one of the last estimates days, how that works with CSIRO's ongoing funding and ongoing infrastructure. Obviously the floods are kind of a crisis issue. There has been a budget announcement; there is \$10.4 million. Does that mean you have to reorient your work to go and do that? Does it add on to something that already exists?

Dr Mayfield: On a regular basis we have to reprioritise, to some degree, the work. We are doing that on a daily basis, in a sense, because new projects come along and we deliver on old ones—things like that. In terms of what we do, we have a long-term program around water, and it has many, many objectives. Some of it is around water security. Some of it is around how you manage the excess times as well. So it fits into that broad program of work. We work a lot with the National Water Grid Authority and we have worked in the past with the Murray-Darling Basin Authority and other groups around doing that work. So funding comes through that pathway and uses that skill set. We also work with Australian Climate Service, and there is capability in the BOM, in CSIRO and also in GA which all relates to these sorts of problems. We believe the long-term mechanism to address these would be through the ACS; that would be a good way of doing that, and CSIRO would contribute to that. But in this instance there is a specific exercise being requested, and we are focusing on that. We think we can apply our expertise. We will be using GA and we will be using BOM inputs as part of that, so it will still be done in partnership, but ultimately getting to a next level of methodology on how you approach these problems, because they are becoming an increasing set of problems we are having to deal with, and trying to make sure we can do that efficiently in the future. So there are a range of different things. But it's not out of the ordinary that we reprioritise in the short term to deal with what would be viewed as critical national problems.

Dr Marshall: Water is a very strong area across CSIRO; it has been water for decades. Obviously, we're the driest continent on the planet, so water is always a challenge for Australia. You may not know that CSIRO have a device that we are able to fly over parts of the Northern Territory to see through the ground and measure the subterranean water. They call it the water lens. It's quite remarkable, actually, the ability of science to solve these seemingly impossible problems. It's really important for our future because we know that water is such a critical asset for the meat, livestock and agriculture industries and of course for us to drink.

Senator WALSH: Will that \$10 million be absorbed into all of the work that you're doing, or is it for something in particular?

Dr Mayfield: It's for a specific study around the Lismore region, so it is very targeted. Our expectation is that it will generate a range of possible options you might look at to mitigate the sorts of issues they are experiencing and some sense of where to take the next step. It will be quite a targeted piece of work on that. But, ultimately, for us to apply our science, we do need specific situations. The Murray Darling Basin is the same. There was a series of targeted questions that had to be answered there. Even though it was a broad stream of funding, we are directing it to specific challenges. In this case, we have a here-and-now issue around flooding in Lismore, but that's a broader problem for Australia as well. We will utilise results for Lismore's benefits but also, I think, in terms of improved methodologies for how we look at problems for other regions as well.

Senator Stoker: This investment really reflects the value that the Morrison government puts on the way that science can contribute to dealing with some of these national challenges.

Senator WALSH: I think I will process all of that. I was wondering whether it was more of a political announcement than an announcement where it is necessary for you to go and apply the big expertise that you already have to that field situation that we have at the moment.

Dr Mayfield: It is the sort of problem that we need to be applying our science to. That's the bottom line.

Senator WALSH: Yes. I think Ian Macfarlane was appointed to your board in October 2021. Is that right?

Dr Marshall: That sounds right.

Senator WALSH: What's the process for selecting and appointing board members? Who does that?

Dr Marshall: Ultimately, I believe, the minister chooses board members.

Senator WALSH: It is the minister? Okay.

Dr Marshall: Most boards have what they call a skills matrix. It's a little bit harder for CSIRO because we are in almost every industry that Australia is concerned about. I know when the board does its skills matrix the skills they are looking for to support the agency's work are quite broad.

Senator WALSH: From your perspective, Dr Marshall, does the board have a role to play in showing leadership for the scientific community?

Dr Marshall: I think the agency definitely has a role there. The bulk of the research community in Australia is the 39 great universities that we have. We are the most connected science organisation in the country. So our role is often to connect with where the great research is being done and ensure that it more effectively makes its way to solve a problem for Australia. So, even if we do not do the work, the science, we often work with the actual inventors and researchers to make sure it delivers an impact for national benefit.

Senator WALSH: Would you consider comments from Mr Macfarlane when he was industry minister in the Howard government, where he referred to 'the precious petals in the science industry', consistent with a board leadership role in the science community?

Dr Marshall: I've spent most of my career in the United States, so I wasn't here during the Howard government. I wasn't aware of those comments.

Senator Stoker: I would suggest asking the witness for an opinion on one quote taken out of context from at least 10 years ago is of dubious relevance to the work of CSIRO today.

Senator WALSH: Minister, do you think a person who called the science industry 'precious petals' is an appropriate board appointment to CSIRO?

Senator Stoker: As I've just said, it's a quote taken out of context. I often call people in my own family 'precious petals'—with the greatest of love, respect and gratitude—

Senator WALSH: Are they seeking board appointments?

Senator Stoker: There are a whole lot of ways that that could be understood and I'm sure that, in its proper context, it was a reasonable thing to say.

Senator WALSH: Minister, what's your response to this appointment being another 'jobs for mates' from the Liberal government?

Senator Stoker: I'd suggest that you look to the enormously important contribution Mr Macfarlane has made to industry and science—the way the two have come back to build the wealth and prosperity of this country. If there was a greater appreciation for that on the Labor side, perhaps they might do better at building this sphere when they have the opportunity to govern.

Senator WALSH: Hopefully, we'll get the opportunity to do that in a few short weeks.

Senator McDONALD: I want to turn back to the work you're doing on flood monitoring. You talked about northern New South Wales. Can I take you to the north of the country, to the gulf region in Queensland. What engagement has the CSIRO had on being engaged with the investment that the federal government made in partnership with the Queensland government around flood monitoring, river monitoring and so forth.

Dr Mayfield: I'm not familiar with engagement around flood monitoring per se. Most of our work up in the north has been around the Northern Australia Water Resource Assessment—looking at how you might utilise those resources better.

Senator McDONALD: I'll put my questions on that to another agency, then. We spent money after the north-west Queensland flood event in 2019. I wanted to see how the CSIRO had been engaged with that work, but obviously you have not been engaged with it.

Dr Mayfield: There could have been work at the individual scientist level, but I'm not across that.

Senator McDONALD: That's fine. I'm interested in the water lens work you've done in the Northern Territory. Certainly when I was at the Nolans Bore project, just north of Alice Springs, that was useful to them in identifying prospective areas of minerals—because of the mapping of the water table, which I thought was fascinating. In Queensland, have you been able to use aquifer modelling to support the work you've done on the Flinders and Gilbert rivers? When you do any in-stream or off-stream water storage, you are assisting the aquifer maintenance and recharge. Have you done any work that cross-checks the two?

Dr Mayfield: For really specific details, I'd have to consult with the team. But I know that, when we do the water resource assessments, it's looking at the whole system—aquifer recharge, aquifer use—as part of that, as well as having above-ground resources and understanding flows. So it's a holistic assessment.

Senator McDONALD: Terrific. Could I just turn back to the critical minerals work. The partnership between you, Geoscience Australia and ANSTO is a virtual partnership. I am keen to understand what opportunity there could be for an in-person partnership with researchers at James Cook University, particularly given their proximity to the North West Minerals Province. I appreciate that there are a lot of things that can be done desktop, but there's also real work that happens in the field, and I want to make sure those guys remain connected.

Dr Marshall: We actually have a physical presence at JCU. It's a small team, but it's a CSIRO site on the university campus. So that's a great way to connect. We use a lot of technology to network all of our sites together so that our teams—you're right; it's not the same as physically being in the same room, but they're very well connected.

Dr Mayfield: And, obviously, the virtual nature of the centre is just trying to make sure we don't end up trying to put some bricks and mortar somewhere and have permanent things to do it the way we do most of our work, which is in the collaborative fashion, so that the opportunity for JCU scientists and academics with the relevant expertise is there. We have a strategic relationship agreement with that university, but it tends to be in areas of biosecurity, agriculture and our work on the reef at this point in time. But there's nothing that's stopping us from expanding that, if we have the right opportunities to work together.

Senator McDONALD: The first chancellor of JCU was my grandfather. He was a mining engineer and ran Mount Isa Mines. I just reflect on how we continue to not discriminate against people who are based geographically a long way away from places. I guess the silver lining of the COVID experience has been that we have understood that you can collaborate well virtually, but the disadvantage of being a long way from the established bricks and mortar of particularly science centres is a significant one. So I will continue to encourage and promote northern bricks and mortar and engagement as we go through estimates.

CHAIR: Was that a question, Senator McDonald?

Senator McDONALD: It was a shameless plug for North Queensland. I think Dr Marshall's going to say something positive in that regard.

Dr Marshall: Our ACDP, which is in the southern part of the country, has a very deep partnership with JCU, because it's one of the world-leading researchers in tropical medicine and, of course, the prevention of disease, and so many diseases come from mosquitos. So it's a very, very strong partnership there, albeit we're far away but connected.

Senator McDONALD: I will finish on this, Chair. There's the strength of Australia's opportunity and placement on the equatorial band, and the huge populations in other countries, and the JCU and CQU's possession as experts in tropical medicine, tropical architecture, but, this part about mining in those regions, for some reason, we've let slip south. There's so much activity in the north. I'm just flagging that. But your point is well made about the tropical medicine and remote medicine that we do so well.

CHAIR: Thank you, Dr Marshall and your team. CSIRO is, indeed, a national treasure. We greatly appreciate all the work that you and your team do.

Department of Industry, Science, Energy and Resources

National Offshore Petroleum Safety and Environmental Management Authority

[10:58]

CHAIR: We'll now move on to outcome 1, program 1.3. Senator Cox, for your information, we have NOPSEMA with us as well. In the event that any of your questions deal with NOPSEMA issues, you should feel free to ask them during this slot of questioning. I just want to make it as easy as possible for you. Welcome, everyone. Mr Fredericks, are there any opening statements from these agencies? I'm not aware of any.

Mr Fredericks: I don't believe so.

CHAIR: Senator Cox, you have the call.

Senator COX: Firstly, I'd like to ask some questions about the energy security and regional development plan measure, which is being funded by the Department of Infrastructure, Transport, Regional Development and Communications. In particular, I'm interested in asking questions about the proposed \$300 million for the LNG and carbon capture storage infrastructure in Darwin.

Mr Sullivan: The energy security and regional development plan has a series of programs underneath it. I think the one you're referring to is the support for new industry manufacturing opportunities in the Northern Territory. There's also one with respect to North and Central Queensland, one in the Hunter and one in the Pilbara.

With respect to the program investment for the Northern Territory, part of that program investment is support for low-emissions LNG and also for clean hydrogen production. The outlook is to try and make Darwin a renewables hub and a clean energy hub. That program investment of \$300 million—and I assume your question is, 'What's the next step in that?' That program will be subject to finalisation of business cases and opportunities for driving co-investment with both industry and state and territory governments across the whole of that investment suite. The Darwin investment is really about trying to underpin Darwin to become a world leader in low-cost clean energy.

Senator COX: Thank you for the initial comments. I'm very keen to understand who you consulted with in the development of this policy.

Mr Sullivan: I understand why you're asking that question. This package was put together by the department of infrastructure, and they were responsible for the broader package. The energy and regional development plan was part of the development of that project, about which they have gone on record. I think it was last week in estimates that they said they reached out to us, but they were also reaching out to other industry players as part of their broader consultation process. That's a longwinded way of saying the question is better directed to them, but I wanted to give you some context. We were consulted as part of that, but we weren't the drivers of that consultation process.

Senator COX: Right. Do you have any information about—apart from the industry players in that—whether there were any other stakeholders?

Mr Sullivan: I don't know. As I said, that question is a better one for the department of infrastructure. I'm happy to take that on notice and work with the department of infrastructure and come back to you with respect to that component of the broader plan, if I can add more detail.

Senator COX: That would be wonderful if you could do that. Could you also clarify if the money will be going through the NT government or through direct grants from the Commonwealth?

Mr Sullivan: That's still to be worked out. As I said, this is a program investment, so it's not a single project. It's part of that programmatic investment with the objective of making Darwin a world leader in clean energy. How that's delivered, in terms of both the program settings and then projects that come from that and in terms of what the levels of co-investment are from territory governments and what the potential co-investment is from industry players—that's all to be worked out.

Senator COX: Given that you've already done some initial consultation with industry players, is this going to be a competitive grant process or is it going to continue to be closed off and hand-picked?

Mr Sullivan: As I said, it's subject to business case development, and that will be a matter for government. In terms of our initial consultations with the Northern Territory government, we've been in active consultation with the Northern Territory government over the last couple of months on a bilateral agreement with respect to energy and emissions reduction. That, I imagine, will be a foundational agreement that can help deliver this, in terms of the partnership between the Commonwealth and the Northern Territory. I imagine it also then becomes a foundation for outreach to industry. But there hasn't been a decision about how that programmatic investment would be rolled out with respect to this part of the program. That would be a matter for ministers to make a decision on.

Senator COX: Can you give me some examples of what you mean by clean energy—some examples of projects?

Mr Sullivan: By clean energy?

Senator COX: Yes.

Mr Sullivan: Obviously, the government has a platform with respect to clean energies. We've got a technology plan, moving forward, with respect to clean energies. With respect to this area, there's obviously huge scope for renewable energy. There's also huge scope for gas. There are huge opportunities for CCUS. Really, that's a package of what clean energy means in this context.

Ms Croker, you may want to add to that in terms of the specifics around low-emissions LNG and clean hydrogen as part of that. Perhaps you can add some detail to that.

Ms Croker: As Mr Sullivan said, low-emissions LNG offers opportunities to contribute to the government's net zero commitment and help sustain that hard to abate sector. It opens up new opportunities for LNG exports and clean hydrogen. When we're talking about low-emissions LNG, we're talking about ways in which we can change the design of the LNG production facilities to reduce the overall emissions from projects. That could be by installing electric motors. It can be by utilising other sources of power generation that are more renewable—it could be solar—and also utilising storage associated with those plants as well.

Senator COX: Thank you very much for that information. I'll quickly refer to the business case. Has a time line been allocated for that?

Mr Sullivan: No. That would be something for the start of next financial year, but, in terms of 'Have we been set a time line?', no.

Senator COX: Thank you for that. I might jump to our friends at NOPSEMA, if I can, for my next set of questions.

CHAIR: Absolutely. NOPSEMA are here by video link.

Senator COX: I understand that NOPSEMA approved the Barossa drilling environmental plan in mid-March. Is that correct?

Mr Smith: Yes.

Senator COX: Within the environmental plan, Santos stated that they'd sent an email and made a couple of phone calls to the Tiwi Land Council, but they actually didn't get a response. Do you consider this to be adequate consultation with traditional owners living near that gas field?

Mr Smith: I'll get my colleague Mr Grebe to answer that question, getting into detail on environment.

Mr Grebe: The relevant person requirements and environment regulations require titleholders, when they're preparing environment plans, to carry out consultation with relevant persons. The provisions require them to provide reasonable opportunity and sufficient information to enable relevant persons to provide an informed response. The regulations don't require a titleholder to extract a response and don't prevent them from proceeding without getting a response.

Senator COX: When the community members go and talk to the traditional owners who live the nearest to that gas field, no-one had actually heard of the Barossa drilling environmental plan. In fact, the traditional owners were pretty horrified to learn of Santos's approval to start drilling gas wells nearby. How can we be satisfied of the consultation processes, particularly those that involve traditional owners who will be impacted, when they aren't even aware of the environmental plans that Santos have put forward, particularly for the Barossa drilling?

Mr Grebe: It might be helpful to go back in time a bit. The development drilling environment plan is just one of the more recent environmental approvals that the project has sought. Consultation through a public comment process equivalent to that under the EPBC Act did get carried out for the project in 2015, if memory serves me correctly. The whole of the project was consulted on. As part of that process, public comments were considered by NOPSEMA in assessing the project.

In addition, I would point out the environment plan process then requires every individual activity for a project to be subject to an additional environmental approval. That's where the relevant person consultation requirements apply. But there is a natural scope to where activities occur. I think everybody may have a different definition of 'nearby', but the development drilling is in fact many, many hundreds of kilometres remote from the Tiwi Islands. There are other parts of the project, including the pipeline, for example, which do come closer—within, I think, 50 to 60 kilometres, from memory—to the Tiwi Islands. That might be part of some of the confusion here, I expect, because there is also an environment plan under assessment currently for a revision to the installation of the pipeline which was originally approved by NOPSEMA.

Senator COX: Given we are talking about traditional owners providing free, prior and informed consent, can you stand by that as an approvals process that enables the destruction of the country, whether it's for a pipeline or whether it's for gas wells? Do you think that that is an adequate approvals process and provides adequate time frames and adequate access, maybe with translation into language? Do you think just putting it out on a website actually captures all of that in order to give traditional owners the ability to understand the environmental impact of some of these projects? Are NOPSEMA still with us?

CHAIR: I'm not sure, Senator Cox. They appear to have dropped out. Senator Cox, do you have any other questions for anyone other than NOPSEMA? I might go to Senator Patrick. He's got some questions for the *Northern Endeavour* task force. When we get NOPSEMA back, I can give you the call. Does that make sense?

Senator COX: Yes, that's fine, Chair. I do have another couple for NOPSEMA. I am happy to put them on notice as well if they are having technical difficulties.

CHAIR: We will see how they go when they come back. If we can't get them back, I will give you an opportunity to put them on notice. Over to you, Senator Patrick.

Senator PATRICK: I acknowledge that Senator Cox's technical problem is my fortune. There's been an announcement about a \$325 million contract going to Petrofac. Can you provide some clarity around the scope of work to be conducted under that contract?

Mr Gaddes: The decommissioning of the *Northern Endeavour* is broken up into three different, separate phases. Phase 1 of the decommissioning is preparation for disconnection of the *Northern Endeavour* from subsea equipment. Phase 2 is permanent the plugging and abandonment of the wells, and phase 3 is the removal of necessary subsea infrastructure and remediation of the oilfields. The contract that was signed recently is only for phase 1.

Senator PATRICK: Are there any exercisable options in that contract to move from phase 1 to 2 to 3?

Mr Gaddes: Those subsequent phases will be subject to separate procurement processes.

Senator PATRICK: So you'll go to tender for those?

Mr Gaddes: Exactly.

Senator PATRICK: Last estimates, we talked about an unsolicited proposal that had gone to the minister. In your testimony, you said:

... the minister asked the department to investigate the merits of the proposal, we provided advice to the minister on how we would do that if there were policy authority and so the minister wrote to the Prime Minister to seek policy authority for us to investigate the proposal.

Who was the policy authority? Is it just the Prime Minister who can authorise that, or not?

Mr Gaddes: Maybe if we go back a little bit, it might help explain the circumstances. The government made a decision in late 2020 that they would decommission the facility and that they would do that through an open tender process. For there to be a change in that approach, the minister needed to seek the policy authority of the Prime Minister, because it would have amounted to a deviation from government policy.

Senator PATRICK: Was that authority given?

Mr Gaddes: The Prime Minister did provide the authority for us—for the minister and the department—to investigate that unsolicited proposal, yes.

Senator PATRICK: You also mention that the unsolicited proposal didn't meet the government's policy requirements. What were the policy requirements it didn't meet?

Mr Gaddes: That's quite a detailed question. I'll try to help you with it, but I might have to take some of it on notice. We were tasked with assessing whether or not that particular unsolicited proposal offered value for money and an appropriate amount of risk to the Commonwealth. When we went and investigated it, subject to a number of principles which I don't have before me, we determined that it didn't meet value for money and that it didn't meet appropriate risk to the Commonwealth in the way that it was set out.

Senator PATRICK: Could you perhaps provide further information on notice, then?

Mr Gaddes: I can take it on notice. We're starting to get into a tricky space, because the proposal itself is subject to protections under the Commonwealth procurement rules. But I want to be helpful, because I want to give you some certainty—

Senator PATRICK: I don't think those rules apply to Senate questioning, so there are no questions that can't be answered in relation to these sorts of activities.

Mr Fredericks: We'll take it on notice, as we have in the past with you—and I think you always appreciate this—and we'll try to be as forward leaning as we can.

Mr Sullivan: In terms of process, we had to set up separate teams, because that analysis couldn't be done by the open tender procurement process, which we did. That was also a decision around procurement for the department, not for the minister. In terms of that, following through on what the principles were, how that was assessed and some of the time line, I'm happy to provide that to you on notice. It's safe to say that when we did inform the industry conglomeration with respect to the unsolicited proposal that was a constructive conversation. That comes back to your first question around phase 2 and phase 3. That doesn't preclude a proposal from the same group of industry players looking to win phase 2 and phase 3 components of the work.

Senator PATRICK: I will also point out that in relation to the public interest matter raised by Mr Gaddes you said that proposal was dealt with outside of the procurement processes. I don't think you can claim both things, that it is outside the procurement processes, but that those—

Mr Fredericks: If I could clarify. It was outside of the expression of interest process, but still assessed consistent with the Commonwealth Procurement Rules as a procurement, because if it had of been successful we would have entered a contract with those parties and it would have amounted to a procurement.

Mr Sullivan: That is why we had to establish separate processes and navigate that under the auspice of the Commonwealth document rules, which we did. It wasn't that we assessed that outside the procurement obligations. We were very much driven by the rules in terms of how that proposal was dealt with and how we were dealing with an open procurement process at the same time and looking at those in parallel.

Senator PATRICK: Thank you very much. Just back to Mr Gaddes, could you just confirm that phase 1—I think you said it involves preparation for disconnection. Does it actually involve disconnection?

Mr Gaddes: It does.

Senator PATRICK: I have one question for NOPTA if they are there. Mr Waters, you will know that I recently had a successful FOI matter or decision from the Information Commissioner. I appreciate that you still have appeal rights for at least probably another 10 or 15 days, so I won't interfere with those rights. I just wonder, did you use external lawyers in your advocacy to the Information Commissioner?

Mr Waters: As far as I am aware, we went through this process with the department's legal team and through the FOI office within the department. We did not brief external counsel.

Senator PATRICK: Did the department brief—

Mr Sullivan: If we are wrong we will correct the record, but my understanding is that we used our internal legal services.

Senator PATRICK: If you did use external counsel I would like to know what the cost of it was.

Mr Fredericks: We will take it on notice.

Senator PATRICK: Thank you very much. Could I ask the secretary whether or not—I've just been doing some other activity—he responded, or was able to respond, to anything publicly in relation to a question I asked about Russian data traffic.

Mr Fredericks: No, we are not in a position to respond to you on that question at the minute.

Senator PATRICK: Thank you. I have been away, so I didn't know. Thank you.

CHAIR: Senator Walsh.

Senator WALSH: All my questions are in relation to the critical minerals area. In relation to the Critical Minerals Research and Development Centre, which Senator Chisholm asked questions about on Friday and I just asked some questions of CSIRO about today, do you have anything further since last Friday on the governance of this virtual centre and how decisions might be made about research priorities and projects?

Mr Hutchinson: There have not been any substantial developments since last week but I can perhaps add some additional context, and they're consistent with the comments made by CSIRO this morning. The four federal government agencies that will comprise the core of that centre, being DISER, CSIRO, ANSTO and Geoscience, are busy working through how to stand this up. We would hope to have it operational, up and running, by the start of the new financial year, but there is a fair bit of work to be done to get that in place.

You've gone straight to the heart of one of the key issues there, which is governance. That goes to representation—we had some questions earlier about whether different universities can be involved in that—and also to how the funding is allocated. On representation, it has always been the intent that this centre be driven by government but that the projects are done in partnership and consultation with industry, research and development, community and others. So we need to get that balance right of having, I guess, advice coming in steering guidance, both in terms of the kinds of projects that are selected but also how the centre runs, because it will do more than just primary research; it will also play a role across the R&D landscape, helping to direct and prioritise and work with others.

Then, in terms of projects, as you can imagine, we really need to make sure we get that right before we start this centre running, mainly because three of the agencies that are involved in the operation of the centre may also be active participants in the research, so we need to make sure that that funding flows through in a sensible way and manages any conflicts.

Senator WALSH: Thank you for that. You raised the involvement of universities there. Where you're going with this is that the agencies and the department will govern this virtual centre and then work in partnership with stakeholders like higher education and industry? You're not envisaging involvement of higher education and industry on any kind of governance arrangement for the centre?

Mr Hutchinson: All of that is still to be worked through. I think you used the word 'partnership', and that's the way we've envisaged setting this up. We've acknowledged in setting up this virtual centre that the three science agencies in particular have excellent IP—excellent knowledge and some fantastic technologies that they can bring to apply to these problems. But government certainly doesn't have all the answers. We need industry to tell us their views on the priorities. We need to work with universities, the higher education sector, to see what technologies and techniques they've got in the bottom drawer that can be brought to the party. This is a whole-of-Australia endeavour here, to see if we can rapidly accelerate and make up a gap of 20 or 30 years of IP that across the western world is largely lacking, in how to process these minerals. Australia is lucky in that we've got a relatively large amount of that IP, but we still need to catch up a lot. Whatever the final governance structure will be, it will be a very inclusive one. I wouldn't want to give you the wrong impression that there's a team of agencies or organisations running the show and everyone else is being consulted. The final arrangements may look very different to that or they may look similar to that, but we haven't worked those out yet.

Senator WALSH: You clarified in your answers that you're working to stand this up before the end of this financial year?

Mr Hutchinson: My team won't thank me for saying this but that's certainly what we're aspiring to do. Obviously it will be a best endeavours effort and it may need to be rolled out in a series of milestones, but we would like to have this thing up and running as quickly as we can. There's no time to be wasted here. The market is running really hot in this space right now. We've had a string of announcements over the last few weeks and have potentially more to come, hopefully from foreign governments and from foreign market actors, that indicate there is capital flowing to these projects. We need to be moving really quickly to secure as much of that economic activity onshore in Australia as we possibly can.

Senator WALSH: I also have some follow-up questions from Friday around the Critical Minerals Accelerator Initiative, the \$200 million initiative. On Friday we asked about the criteria and the guidelines for grants under the scheme. There is reference in the transcript to a closed round that will be assessed on the guidelines that were released for that round. There is reference in the transcript to a perpetually open model, which you're moving to now. On Friday there weren't any guidelines about that new round. You released guidelines yesterday; is that right?

Mr Hutchinson: That's correct. That's for the perpetually open stage of this initiative.

Senator WALSH: Are the guidelines that you released yesterday for the perpetually open phase substantially similar, or different, to the guidelines for the closed round?

Mr Hutchinson: To answer your question directly, in a lot of key respects they'll be quite similar. That's because—and sorry if I'm sounding like I'm not directly answering your question at this point, but to step back—this initiative was set up with a very specific aim. It targets early- to mid-stage projects, as opposed to the work we do with the financing agencies where we're talking about projects that are quite close to final investment decision. These early- and mid-stage projects are halfway or less through a very long, very complex and very high risk process of going from a concept to a market-operating endeavour. In order to get through those various stages, they need to do a range of capital raises and undertake various studies and piloting and demonstration and all sorts of activities. If we leave those companies to their own devices it will take a very long time, often 10 years or more, to get to market from start to finish. Also, at all stages they're vulnerable to the whims of the market, where cost is king. They'll constantly be pushed to do the lowest possible risk, highest possible return model. That might mean that instead of doing innovative new technologies or processing it onshore they'll dig it, ship it and process it somewhere else or sell into a concentrated supply chain rather than helping to underpin new stuff. So the government wanted to intervene, and do so quickly, with 50 per cent matched funding for those projects where we could better align them with the government's objectives—which in the strategy recently released are quite clear around regional jobs, sovereign capability and underpinning new sources of supply to global markets.

Whether it's through this first round that was mentioned on Friday or the perpetually open one, that objective remains the same. The key difference will be that the first process was a quick targeted strike to companies that, through over 18 months of extensive work with industry, we knew were strategically important—and therefore the closed round. The perpetually open round, having demonstrated some success there and got some lessons learnt, will be to try to find out what else we can elicit from the sector and provide a longer period of time to do that. So the timing differs but the objectives remain the same.

Senator WALSH: The objectives of supporting these early- to mid-stage projects are broadly the same, so the grant application criteria will be broadly similar?

Mr Hutchinson: They are broadly similar.

Senator WALSH: On the closed competitive round, how was that advertised? How did proponents hear about the grant round in order to submit an application?

Mr Hutchinson: As the name implies, it was not—we often see grant programs like the Modern Manufacturing Initiative that are open and competitive, where something is published and companies can assess the opportunity and apply if they wish. The government decided that there was a need to move quite quickly here and to secure some strategic outcomes from key projects and to demonstrate that this project was a viable pathway to other actors in the market. We inside of government had the benefit of extensive engagement with the sector through a range of different agencies over the last 18 months to two years and so had a good understanding of the landscape. We also engaged independent market advice to provide us with a failsafe to make sure that we weren't overlooking projects. Then we applied criteria to sort through which were the most strategically significant for a first round. The government then approached those companies directly and invited them to provide an application to the grant process. I don't have the exact figures here, but I believe that all but one or two of the companies that were approached did provide an application. It's important to note that any company that was unable to or didn't want to put an application in to this first closed round, or was unsuccessful, will have an opportunity to reapply in the perpetually open round.

Senator WALSH: I suspect that this was covered last week, but how much money was committed in the closed round?

Mr Hutchinson: The closed round will be up to \$50 million, leaving \$150 million from the strategic accelerator initiative for the perpetually open round. The government also committed \$200 million to the accelerator initiative for a regionally focused round. So there remains a total of \$350 million that was not included in that first closed competitive process.

Senator WALSH: In relation to the closed round, you had a list of entities that you work with through your regular consultation processes. You approached them. There were consistent guidelines, but those guidelines weren't published?

Mr Hutchinson: That's correct. This is shorthand and possibly not using the correct terminology, but imagine that we cast the widest possible net that we could, to make sure that we understood all of the projects out there that could potentially fit within the scope of the initiative. That involved consulting with industry bodies, our financing agencies, Austrade, DFAT and our own intelligence. We hired industry experts as well to conduct a similar process in parallel. Through that process we then used selection criteria based on the guidelines to understand which were in scope and strategically viable.

Senator WALSH: There were written-down guidelines but they weren't publicly available, it being a closed round?

Mr Hutchinson: That's correct. They were provided to the companies who were invited to apply.

Senator WALSH: Who were the industry experts that you speak of who did a parallel process?

Mr Hutchinson: We engaged METS Ignited, which is an industry growth centre. We'd be happy to provide further information on notice about the industry expertise credentials that METS Ignited brings to the table.

Senator WALSH: Are you able to tell me how much that project cost?

Mr Hutchinson: The total value of that, which I believe is the figure that we set as an upper limiting fee, was \$77,000. I can come back to you on notice and clarify whether that's the exact amount that was invoiced and expensed or whether it was some subset of that.

Senator WALSH: That would be appreciated, thank you. So this is the process: you cast the net that way, you used this industry growth centre organisation in a parallel process to check whether you were reaching everyone, and then people made applications. How were they assessed? You've said that there was an independent expert panel?

Mr Hutchinson: That's correct. We've established an independent advisory panel of industry experts to provide the government with advice on critical minerals policy more broadly. The accelerator initiative is one of the areas where they've been incredibly helpful in providing us with their depth of knowledge and expertise. They advised on things like the selection criteria and the guidelines and they sense checked how we were planning to ascertain the strategic alignment. They also had access to the work of METS Ignited and the department's intelligence-gathering activities, and cast an eye and then had views over the strategic alignment of the projects.

They were involved in providing advice to the government in terms of how we formally assessed the applications under the guidelines.

That advice—this might sound a bit Byzantine; please bear with me. The independent panel reviewed the applications that were provided and advised the department. The department had a committee of senior officials that was an assessment committee responsible formally doing the analysis of the proposals and then making recommendations to the minister. In addition to advice from the independent panel, the committee had the benefit of commercial analysis from a separate independent commercial adviser, and legal advice from an independent probity adviser. They also had the benefit of the METS Ignited initial work that was undertaken, and advice from Austrade as well.

Senator WALSH: So the expert panel did a first cut that went to senior department officials, who made a recommendation to the minister?

Mr Hutchinson: More or less. I probably wouldn't characterise it as a 'first cut'. They weren't responsible for scoring, ranking, or knocking projects in or out. For any project that applied, that application was provided to the committee for assessment alongside advice from the panel on the strengths and weaknesses of that project as it pertained to the guidelines.

Senator WALSH: Who is on the panel?

Mr Hutchinson: Just to clarify, you mean the independent panel?

Senator WALSH: Yes, I was referring to the independent panel.

Mr Hutchinson: I've got the names in my head but I might take that on notice to provide to you, just to make sure I get the titles correct. But I can give you a sense of the expertise that each of them brings to the panel.

Senator WALSH: I think we'll be able to check that once we have the names, and it sounds like that is something we could get today rather than—

Mr Hutchinson: Absolutely. It's actually already been reported under one of the Senate order data-capturing exercises. Basically there are four panel members who are independents and it's chaired by a non-voting senior official from the department. The four independent members each bring expertise in a different area: one on markets, critical minerals supply chains, customer base concentration, choke points, international context and that sort of thing; another on project financing, capital flows and capital markets, risk and commercial considerations; a third on project delivery, in effect how you plan, establish and deliver a mining and processing operation; and finally someone with deep expertise on actual mining and processing technology, and the flow sheets and the latest science and IP on that.

Senator WALSH: Is it the intention that panel as currently constituted continues into the open round?

Mr Hutchinson: The panel has only been stood up for an initial period that I think concludes at the end of the financial year, the reason being that there was a range of policy activity happening at that time and we really needed the advice of the panel. We wanted to have an initial period to assess how that arrangement was going but with the option to renew it. So there will be discussions with those panel members on the other side of the election, and with the minister, as to the future of that panel. That's probably all I can say on that.

Senator WALSH: Are those ministerial appointments?

Mr Hutchinson: They are ministerial appointments, yes.

Senator WALSH: You mentioned the \$50 million in the closed round. I think you said that all the decisions have been made on the closed round?

Mr Hutchinson: They've only just been made.

Senator WALSH: So they're about to be announced?

Mr Hutchinson: I haven't had a chance to review the brief back from the minister but we will take his decision and put that into play as we usually would, bearing in mind all of the normal caretaker conventions. There's a process from here where, once we have all of the administrative steps in order, proponents are advised that they've been found successful. There's then, depending on the complexity of the grant, a period where you work with the proponent to negotiate a binding grant agreement. We would not be entering into anything like that during the caretaker period. Once those negotiations have concluded and the grant arrangement is signed and entered into, and legislative authority and all of those kinds of things are in place, the grant would become operational and be drawn down under a series of milestones.

Senator WALSH: So the minister has provided a list of people who have been successful under the process that you've outlined, based on the advice that has been created—

Mr Hutchinson: That's my understanding.

Senator WALSH: and that's where it's at. Then, as you've just articulated, there is further work that would need to be done before it is announced?

Mr Hutchinson: My understanding of the normal process for grant programs is that once the minister has made a decision, then proponents are advised as a matter of courtesy. Those that are ASX listed have commercial obligations around disclosure, and that needs to factor into the timing of letting them know versus the announcement, but announcement can happen in advance of signing those binding agreements.

Senator WALSH: When did you get the list back from the minister of the successful proponents?

Mr Hutchinson: My understanding is overnight. Unfortunately my IT has let me down this morning. My VPN can't log on, so I'm unable to pull the brief off the system, so I haven't sighted it personally. But I'm aware of the brief that went up with the advice from the assessment committee. It was basically 'Here are the series of projects that we recommend you approve.' As soon as I can, I'll have a look at the brief and we'll go from there.

Senator WALSH: So there's one final step that you need to do before the list of successful proponents could be made public?

Mr Hutchinson: The timing of when it's made public is generally a matter for the minister.

Senator WALSH: You're not aware that it's been made public up to this moment?

Mr Hutchinson: No, I'm not aware of whether it has or hasn't.

Senator WALSH: Are you able to tell us how many projects have been successful?

Mr Hutchinson: Unfortunately no, only because I have not—

Senator WALSH: Because of your VPN problem.

Mr Hutchinson: Yes. It sounds terrible, like the cat ate my homework; I appreciate that. But—

CHAIR: We've all had VPN problems, I can tell you.

Senator WALSH: I appreciate the VPN—apparently the red icon is the best one to use; that's what I'm told.

Mr Hutchinson: I appreciate the advice, Senator. To give you a sense, it's a fairly small field. We're not talking hundreds of grants here. There was a pool of applicants who were invited. I think around 11 were approached, so 11 or fewer will be deemed successful and get a share of that up to \$50 million.

Senator WALSH: Is it your understanding of that list in your email that you can't access because of the VPN that it can be provided to the committee as soon as you're able to access your email?

Mr Fredericks: We'll take that on notice, because at the end of the day the government has a right to make these announcements at the time that it sees fit. So you'll be advised along with the rest of us.

Senator WALSH: So we'll be advised about who has been successful?

Mr Fredericks: Yes. And the second part of your question we will take on notice and come back to you on in due course.

Senator WALSH: What was the second part of my question?

Mr Fredericks: The complete list.

Senator WALSH: Okay. Could we be advised of how many proponents have been successful?

Mr Fredericks: Yes, that's the point. We'll come back to you on notice. Obviously you'll know shortly, or at some stage in due course, how many are successful. In fairness to you, you're after a bigger number as well. We'll come back to you on notice with that.

Senator WALSH: We asked on Friday whether the Critical Minerals Facility was time limited. That question was deferred to Export Finance Australia, which manages the facility. Does that sound correct?

Mr Hutchinson: It's correct that they manage it. I'm happy to answer that question now though.

Senator WALSH: The facility began with DISER, as we understand it.

Mr Hutchinson: No. The facility is managed by Export Finance Australia under the National Interest Account. We were involved in part of the policy work around setting that up. But the minister's announcement is quite clear that it's a \$2 billion facility that will run for up to 10 years or until the \$2 billion is expensed, whichever happens earlier.

Senator WALSH: Thank you.

Senator COX: I want to clarify the approvals process NOPSEMA has that facilitates and enables the destruction of country against the wishes of First Nations people. I am seeking some clarity that in that process there's no actual insurance that the proponents are acquiring informed consent from traditional owners.

Mr Grebe: Before I start, I want to clarify that I may have confused things earlier about some distances I mentioned, so I want to put that in evidence first. Sixty kilometres for the pipeline for Barossa is the closest point the pipeline comes in Commonwealth waters to the Northern Territory mainland, and the pipeline does come to within approximately six kilometres of the Tiwi Islands. I wanted to clarify those two distances.

In relation to your question, the environment regulations under the offshore petroleum greenhouse gas storage regime require title holders to carry out consultation with relevant persons. The regulations specify five categories of relevant persons, including persons or organisations whose functions, activities or interests may be affected by the activities in the environment plan. The consultation requirements are about providing sufficient information, considering any claim or objections, and providing a report to NOPSEMA for the assessment within the environment plan about the way in which it plans to address those claims or objections. The decision criteria for whether NOPSEMA should accept or refuse to accept an environment plan include the requirement that consultation with relevant persons has been carried out and that the responses or proposed responses by a title holder are appropriate. That is the extent of the relevant person and stakeholder requirements for environment plans for a project. That's following the public comment I talked about earlier. Exploration environment plans do in fact have a public comment process in them as well, but the pipeline installation environment plan and also the drilling environment plan you referred to are part of a project and don't have the public comment requirements in the regulations.

Senator COX: Just to wrap this up: have you published a statement of the reasons for approving the Barossa drilling environment plan?

Mr Grebe: The Barossa development drilling environment plan hasn't had a request for a statement of reasons. NOPSEMA's policy that we publish on statement of reasons is that we'll do them on request or where there is significant public interest. In this instance we have not received a request and we have not therefore prepared and published a statement of reasons.

Senator COX: I have a few questions on the commitment of \$1.5 billion in the Pilbara region to fund infrastructure projects that support mining, processing and manufacturing. Can you give me a breakdown of the types of projects that this funding will be used for?

Mr Sullivan: I think you are referring to what we were previously discussing with respect to the regional and energy security fund. In terms of the parts of that in the Pilbara that I'm aware of with respect to responsibilities in DISER, there is \$200 million to increase onshore processing in terms of value add for iron ore exports. That's to directly support low-emissions steel production in our export countries, particularly in Indo-Pacific customer countries. There is also \$200 million to enhance supply chain security. That's through low-emissions manufacturing facilities destined for using hydrogen and hydrogen derivatives like ammonia, and that's coupled with CCUS. So it's similar to what we were discussing as to the Northern Territory, in trying to make it a clean energy hub; that's also the direction with respect to the Pilbara. The last part of the broader Pilbara program is an allocation of up to \$100 million to co-invest with private sector investment in firm generation in that area. There are obviously very large opportunities with respect to renewables in the Pilbara. The challenge there, as is the challenge in the national electricity market, is how we firm those variable renewables so that they can underpin large industries.

Senator COX: Can you clarify what the low-emissions component of that low-emissions vision is?

Mr Sullivan: In terms of the low-emissions component, it is that half a billion that I've just described in terms of value add to iron ore. So we're supporting low-emissions steel in terms of export, the component with respect to low-emissions manufacturing in the Pilbara, as well as the grid investment with respect to firming renewables—that's the half a billion that makes up the low emissions component of the \$1.5 billion.

Senator COX: Is there a guarantee that this funding is actually going to be used for renewable energy and green hydrogen projects, or will it just be another slush fund for the fossil fuel industry—those problematic technologies that do carbon capture and storage?

Mr Sullivan: The objectives for that funding—and, as I said, these are broad, programmatic fundings for which business case development et cetera needs to be worked through, and co-investment—are very clear in terms of pathways for our export industry with respect to iron ore supporting low-emissions steel production, which is one of our big challenges with respect to harder to abate sectors. The low-emissions manufacturing facilities are key in terms of making sure that we not only have an export focus with respect to hydrogen moving

forward but also have domestic pull with respect to hydrogen demand. The grid stability issue is fundamental to grid stability across not only this country but also other countries where renewable energy is starting to approach significant figures inside the grid, and how we stabilise that and how we firm that. As I've given evidence before, the rest of the world is looking to Australia with respect to how we firm and deliver variable renewable to support significant infrastructure to support a significant population base.

Senator COX: Are there any criteria that you can share with us that these projects will need to meet?

Mr Sullivan: Those programs settings are a matter for the government to announce. This was the initial announcement in terms of the scope, direction and objectives. It will be a matter for government as to how those component parts of the program are rolled out, and also the timing.

Senator COX: Thank you. That's all for today.

CHAIR: I think we've now finished our time and come to the end.

Senator PATRICK: I have just a couple of quick questions.

CHAIR: Yes, absolutely, Senator Patrick.

Senator PATRICK: Thank you. You're so very generous. I want to ask the department about the litigation over the *Northern Endeavour*. Last time there was discussion, you had entered into a settlement phase. Can someone give me an update on where that settlement is up to?

Mr Gaddes: We are still in that phase. We are hoping to wrap it up as soon as possible. Without going too far, I can say that conversations are productive but we haven't progressed beyond that phase that we were in last time; we're in settlement negotiations.

Senator PATRICK: Is there any risk of exposure to the taxpayer and, if there is indeed some financial penalty for the Commonwealth, is that covered by the levy?

Mr Gaddes: I probably can't answer the first question, because it's subject to the confidentiality provisions with a court, but I can say in generality that all costs reasonably incurred by the Commonwealth associated with the decommissioning are covered by the levy.

Senator PATRICK: That doesn't help me much, because I don't know whether a settlement is a legitimate disconnection cost.

Mr Gaddes: The challenge I face here is that I'm talking about a hypothetical, because I can't talk to you about the contents of the settlement. In a hypothetical set of circumstances—

Senator PATRICK: I think the Senate is entitled to know whether there is potential for some sort of liability to the taxpayer. I refer you to the discussions in Defence, who are also in negotiations with Naval Group. It's not proper to withhold from the Senate and from the Australian public a potential liability. I'm not asking as to the details of the negotiations; I accept that they perhaps could introduce prejudice. But the simple question I am asking is a fair question.

Mr Fredericks: I'll get Mr Gaddes to restate the principle that's going to be applied.

Mr Gaddes: Our understanding is that all reasonable costs incurred by the Commonwealth associated with the decommissioning of the *Northern Endeavour* are recoverable through the levy. Without saying that there is a risk, I can say that if we were subject to a cost associated with that litigation, based on the legal technicalities at the time, it is probable that it could be recovered through the levy.

Mr Fredericks: I will add one point on that. The reason why Mr Gaddes is properly qualifying his answer to you is that it may indeed depend, in some respect, on the nature of a settlement, if reached, on its capacity to be recovered. We're trying to give you as much information as we can. If there's anything more we can give you on notice, we will.

Senator PATRICK: I'll just take it that there is a risk, because it's not certain that there's no cost.

Mr Fredericks: Yes.

Senator PATRICK: Mr Waters, my understanding is that there has been an approach by the Timorese in relation to the Corallina-Laminaria tenements. Is NOPTA aware of that, and has it been involved in any discussions with Timor-Leste over those tenements?

Mr Waters: The short answer is no.

Senator PATRICK: I'm happy with a short answer.

CHAIR: So am I. It has been very satisfying being on this committee with you, Senator Patrick. It was apt on many levels that you had the opportunity to ask the final question during this session of estimates. There being no

further questions for this committee's consideration, the 2022-23 budget estimates will conclude. I thank Minister Stoker and officers who have given evidence to the committee today.

Committee adjourned at 12:05