

**Standing Committee on Environment and Energy**  
**ANSWERS TO QUESTIONS ON NOTICE**  
Department Industry, Innovation and Science  
Hearing into Prerequisites for Nuclear Energy

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**TOPIC:** Cost estimates

**REFERENCE:** Question on Notice (Hansard, 23 October 2019, Pages 2-3)

**QUESTION No:** PNE - 1

**Mr JOSH WILSON:** Thank you all for being here today. Are you able to say what the cost to date is in relation to the development of this facility and if there is a total project cost estimate in terms of its construction and operation?

**Ms Chard:** I'd need to take on notice the cost to date. You may be aware that the government has had a process in various guises over 40 years to site a facility of this nature. I expect it will be quite challenging to give you a picture of the total costs. You may be aware that there have been a number of previous processes prior to this process being initiated.

**Mr ZIMMERMAN:** I think the deputy chair could refine the time frames he's looking at, as to whether it's 40 years or since the current act.

**Mr JOSH WILSON:** I'm happy for whatever information that can be provided to be taken on notice. You'd be the best judge of how to present it. I think it's worth knowing that it's taken that long. By reference, when I look at the Finland high-level waste project, the number that they put on construction plus 100 years of operation is something like 3½ billion euros. That's their own working guesstimate. I guess we'll see how that transpires. But anything that you could provide on that would be helpful. I'll ask you to say something about the stages—40 years to where we're going now with this facility. This facility will be a permanent repository for low-level waste and a temporary store for intermediate-level waste. I think you said before that the permanent store for intermediate-level waste is something that will probably occur over the next two to three decades?

**Ms Chard:** Yes.

**Mr JOSH WILSON:** You then made the point that high-level waste is another category altogether. In terms of that permanent store of the intermediate-level waste, how active is the process of looking those 20 or 30 years into the future? Essentially is the focus now to get this temporary intermediate-level waste and permanent low-level waste facility up and is that question of the permanent intermediate-level waste not much more than an acknowledgement within the corporate mind of the department that that needs to occur? That's not an active process at the moment, is it?

**Ms Chard:** I'll go back to your earlier question about costs. I will take on notice the costs under the current legislation. That might be a useful way for us to frame those costs for you. The department published a report last year that was undertaken by Cadence Economics largely for the purpose of informing the communities what the economic benefits of the facility would look like. At that time, Cadence Economics based their estimates on potential costs of between \$280 million and \$300 million for the capital construction of the facility. They were very early cost estimates that were undertaken before we had a site and when we were talking about very generic concepts. Those costs are likely to be extremely conservative, but we're happy to provide those costs.

**ANSWER**

The costs of the current process are outlined in the table below. The 2014-15 period aligns with the opening of the national call for voluntary nominations under the *National Radioactive Waste Management Facility Act 2012*, which commenced in December 2014.

Financial Year	Administered	Departmental
	Actual \$'000	Actual \$'000
2014-15	1,275	651
2015-16	3,541	1,862
2016-17	8,694	1,984
2017-18	14,017	2,214
2018-19	11,172	3,973
2019-20	3,749	1,728
<b>Total*</b>	<b>42,448</b>	<b>12,412</b>

<b>Total Project Expenditure</b>	<b>\$54,860</b>
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\*as at 31 October 2019

#### Future costs

Further costs will be incurred to develop the generic concept design to deliver a detailed site specific design, achieve necessary regulatory approvals and maintain community engagement.

Once regulatory approvals are granted, the facility will be constructed. In July 2018, Cadence Economics estimated construction at \$325 million for the purpose of their economic benefit analysis. This early, indicative figure was based on a generic concept design. The full cost of construction will depend on the specific site characteristics and any recommendations of the environmental and radiological regulatory assessments.

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**TOPIC:** Departmental resources

**REFERENCE:** Question on Notice (Hansard, 23 October 2019, Page 4)

**QUESTION No:** PNE - 2

**Mr JOSH WILSON:** On Finland—because I've been looking at that—that process started in 1983, and now not far off, but that'll be nearly 40 years, I guess. So the question I put to you before—there were sort of two together: to the extent that we will need this geological permanent store just for intermediate-level waste, what resources in the department are applied to that task currently? Is it just an item on the list somewhere that we know we need to do but we haven't really started it? Or are there personnel? Is there a plan? Is there some sort of early timetable for that process, considering that it will probably take 20 to 30 years?

**Ms Chard:** There's been early thinking within the department in the national radioactive waste management framework that the department published a couple of years ago. We identified the need to establish what's referred to as a waste management function—a dedicated capability.

**Mr JOSH WILSON:** In the department?

**Ms Chard:** Not necessarily in the department. We've been looking at what the governance models are to establish that waste management function—which kind of organisation would be suited to take on that function. Most of our work has been around what that governance model might look like. In terms of the development of the actual research and development, our colleagues at CSIRO have started doing some initial concept research work, but it's very conceptual and in the very preliminary stages.

**Mr JOSH WILSON:** If it's funded in a way where departmental funds are being allocated to that, perhaps you could take that on notice. I'm interested in how advanced and how resourced specifically that project is for the future permanent intermediate waste.

**CHAIR:** We'll put that on notice.

**ANSWER**

A government decision on the entity responsible for the waste management technical coordination function has yet to be determined and is required before an Intermediate Level Waste disposal project timeline and budget can be determined.

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**TOPIC:** Skilling Australians to manage increasing nuclear capability

**REFERENCE:** Question on Notice (Hansard, 23 October 2019, Page 6)

**QUESTION No:** PNE - 3

**Mr BURNS:** Doesn't ANSTO report to the Department of the Environment and Energy?

**Mr Wyndham:** No, they report to the department of industry.

**Ms Chard:** They report to the Department of Industry, Innovation and Science. We can certainly talk to our colleagues at ANSTO to provide you with an answer to that question.

**Mr BURNS:** Given they report to you, does your department have a view on how long it would take to be able to adequately skill Australians to manage an increasing nuclear capability?

**Ms Chard:** I'd need to take that on notice. It is a very small market in Australia, and in fact it's a small market internationally to draw from to develop that capability. But I can take that on notice.

**ANSWER**

The Australian Nuclear Science and Technology Organisation (ANSTO) advises it would take between 10 to 15 years to develop sufficient numbers of skilled workers to operate a future power reactor / reactor fleet or to contribute to any other nuclear fuel cycle activities that might be established.

Australia already possesses significant knowledge and capabilities across the nuclear fuel cycle, with world-leading nuclear and materials engineering capabilities, significant nuclear physics capabilities, nuclear facility construction experience and a robust nuclear regulatory, safety, security, and safeguards architecture. However, an expansion into nuclear energy industry activities would require growth of the existing skills base of the Australian workforce.