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Down in the dumps

Economics of a national radioactive waste management facility (NRWMF)

Either the waste facility is orders of magnitude larger than needed for Australia's nuclear waste, or government has exaggerated the economic returns to the local community of the NRWMF facility.

Report commissioned by Conservation Council SA

Dr Cameron K. Murray

August 2018

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Level 1, Endeavour House, 1 Franklin St
Canberra, ACT 2601
Tel: (02) 61300530
Email: mail@tai.org.au
Website: www.tai.org.au
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Summary

- The site selection process for the National Radioactive Waste Management Facility (NRWMF) has marketed the facility as an economic windfall for local communities.
- Despite spending $23 million on site selection and consultation, the underlying economic information and rationale for the apparent local benefits is weak.
- The federal government now promises $31 million in local grants and infrastructure allocations for the hosting community, up from $10 million previously. However, whether these are net benefits, or simply relabelling spending that must occur to build and operate the NRWMF, or would occur through other public funding channels, is not clear.
- For example, $8 million of the $31 million is ear-marked for training local workers. Yet, if the facility is to employ local workers as part of its normal operation, this $8 million may simply be a relabelling of spending that must occur anyway.
- Indigenous skill training programs are to be $3 million of these funds over the life of the project, yet it is not clear how much of this is double counting necessary training, or is simply a net reallocation from other indigenous support programs that have had significant recent funding cuts.
- Recent economic impact analysis has been based on a NRWMF construction cost of $325 million and an operating cost of $7 million, employing 45 staff (34FTE). These figures seem exceptionally high for the type of facility proposed, which would receive 1-2 waste deliveries per year.
- In Canada a proposed nuclear waste facility one hundred times bigger, with more ancillary functions, has a planned construction cost of just AUD$222 million and an operating cost of $6 million.
- Despite using a high cost scenario, the economic impact analysis suggested a net impact of 18 full-time jobs. Adjusting this to represent a cost reflecting the small scale of the facility would result in 6 jobs.
- There are also insurance risks that are shifted to local communities who host the storage facility, decreasing any economic benefit.
- The transport of intermediate level waste from its current temporary location at Lucas Heights to another temporary location in South Australia appears to have little economic justification considering the low volumes involved.

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Background

> …even industry proponents acknowledge that the problem of disposing of spent nuclear fuel remains unsolved, the industry routinely assumes this problem will be solved in the future. Unfortunately, this is the same assumption made by nuclear energy proponents at the beginning of the nuclear industry fifty years ago.[1]

In these past fifty years, Australian governments have allocated significant effort and resources in an attempt to identify a nuclear waste site in order to fix the waste problem for the nuclear industry.[2]

The latest incarnation is the *National Radioactive Waste Management Act 2012* which was passed to provide a legal basis for the selection of a site, and establishment of, a government funded national radioactive waste management facility (NRWMF). By the end of 2015 six sites had been shortlisted, but after eliminating some options, the three remaining sites currently under consideration are in two locations in South Australia.[3]

Currently, the Australian Nuclear Science and Technology Organisation (ANSTO) facility at Lucas Heights hosts ILW at an established nuclear site, with recent upgrades to the ILW storage facilities. Low-level waste is mostly stored at Woomera, South Australia, a federal defence site that received over 120 truckloads of drummed LLW in 1994-95.[4]

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[1] Coplan, K. (2008). *The Externalities of Nuclear Power: First, Assume We Have a Can Opener...* . Ecology L. Currents, 35, 17.

[2] See for example: Scopelianos, S. (2016). *A timeline of South Australia's nuclear dump debate.* ABC News. 14 Nov 2016. http://www.abc.net.au/news/2015-09-22/a-timeline-of-south-australias-nuclear-dump-debate/6794606 and
James, M. and A. Rann. (2011). *Radioactive waste and spent nuclear fuel management in Australia.* Parliamentary Library—Science, Technology and Resources Section. https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BN/2011-2012/RadioActiveWaste

[3] Doran, M. and A. Henderson. (2015). *Six sites shortlisted for Australia's first nuclear waste dump; Government faces battle to convince locals worried over safety.* ABC News. 13 Nov 2015. http://www.abc.net.au/news/2015-11-13/government-releases-shortlist-sites-for-nuclear-waste-storage/6937244

[4] James, M. and A. Rann. (2011).

Three sites in South Australia that have now proceeded in the federal site-selection process to further consultation and assessment stages — two near Kimba, west of Whyalla, and one at Barndioota, near Hawker in the Flinders Ranges (see Figure 1).

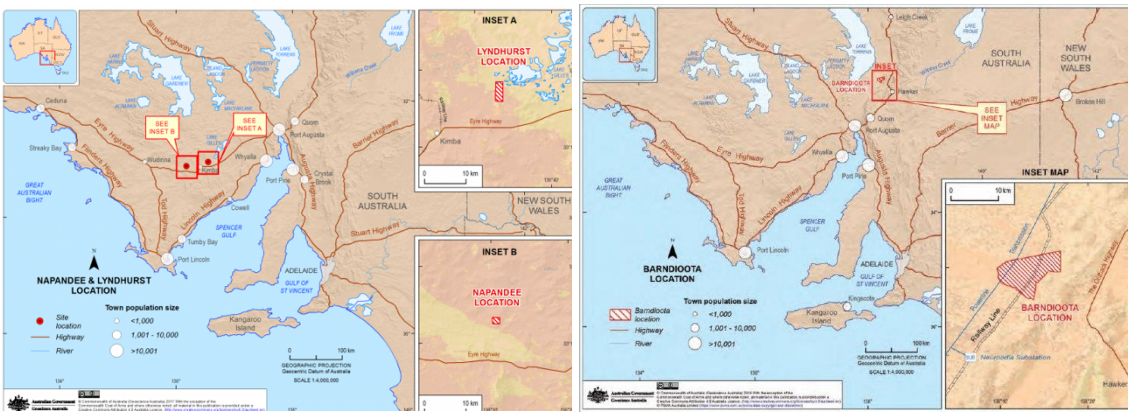

Figure 1: Site locations (Kimba left and Hawker right)

One of the main selling points of hosting the NRWMF for local communities is the potential external economic benefit.[5] However, even with $23 million having already been spent on the process of selecting a site, it is surprising how little reliable information has been made available about the scale and operation of the facility, and the nature of the community grants that are promised to the hosting community.[6]

Recently, two economic impact assessments—one for Kimba and one for Hawker—were conducted by Cadence Economics as part of the site selection process for the NRWMF.[7] These assessments sought to understand the total economic impact on local communities, coming to the result that by 2030 the total regional product may increase by about 4%. However, the input parameters to these assessments, with $325

[5] Smallacombe, A. (2016). *Nuclear waste storage proposal draws ire of SA regional community on the ground*. ABC News. 21 Sept 2016. http://www.abc.net.au/news/2016-09-21/port-pirie-community-reacts-to-nuclear-waste-dump-proposal/7865200

[6] Australian Treasury. (2014). *Budget Paper No. 2: Budget Measures*. https://www.budget.gov.au/2014-15/content/bp2/html/bp2_expense-17.htm

[7] Cadence Economics. (2018a). *Economic impact assessment of the National Radioactive Waste Management Facility, Kimba, South Australia*. July 2018. For the Department of Industry, Innovation and Science. https://prod-radioactivewaste.industry.slicedtech.com.au/sites/prod.radioactivewaste/files/NRWMF%20-%20Kimba%20EIS.PDF And
Cadence Economics. (2018b). *Economic impact assessment of the National Radioactive Waste Management Facility, Hawker, South Australia*. July 2018. For the Department of Industry, Innovation and Science. https://prod-radioactivewaste.industry.slicedtech.com.au/sites/prod.radioactivewaste/files/NRWMF%20-%20Hawker%20EIS.PDF

million construction phase and a $7 million per year operating cost of the waste storage facility, seem overstated.

Indeed, the promised $10 million in community grants to the selected hosting community was recently revised to $31 million. The ease at which the promised economic situation changes so dramatically is a reason to scrutinise the economics more closely.

What is also often missed in the discussion of local economic benefits is that additional local benefits from government grants or spending on facilities are a cost to the Australian community at large. The higher the local benefits, the higher the broader economic costs.

The following sections of this report provide a brief economic reality check on the claims being made about the local impacts of hosting the proposed nuclear waste storage facility in terms of a) the community grants, b) the regional expenditure in construction and operation, c) the jobs provided at such a facility, and d) some of the economic risks that have yet to be discussed.

Are the benefits oversold?

In economics the best way to make your project look significant is to publicise gross economic gains rather than net gains. This may be occurring in the case of the promised community grants, training expenditure and Indigenous benefits, although with the lack of detailed information it is not clear.

COMMUNITY GRANTS

A promised $31 million is to be spent in the region that hosts a radioactive waste storage facility, comprising $20 million for regional and community infrastructure grants and $11 million for training and indigenous skills programs. This promised regional spending was recently increased from $10 million.

A separate disruption payment scheme has seen $6 million already been awarded across the two locations.[8] The main question regarding these grants concerns whether they are funding investments that would otherwise occur through standard public funding channels. Are they net gains?

To understand the degree to which this may be the case, Table 1 shows a sample of the $2 million of grants already made around Kimba. Over $435,000 of grants were made to the council, or around 22%. Many activities such shown, such as upgrading toilet blocks, seem like they should be routinely undertaken rather than relying on ad hoc grants associated with a potential radioactive waste storage facility. In Hawker, $530,000, or 25% of the current grants, were awarded to the council.

Additionally, it is worth noting that the remaining community funds are promised over the lifetime of the project— a time period that is unclear but could be more than a century.

[8] NRWMF. (2018). *Media Release - $4 million awarded for community projects in South Australia.* 11 April 2018. http://www.radioactivewaste.gov.au/news/media-release-4-million-awarded-community-projects-south-australia

Table 1: Sample of awarded community grants

Project Title	Organisation	Project Summary	Funding
New amenities block at the Kimba Recreation Reserve	District Council Of Kimba	Construction of new amenities block for camping site users at the Kimba Recreation Reserve.	$174,739
New and upgraded Historical Society facilities	Kimba & Gawler Ranges Historical Society Inc	Construction of new ablution block (with disabled access) and upgraded power source to workshop facilities, to improve health, safety and amenity for staff, community members and tourists.	$68,960
Palliative Care Wing at the Kimba Hospital	Kimba District Hospital Ladies Auxiliary	Major upgrade of the Kimba Hospital to add a palliative care wing, offering dedicated private facilities for palliative care patients as well as acute patients where capacity permits.	$230,000
Significant upgrade of the Kimba Soldiers Memorial Institute	District Council Of Kimba	Significant renovation of the Kimba Soldiers Memorial Institute, the central venue for community events.	$208,981

TRAINING

Out of the $31 million in community grants and infrastructure allocations, $8 million has been promised for training locals to run the NRWMF. It is not clear whether this training is an additional benefit or merely a relabelling of the spending that would have to occur to construct and run the facility, employing locals as promised.

INDIGENOUS

The new promised community benefit package also mentions "up to $3 million for indigenous skills training and cultural heritage protection."[9] The words "up to" could be doing a lot of work.

Regardless, the inconsistency of this announcement is revealing when this spending is compared to the size of some of the recent cuts to indigenous support programs by both the federal and South Australian governments. Some are briefly summarised in Table 2. The "up to $3 million" over three years is roughly the same amount of money cut from the Aboriginal Drug and Alcohol Council in Port Augusta earlier this year.

Table 2: Sample of recent reductions to indigenous support programs

Date	Government	Program	Amount cut
June 2018	Federal	Aboriginal Drug and Alcohol Council[10]	$700,000 pa
May 2017	Federal	Redirected funds from Indigenous Business Australia to the Department of the Prime Minister	$147m over four years
May 2014	Federal	Reallocations and cuts from indigenous programs[11]	$534m over four years

[9] Canavan, M. (2018). *$30 million+ community development package for successful National Radioactive Waste Management Facility location*. Media Release. 23 July 2018. http://www.mattcanavan.com.au/_30_million_community_development_package_for_successful_national_radioactive_waste_management_facility_location

[10] Jean, P. (2018). *Aboriginal Drug and Alcohol Council facing closure after federal funding cut.* The Advertiser. 3 June 2018. https://www.adelaidenow.com.au/news/south-australia/aboriginal-drug-and-alcohol-council-facing-closure-after-federal-funding-cut/news-story/5e336d4394411e2ecfb002356f5718a2?nk=e1d6ec2318a3bc4371a25de66621453b-1532647211

[11] Coggan, M. (2014). *Budget 2014: $534 million cut to Indigenous programs*. ABC News. 16 May 2014. http://www.abc.net.au/news/2014-05-13/budget-2014:-$534-cut-to-indigenous-programs-and-health/5451144

Facility size and impact

There is uncertainty about the physical specifications of the proposed NRWMF. This means there is little information to assess whether the proposed construction and operating costs are reasonable. Yet the local spending that would occur during construction and operation is one of the primary economic benefits to local communities.

An earlier announcement had the construction cost at $100 million,[12] with a workforce of 15 people. A year later both the construction cost and workforce have tripled— to $325 million and 45 people—without any change in the basic scope of the project. For a project being promoted on its economic merits and potential benefits to local communities, the true scale of the project really matters.

The scope of the project in terms of its functions is fairly clear— to dispose Australia's current legacy, and expected future LLW and the indefinite storage of ILW, possibly for the next century. With around total of 6,746 cubic metres of legacy, and less than fifty cubic metres of new waste per year, that equates to a total storage capacity of about 13,500 cubic metres, with the breakdown of LLW and ILW shown in Table 3.

Table 3: Summary of expected NRWMF radioactive waste volumes (cubic metres)[13]

	Low level waste		Intermediate level waste	
	Legacy	Future	Legacy	Future
ANSTO	2,771	4,685	1,211	1,849
ARPANSA	6	36	1	43
CSIRO	1,967	40	419	62
Defence	224	83	60	9
States/Territories	8	—	66	—
Industry/hospitals	—	—	13	—
Total	**4,975**	**4,843**	**1,771**	**1,963**

[12] Frydenberg,J. (2016). *National facility offers great local opportunity.* http://www.joshfrydenberg.com.au/GUEST/opinionDetails.aspx?id=205

[13] DIIS. (2018). *Australian Radioactive Waste Management Framework*. Department of Industry, Innovation and Science. (p4) https://prod-radioactivewaste.industry.slicedtech.com.au/sites/prod.radioactivewaste/files/Australian%20Radioactive%20Waste%20Management%20Framework.pdf

In terms of operations, information provided in the site selection process suggests the following activity would take place:

> - Low-level waste: 1-2 movements per year (40m^3)
> - Intermediate-level waste: (5m^3)
> - Reprocessed: 2 to 3 Canister over life of OPAL Reactor - Other: 1 to 2 movements per year.[14]

A concept design has been provided based on a trimmed down model of the El Cabril facility in Spain (Figure 2), though with a capacity for Australia's expected 13,500 cubic metres of waste over a century, rather than the 100,000 cubic metres of waste capacity at El Cabril. This proposed NRWMF is one seventh the capacity of El Cabril, and will undertake fewer packing activities, handle no liquid waste, and accept about fifty to one hundred times less waste annually during its operation.[15]

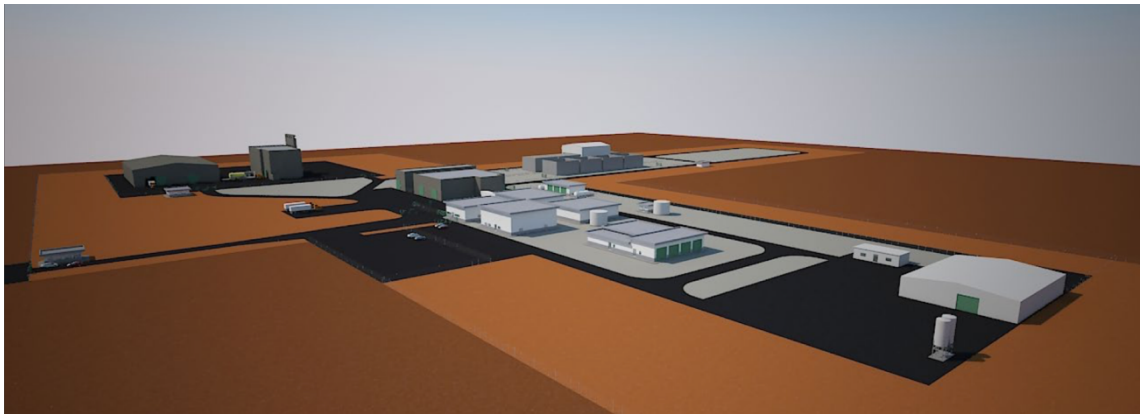

Figure 2: National radioactive waste storage facility concept design[16]

To give an indication of the scale of ILW storage requirement of the NWRMF, Figure 3 shows the basic design of the ILW storage facility proposed in a 2001 government report, *The National Store Project: Methods for choosing the right site*.[17] The report explains the scale of the project as:

[14] DIIS. (2016). *National Radioactive Waste Management Project. Barndioota Information Pack.* February 2016. Department of Industry, Innovation, and Science. http://www.radioactivewaste.gov.au/sites/prod.radioactivewaste/files/files/Barndioota%20Info%20Pack%20Feb%202016.pdf

[15] ENRESA. (2018*). History of El Cabril*. Empresa Nacional de Residuos Radiactivos S.A. http://www.enresa.es/eng/index/activities-and-projects/el-cabril#the-history-of-el-cabril

[16] Ibid.

[17] ISR. (2001). *Safe storage of radioactive waste. The National Store Project: Methods for choosing the right site.* Australian Government Department of Industry, Science and Resources. https://archive.industry.gov.au/resource/Documents/radioactive_waste/national_store_discussion_paper_2001.pdf

> The national store and support facilities will fit on land the size of an average suburban block. (p13)

This matches more closely the expected volume of intermediate waste in Australia.

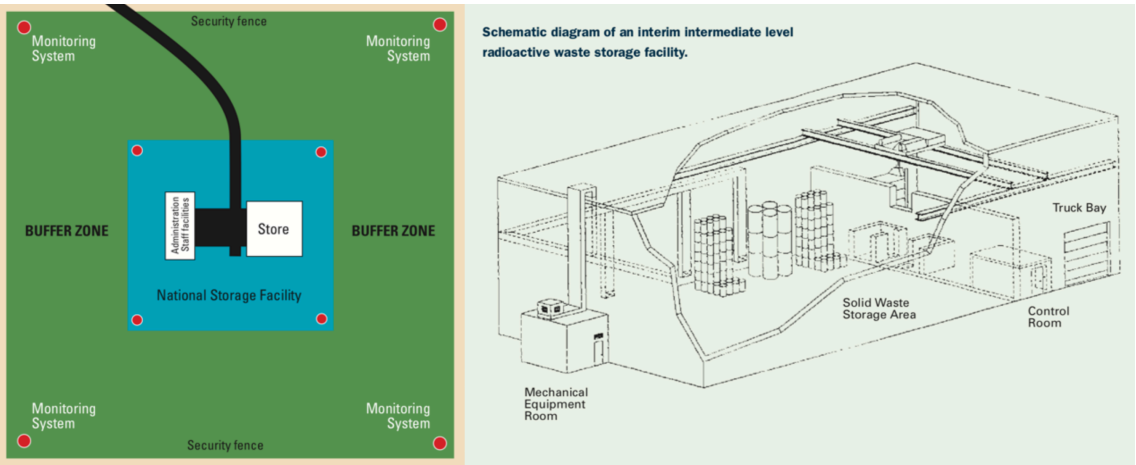

Figure 3: Design of 2001 proposed facility[18]

The reality is that a facility that meets Australia's storage needs for radioactive waste would be far smaller than the foreign facilities to which the current proposal is being compared. Given this, the economic benefits from construction and operation appear oversold.

CONSTRUCTION AND OPERATING COSTS

Recent economic analysis has been conducted based on an assumed $325 million of construction work taking place from 2021 to 2024. This activity is expected to be one of the major local economic benefits, in addition to the $7 million per year on ongoing operating costs which will mostly cover workforce salaries.

However, the proposed NRWMF would be taking less than 10,000 cubic metres of waste over the next century (5,000 cubic metres of legacy waste plus 50 cubic metres of new waste each year). Canada is planning a radioactive waste storage facility at Chalk River, Ontario, that is orders of magnitude bigger, taking up to 1 million cubic metres of LLW and ILW in an underground mound (500,000 cubic metres in first 20 years), and including a "waste water treatment plant and several support facilities such as an office, change room, weigh scales and a truck wash facility."

The proposed Canadian facility is more than one hundred times larger, more complex with its underground storage and ancillary facilities, yet its planned construction cost is

[18] Ibid.

just CAD$215 million (AUD$222 million), with a CAD$5.5 million operating cost (AUD$5.7 million). It is quite similar in scope and scale to the Aube facility in France which also has a one million cubic metre storage capacity.[19] The economic puzzle here is how a facility one hundred times smaller, with fewer ancillary functions, costs 50% more to construct and operate?

Either these costs are orders of magnitude too high, or the proposed radioactive waste storage facility is orders of magnitude larger than required to handle Australia current and foreseeable future radioactive waste over the next century.

A better comparison of the scale of the LLW part of the NRWMF could be the Intractable Waste Disposal Facility (IWDF), at Mt Walton East that was established in 1992 as a repository for LLW in Western Australia. Evidence suggests that this remote facility cost around $1 million to establish and has received less than one delivery of waste per year, and none since 2008.[20]

A comparison of the scale of the ILW part of the NRWMF could be the 2010 ANSTO storage upgrade, which cost $30 million to improve interim storage facilities to accommodate ILW returning from reprocessing in France.[21] The Lucas Heights storage facility is 800 square metres in area.[22]

To get a handle on the scale of the proposed NRWMF compared to alternatives, Table 4 provides a comparison of the proposed Chalk River facility in Canada (which is similar in size and scope to the CSA Aube facility in France[23]), the El Cabril facility in Spain

[19] CNL. (2018). *Near Surface Disposal Facility.* Canadian Nuclear Laboratories. http://www.cnl.ca/en/home/environmental-stewardship/nsdf/default.aspx And
CNL. (2016). *Environmental Assessment (and/or Environmental Effects Review). Project Description: Near Surface Disposal Facility at Chalk River Laboratories.* Canadian Nuclear Laboratories. https://www.ceaa-acee.gc.ca/050/documents/p80122/114475E.pdf

[20] EPA. (2000). *Intractable Waste Disposal Facility, Mt Walton East, Change to Environmental Conditions*. Bulletin 1005 December 2000. http://www.epa.wa.gov.au/sites/default/files/EPA_Report/967_B1005.pdf and
Cordnell. (2018). *Project: Mt Walton East intractable waste disposal facility.* http://www.cordellconnect.com.au/public/project/ProjectDetails.aspx?uid=924810

[21] ANSTO. (2018). *Frequently asked questions about managing the return of waste*. http://www.ansto.gov.au/NuclearFacts/Managingwaste/Returnofwaste/Frequentlyaskedquestions/index.htm

[22] Ibid.

[23] Centre de Stockage de l'Aube (CSA) in France holds 291,975 cubic metres of waste and took 11,496 cubic metres in 2016, employing 180 people.
ANDRA. (2017). *ANDRA and its disposal facilities; General presentation.* February 2017. http://www.radioactivewaste.gov.au/sites/prod.radioactivewaste/files/files/ANDRAsGeneralPresentation.pdf

upon which concept designs have been based, the Lucas Height ILW storage upgrade, and the Mt Walton IWDF.

Table 4: Comparison of the scale of radioactive waste facilities

	Chalk River Ontario, Canada	El Cabril, Cordoba, Spain	Lucas Heights upgrade	IWDF, Mt Walton, WA	Proposed NRWMF
Capacity (m^3)	1 million	100,000	—	—	10,000
Type	LLW and ILW	LLW and ILW	ILW	LLW	LLW and ILW
Details	Underground mound with waste water treatment plants and truck wash.	Above ground engineered storage.	Sorting, storage, monitoring, reporting.	Clay pits.	A scaled down version of El Cabril.
Construction cost	$222 million	—	$30 million	$965,000+	$325 million
Operation	More than 2,000m^3 per year delivered from local nuclear facilities	Up to 5,000m^3 delivered per year, including liquid waste handling[24]	—	<1 disposal per year. [25]	1-4 deliveries per year of 45m^3 of already packed solid, dry waste only.
Operating cost	$6 million	$22 million	—	—	$7 million
Employees	<180 (based on Aube facility of similar size)	137	40	—	45

The question here is whether the figures being promoted on the construction cost, operating cost and facility workforce make sense in this context. For example, the proposed facility would handle just a one-seventieth of the amount of waste as El

[24] ENRESA. (2018*).*

[25] EPA. (2000). *Intractable Waste Disposal Facility, Mt Walton East, Change to Environmental Conditions.* Bulletin 1005 December 2000. http://www.epa.wa.gov.au/sites/default/files/EPA_Report/967_B1005.pdf

Cabril each year, with fewer functions and operation, no liquid waste handling, and with a workforce a full third the size.

In terms of construction cost, the facility in Chalk River is one hundred times larger, involving underground storage, and yet is estimated to cost 30% less to construct. Either the proposed facility is much bigger than promised, or the scale of the construction and ongoing costs are off.

ONGOING JOBS

The current proposal is for an ongoing workforce of 45 people, or 34 full-time equivalent jobs.[26] Yet it is likely that deliveries will be just once or twice a year after legacy waste is transported. For example, initial technical assessments proposed only

> …campaign (bulk) deliveries thereafter to minimise transport costs and risk.[27]

Is it not clear how such a facility could support such a workforce. For comparison, the Centre de Stockage de l'Aube (CSA) waste facility in France is seventy-five times larger in total waste capacity, handling over two hundred times more waste per year in a storage facility designed for a 300-year lifetime.[28] It employs 180 for this task, which is only four times as many as the proposed NRWMF.[29]

[26] NRWMF. (2018). *Jobs at the National Radioactive Waste Management Facility*. https://radioactivewaste.gov.au/sites/prod.radioactivewaste/files/files/NRWMF%20Jobs%20Fact%20Sheet.PDF

[27] Jacobs. (2014). *Long term Management of Australia's Radioactive Waste: Initial Business Case (REVISED)*. For the Department of Industry. http://www.radioactivewaste.gov.au/sites/prod.radioactivewaste/files/files/IBC%20revised%20FINAL_0.pdf

[28] https://www.andra.fr/download/andra-international-en/document/editions/337gva.pdf

[29] DIIS. (2016).

Adjusted economic assessment

Economic impact assessments of the long-term effects in the Kimba and Hawker regions were recently undertaken. These assessments were conducted based on a $325 million upfront construction investment and $7 million in ongoing costs, along with 45 direct jobs.[30] As shown previously, these assumptions are likely to be overstated.

Even so, the surprising finding is how little the apparent economic windfall is likely to be. Out of the 45 direct jobs, or 34 full time equivalent (FTE), the net effect, after workers are drawn away from other regional industries, is less than half of that.

That such small effects are found from such generous assumptions means that a facility with lower upfront and ongoing costs will have a proportionally smaller effect. Going on the original construction costs and jobs figures, this impact is around a third as large, with this adjustment to the economic impact assessments shown in Table 5.

Table 5: Sensitivity of economic impact assessment

	Ambitious case		Realistic case	
	Change in GRP 2030 (%)	Employment in 2030 (%)	Change in GRP 2030	Employment in 2030
Kimba	$8.4m (4.9%)	17 FTE (2.5%)	$2.8m (1.6%)	6 FTE (0.8%)
Hawker	$8.3m (8.2%)	18 FTE (3.3%)	$2.8m (2.7%)	6 FTE (1.1%)

Realistic case is the originally announced construction costs of $100 million, and operational costs of one-third of the current figure of $7 million.

[30] Cadence Economics. (2018a, 2018b).

Shifting risks

A new site for a radioactive waste storage facility shifts risks geographically to the local hosting community. Not only that, but shifting radioactive waste is costly, and moving ILW from ANSTO's established facility at Lucas Heights to an interim facility in South Australia is an unjustified duplication.

MOVING WASTE

The economic advantage of moving small quantities of ILW from a recently upgraded facility at Lucas Heights to a new interim facility in South Australia is clear.

Budget documents suggest that the repatriation of Australia's reprocessed ILW from the UK to Lucas Heights in 2019-20 will cost $26.8 million, of which $20 million was a capital cost.[31] The repatriation of waste from France had a budget of $30 million, of which $25 million was a capital cost.[32] These two ILW transport operations had a combined transport cost of over $10 million. Additional costly transport of ILW from one temporary facility to another, along with the construction of a new facility after recent expansions of the temporary storage capacity at Lucas Heights, seem to undermine the economic case for the NRWMF.

INSURANCE

Insuring local communities from accidents or natural disasters at a radioactive waste storage facility will likely fall on the state or federal government, as private insurance policies generally exclude events or damage related to the handling and storage of radioactive materials.

For example, Elders Farm Insurance policies do not cover incidents in connection to:

[31] Australian Government. (2015). *Budget 2015 Part 3: Capital Measures.* https://www.budget.gov.au/2015-16/content/bp2/html/bp2_capital-06.htm and ANSTO. (2015). *Australia's nuclear agency welcomes 2015/16 budget.* Media Release. 13 May 2015. https://www.ansto.gov.au/news/australias-nuclear-agency-welcomes-201516-budget

[32] Australian Government. (2010). *Budget 2010-11 Part 2: Expense Measures.* https://www.budget.gov.au/2010-11/content/bp2/html/bp2_expense-17.htm

> the mining, use, storage, handling or transportation of radioactive materials;[33]

While CGU Farm Insurance does not cover any losses as a consequence of:

> ionising, radiations, contamination, radioactivity from any nuclear waste, or from the combustion of nuclear fuel, or from any self sustaining process of nuclear fission.[34]

New risks exist to communities hosting radioactive waste facilities and these need to be at least accounted for in an objective assessment of local economic impacts.

[33] Elders. (2018). *Farm Insurance Policy – Product disclosure statement*. https://www.eldersinsurance.com.au/uploads/PDS/QM3234-0516%20Elders%20Farm%20Pack_web_0516.pdf

[34] CGU. (2018). *Farm Insurance – Product Disclosure Statement and Policy Booklet*. https://www.cgu.com.au/sites/default/files/media/cv670c1328_mr.pdf

Conclusions

While the environmental importance of safe radioactive waste storage is high, the economic case for nuclear waste facilities has never been positive. In general, any economic benefit to local communities from the proposed NRWMF — be it in the form of government grants or construction or operating expenditure — are a cost to the rest of the Australian community.

Even so, the local benefits appear to have been oversold in the NRWMF consultation process. Promised community grants to local communities were recently increased from $10 million to $31 million, a decision that itself indicates a lack of confidence that the facility construction and operation will provide large external benefits. Further, the net benefit from these grants is unclear, given that some appear to be for projects that would happen through alternative public funding arrangements.

The ambiguity about the physical size of the NRWMF and questionable assumptions about workforce requirements mean that local economic benefits from construction and operation appear on the high side when compared with other established or proposed facilities. Adjusting existing economic impact assessment to account for this would reduce the estimated effect on regional production down by one-third, to $2.4 million, and the number of net full-time jobs down from 17 to 6.

Finally, storing ILW indefinitely at a new facility rather than its current site at ANSTO creates cost and risks during transport, and shifts uninsurable risks to other communities.