Darwin – The Australian Institute

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Speakers: Roderick Campbell

Roderick Campbell: My name's Rod Campbell. I'm the research director at the Australia Institute, a research organisation in Canberra, and I'm here representing the institute.

Hon. Justice Rachel Pepper: Thank you. We're ready when you are; thank you.

Roderick Campbell: So, at the Australia Institute, a lot of us are economists, and I'm an economist. And so, I'm here, mainly, to talk about the economy of the Northern Territory, and the role that an unconventional gas industry could or is likely to play and not play in the economy of the Northern Territory. And one thing that I'm very concerned about, and I think I've mentioned this in submissions and some correspondence, is the way in which the Northern Territory's economy is described and considered, both in the media and in public discussion, but also in parts of the interim report, and ACIL Allowance consultation brief.

And so, I think it's worth having a little bit of a look at the Northern Territory economy in detail. Because, an economy is a difficult thing to describe, or define, or understand. And so, I think it's worth having a look at the Northern Territory economy, and the way it is, and the way this discussion of it is sort of setting the frame; be it politically or commercially, for a lot of this discussion around an unconventional gas industry. The Northern Territory economy, like most modern economies in developed countries, is largely based on services. And, in particular, the key defining feature of the Northern Territory economy is its enormous public service, and the size of the public sector.

So, here goes. There we are. Oh, so you all look up there, do you? Okay. So, hold on. I've should have made those fonts a little bit bigger. So, this is employment in the Northern Territory. And don't worry too much about the actual numbers. There's a workforce of about 100,000 in the Northern Territory, and if you can make it out, there's about 20,000 people work in public administration and safety; a full fifth of the workforce here. Other big service industries and big employing industries; healthcare and social services, education and training, construction is there before retail and accommodation. A lot of that reflects tourism. Tourism doesn't usually get broken out by economists, because tourism is lots of different things; it's accommodation, it's transport, it's retail, it's food. So, that's why you don't see it up there.

But, so like most other modern economies, the Northern Territory's based on services, but in particular, on this huge public service. And, just to compare to Australia; that's the key difference you can see there. Still, at the top, they're still in the same order. Is the key difference is that the Northern Territory has this public service of a fifth of its workforce, whereas, in the rest of Australia, that'd be more like, certainly, under 10%.

Other than that, you can see that, with a few exceptions here and there, the NT's economy doesn't look radically different to the overall Australian economy. And so, in both the NT and Australia, mining ... And, for the next few minutes, when I saw "mining", I'm including oil and gas in there. Mining is a very small employer in the NT and in Australia overall. In Australia, it's about 2% of employment. In the NT, it is bigger than that; approaching 5%. And I'm sure you're all as anxious to get the next round of census figures as I am, which come out next month, and we can find out exactly.

But, the key point being, employment in mining and extractive industries in the Northern Territory is very, very small. And most of the arguments around the potential for large increases in employment and numbers of jobs, certainly at the territory wide level; this is really not a factor that an expanded gas industry in the territory is really likely to bring. And we can see this ... What did I ... We can see this over time as well. Here, we've got the ABS labour force statistics for the last 30 years. And you can see employment in that territory has doubled in that time; from about 60,000 to over 120, 130,000. And mining's been a couple of thousand all that time. It's had a bit of an increase there towards the end, but so has employment overall.

So, what really concerns me, coming back to my opening point, is to read statements like this is ACIL's consultation note. But, it's far from unusual. And I'll just read it out; "Job's growth in the Northern Territory is heavily influenced by major resource projects, with employment growth at its strongest during the constructions of key projects in the Territory, with falling levels of employment coming as the construction phase is completed." So, this idea that jobs growth in the Territory is heavily influenced by major resource projects; well, it doesn't look like that at that macro level, and even if we change the axis for mineral sector, and including gas and oil here ... So, we're changing the axis here so that mining employment is plotted on the right, and that redline at the top is still total employment, still going from 60,000 up to a bit over 120,000.

And you can see that, certainly, from the 80's until about 2006, employment in the Territory nearly doubled, and employment in the mineral sector actually declined throughout that time; including through the period of the construction of the Darwin LNG terminals, which went from June 2003 to January 2006. And I've got that roughly marked with that first arrow there. You can see that, through that time, in fact, overall employment in the NT was stagnant, and only really began to grow again later. Another commonly cited example is the INPEX Project, which began construction in late 2012. You can see that employment in the NT had been growing strongly for several years before that, and there's really no obvious correlation or causation there at all.

And so, I'm very worried that a lot of the debate around this whole policy issue is framed in the terms of economic benefits in general, and at times, jobs in particular. And that's really not borne out by data. And economics is, you know, not really a science; it's a very subjective discipline. And I'm worried that, when we go into economic assessment with preconceived ideas about what drives jobs growth, or other economic factors in an economy and in the NT; I'm worried about how that influences how assessment like ACIL's might be carried out. But, we'll be talking a lot more about ACIL very shortly.

Let's move onto other aspects, because, as I said, an economy is not a simple thing, and not an easy thing to just define by one measure. I guess I like talking about employment as a first thing to talk about, because I think it's something that really affects most peoples' lives more than a lot of other issues. But, another good one to talk about is government revenue. And here, we've got stacked bar charts of the last three years ... Or, in fact, this financial year, next financial year, and last financial year in the NT budget. And you can see that the NT government has revenue of around six and a half billion dollars each year, around four and a half billion of it comes from the Commonwealth, and, in purple, at the top, you can see is little under two billion ... I can't quite read the numbers myself ... Of own source revenue, payroll tax, licenses, fines; things like that. Government services.

And, in green there is all royalty revenue from all mining and extractive industries there. It's usually around $170 million a year, so that's about between 2 and 3% of the NT budget revenue. For aficionados of budget papers, and so on, you'll notice that the only thing missing from the green section is uranium royalties, which are collected by the Commonwealth, and they're about two or three million dollars a year. So, there is a line there; you just can't see it.

But, the point being that the goods and services provided by governments in the NT are overwhelmingly paid for by the Commonwealth, and the rest of the NT economy, and only to a very, very small degree by mineral royalties. And so, when I've seen statements in the press, mainly, and by quite prominent people saying, "We need to expand our gas industry to fund the NT budget," even a huge expansion of the NT gas industry would only bring a very small change to the NT budget. There really just isn't the potential for any kind of gas industry in the NT to change this fundamental balance of how the NT government funds itself.

Not only is the potential for that not there ... We'll talk a little bit more relating to the nature of the gas industry itself. But, this is the nature of our Commonwealth. All states and territories look, to some degree, like this.

This is not unusual at all. New South Wales gets 2% of its revenue from coal royalties. WA peaked at about 12% during the mining boom, and is now back at about 13%. And so, this is not unusual. The Commonwealth collects almost all of the tax revenue in Australia. That's how our system is. And, in fact, there's a clue in the name there; it's a common wealth. Our tax system is all about a common level of services, a common level of government funding depending on need, and depending on revenue raising ability.

It's not about states and territories wanting to gain ... And, again, I'm quoting from media reports ... "Gain independence from Canberra." It can't happen, and it's not meant to happen. Even WA is finding this out, and I think there's a legitimate debate to be had around how our tax system works, and horizontal fiscal equalisation, and the GST system. I think that debate is right to have, and we'll have it every year, and every coag. And the NT treasury's core business should be going in there and fighting for the best interest of their constituents, in terms of distributions from the commonwealth. And the NT government's other core business should be delivering services in the most efficient way. And I'm sure anyone who's spent much time in the Territory has amazing stories of how ... Let's try and put it positively; how things could be run more efficiently here. That should be core business for the government of the Northern Territory, rather than hoping to work some kind of economic miracle via policy change around mineral exploration and extraction.

So, I think employment is really important to look at in the NT economy. I think government revenue is really important to talk about ... Sorry. Here's one of the examples that's concerning me, from ACIL's report. Similarly, just in the framing of this ... And this is just a snapshot from their introductory section, saying the Northern Territory's budget projects five consecutive net operating deficits, with net debt rising from 2.4 to 5 billion. The Northern Territory raises 1.9 billion in revenue from its own sources and recorded spending of 6.5 billion. The government relies on Commonwealth grants to fund a large proportion of its operations.

And the next section is fracking. And I did raise this with ACIL, and maybe it's an accident, maybe it's not, but maybe it's subconscious; there is this enormous preconception in my observations of the Territory ... And I spend a little bit of time up here; I've got family here. That the gas industry could come to our rescue. We've got this deficit, and projected for more deficits. We're meant to have deficits ... That's not quite right. The Commonwealth is meant to fund most of the Northern Territory budget. And that's okay. It's okay that the NT has an enormous public sector. Because I would argue ... Maybe this is something for discussion later; that the role of the NT economy is to deliver goods and services to Territorians over a huge area, in areas that are very expensive and difficult to get to. The role of the NT economy is to defend our northern coastline, to provide health and education services to people who live here; and that's expensive, and almost certainly going to be done by the public sector for the foreseeable future. And that's sort of how our system currently is.

So, another way of looking at the economy, having talked a little bit about employment and government revenue, is a lot of economists' favourite; gross domestic product, or gross state product. And here is where you can see the mining sector is a large contributor, or does account ... I don't like the word "contribute" so much there, which implies giving something for nothing. Mining does account for a little bit under 15% of gross ... I'll say state rather than mumbling through gross Territory product. It is a big section of that. And, if you look down to the next bar down, the public sector accounts for a smaller amount of gross state product. If this is the way you're choosing to measure an economy ...

Now, there's a whole debate around whether or not gross state product, gross domestic product, is a good way of measuring anything; of measuring the welfare of people. And I'm happy to go into that; there's some amusing examples. But, I think it's particularly problematic in the case of the Northern Territory. And, looking at the mining sector and the public sector, because gross state product is, as the name suggests, the value of what's produced there. It's not the income that is derived from that production. And so, a project like, for example, INPEX has been largely built with international capital, by largely Japanese companies. And so, currently, INPEX is producing lot of gas, and putting it on a boat, and that's a good thing, and it's contributing to GSP. But, a lot of that money is actually going back to Japan; how profitable or not that is, is a bit of a different question, but it's certainly going into a return to capital, and a return to any lenders there.

So, I would argue that, in terms of the importance to Territorians, and indeed to Australians; by measuring the importance of an industry in gross state product terms, as opposed to employment, or government revenue, or even, instead of gross product, net income terms; you're almost certainly overstating, or this is the top end of how you can describe a mining industry, or any industry that's funded by a lot of foreign capital. At the opposite end of the extreme is the public sector, because the activities of the public sector almost, by definition, don't reflect the full economic value of what they're doing. The midwife visiting an outstation; whatever her contribution to GSP is, I would argue from a welfare economics perspective, or just from a general social perspective; her contribution, as it's measured in terms of GSP, in no way reflects her contribution to the pregnant mother and child that she is servicing.

The same thing can be said about service men and women defending our northern coastline, and contributing to defence and peacekeeping operations in our near neighbours. Their contribution, as it'll be measured in their wages, and other technical aspects of accounting for GSP, doesn't reflect the fact that we are a secure and defended country. And so, GSP is almost the worst possible way to measure the public sector and its economic importance. And it's, I would argue, the most optimistic measure of the mining oil and gas industry. And so, this is the measure that I would argue should be given the least importance in considering the economics of a potential fracking industry in the Territory. And this is why I'm so concerned that it seems to get the most importance in public discussion, and in my discussions with ACIL so far.

And so, just as an example, from the interim report ... I haven't got the page number on there, but this is very early in the economics section; I think it's the second paragraph of the economics section. It leaps straight to gross state product. It's grown from 15 billion to 22 billion, however, economic growth is forecast to moderate as the Territory transitions from investment led growth to predominately export-driven growth. All of these factors; I think I could mount a fairly strong argument that they're not true even at face value. But, when you're talking about investment-driven growth, really they're talking about, particularly, INPEX, and the large amount of money that's gone in there, and exports of LNG. If that's the sort of growth you're talking about, that's the sort of growth that I think has the least potential to help the people of the Northern Territory.

So, I've said to ACIL, and I've said to anyone who will listen all the way up the Stuart Highway; just looking at growth numbers is not really very useful in terms of understanding the welfare impacts for Territorians. But, we might come back to that when we talk about ACIL modelling later. Because I just wanted to take another ... This might be the first paragraph of the interim report's economic section; and I realise it's a very preliminary section. But, it says, "The structure of the Territory's economy substantially deviates from that of the national economy," it certainly does, "reflecting its abundant natural resources, large public sector, defence presence, and small private sector that is significantly influenced by major projects."

I don't have many problems with that, except leading with the abundant natural resources framing. And the suggestion that the Territory has a big and important natural resource sector really isn't supported by data. It was this sentence that actually make me do this calculation, which I found really interesting; maybe I'm the only person in the country. Certainly, it didn't get many retweets. But, I worked out mining value added; so, the value of mining production less the costs of mining it, basically, payments to other industries. This is basically the measure of GSP, or it's one way of measuring GSP. Mining value added by area in Australia. And I must confess, as somebody who's driven through the Latrobe Valley my entire life, I was a little bit proud of Victoria has the greatest mining value added by area in the country; probably because we're quite a small state with quite a big mining industry.

In fact, the NT brings up the rear. The NT has the lowest value added per square kilometer in the country. And so, this idea that the NT has abundant natural resources that we really just need to get on with exploiting; it's not supported by data. Now, what's sort of going on here; I mean, in some sense, it's a bit of a dinky comparison. But, I think it reflects a couple of things that are worth talking about. Perhaps what we're seeing here, of the Northern Territory having such a low value of mining per area; perhaps that's a reflection of geology. Perhaps that's just what's in the ground, and no one can do very much about that. But, it's also probably a reflection of costs and distance to markets. If the coal deposits of the Latrobe Valley were in the middle of the Tanami Desert, they would almost certainly be unexploited. That's why the Galilee Basin in Queensland, that there's a lot of excitement about at the moment; it has a huge amount of coal, but it's a long way from markets.

And, in fact, there's great quotes. I should have got them out. There's a great Adam Smith quote, the founder of economics, and the author of Wealth of Nations, where he talks about, "The value of a coalmine is really only as good as how far away it is from its market." And so, we might be seeing something here about the geology of the Northern Territory, but I'm not an expert in geology. But, I think what we're certainly seeing is that exploiting natural resources in the NT is an expensive and really economically efficient or profitable exercise. There's not that many mines in the NT; I think there's only 12 or 13 operating mines in the Territory. The entire Territory iron ore industry is currently in care and maintenance, or suspended operations.

So, mining in the Territory is a precarious business. And that's really what we're seeing here. Well, though it might be too cute and Victorian centric little statistic there, I think it makes this point quite strongly; that for anything to be economically viable in the NT, it's got to be really pretty special. And I would argue that the gas industry is unlikely, or an unconventional gas industry in unlikely to be particularly special. We've done enough graphs for the moment.

I think you've had a couple of talks that have talked a little bit about likely costs of extraction from NT unconventional gas resources. I'm using those words a little bit carefully. I think gas is unlikely to be any different here. I think, based on numbers reported from analysts like Wood Mackenzie, city bank analysts, the main ones I've read about; they're suggesting that the extraction of gas in the NT will come in in around $7.50 a gigajoule, or I've seen another estimate of $5 to $8 a gigajoule. So, that's to get it to the well head. That's to get it out of the ground. That's comparing to projects like ... I'll put some of this together in writing with proper references, which I didn't get time to do in the last day or two. But, you're comparing that to places like Bass Strait, which are doing it for memory about $2 a gigajoule.

I've heard ... Again, I'd have to look this up. But, countries like Qatar can get a gigajoule of gas out of the ground for, I think it's under a dollar a gigajoule.

Hon. Justice Rachel Pepper: 20 cents. 20 cents, we've heard.

Roderick Campbell: Oh, is it that low? And most of the east coast's coal seam gas reserves are between sort of $3 and $6 a gigajoule. So, obviously, all these numbers are very preliminary, and I know that's a key bugbear of gas companies, that they haven't been able to do enough drilling, and enough testing. But, what analysts are initially saying is that this is going to be expensive gas. And that's also what we're seeing in the data for the entire mining sector of the

NT; that getting it to market and getting it to market profitably is very, very difficult.

And I think it's worth bringing up, just while we're thinking about wellhead costs, that the APIA report by Deloitte that preceded this inquiry, it was 2015; it assumed wellhead costs of about $3 of a gigajoule. And, in fact, they included in that a return to capital. So, that oft quoted report of, "Oh, we could just have 6,000 jobs if we let the gas industry do what it likes;" it's based on a wildly optimistic scenario that really isn't supported by any analysis or historical precedent.

And that's where I'd like just to turn to some of the media coverage of some of these finds. "Origin energy sizes up Beetaloo gas price, and they could be sitting on a multibillion dollar resource several times the size of the north's west shelf." I'm paraphrasing here, this isn't ... I'm happy to provide the full reference; you've probably read it. "All it needs now is the green light to get gas flowing." And then, much further down in the article, you hear, "Citi Group has calculated the economics of Beetaloo gas would be challenged by high pipeline costs. While Wood Mackenzie says that, even if the moratorium were lifted tomorrow, large commercial volumes of NT gas are probably at best second half of next decade's story. The reported visited the Northern Territory courtesy of Origin Energy."

Very similar story around the same time, I imagine they went on the same trip; "Matt Chambers travelled to Beetaloo as a guest of Origin Energy, Origin's sitting on Beetaloo shale gas bonanza." I love the word "bonanza". So, "It could have the kind of gas that has made the Permian Basin in West Texas the hottest ticket in onshore oil of late, to the extent that extra expected production is weighing down oil prices." Now, this is some serious hype, but buried deep in the article, you get, "Citi have estimated a break even cost of $4 to $8 per gigajoule at the wellhead before a potential cost of $3.35 to transport the gas to the east coast. This makes it potentially expensive, given prices at Gladstone."

So, beneath a lot of the hype are some crushing economic realities that this is highly unlikely, or at least highly uncertain. And so, I'd like to have a think about what does that mean? It's possible that there are areas that could have relatively cheap gas to get out. But, the NT doesn't need a handful of cheap wells. The NT already has heaps of gas. The NT has more than enough gas coming from the Blacktip Project that comes ashore at Wadeye. And we know that because the entire point of the northern gas pipeline that would go across to Mount Isa from near Tennant Creek; the entire point of that is to sell gas that Power Water had bought years ago, thinking that the Gove aluminium smelter would run on gas, and that they'd pipe it out there. They pre-bought far too much gas, and now they're wondering what to do with it, "Ah, we'll pipe it east." And I'm happy to talk about that as a proposal at length later.

But the point here is, the NT has heaps of gas. The NT doesn't need a handful of good wells. The NT itself doesn't need any wells, because they've got so much gas. So, what might you need for an unconventional gas industry to hopefully be profitable? Well, you'd need scale. It's likely to be very marginal. So, you usually approach low margins with cranking up the scale. And so, you'd need a lot of wells. You'd need a lot of investment in infrastructure. And I'm not sure that that's what's being modelled or consulted with communities, and I'm sure that the panel's more across this issue than I am.

But, I've heard reports that the social impact assessors are not necessarily asking people about a project of really quite considerable size. And I think that's what the sort of economic realities, and the history of minerals projects in the NT is suggesting; that if this was going to be viable, and I'd say it's always going to be marginal, it'd need to be really big and, commensurately, the environmental risks of that are a lot larger than a handful of wells somewhere nice and easy to monitor and enforce conditions on. I think you're looking at a high risk industry rather than a low risk. We're not looking at a situation like ... As I think was referred to in the interim report; we're not looking at a situation like the US, where the US was a big market itself, a big market that was generally short or importing energy. The NT is already exporting gas. It already has a lot of its own. It doesn't need more.

And so, the idea that some of the upsides of the unconventional gas boom in the US can be replicated in Australia don't reflect the reality of the NT, and I'd argue, don't reflect the reality a little bit further east. But, we might talk about them in a second.

So, if the whole thing's so un-viable; why are we even here? And I saw on the ABC that that was a question asked earlier in the week. And I generally agree with, I think it was Bruce Robertson from IEEFA, that we're unlikely to see a really viable, profitable industry develop here. And I think it was Bruce saying, so arguably, none of us should be here. But, of course, there's plenty in it for some people. If you're a gas company, and an exploration company, and you've bought your exploration licences to go out and have a poke around, you've found a bit; the existence of a fracking moratorium is clearly affecting the value of your project. You want that lifted, even if you never intend to put the shovel in the ground yourself, because you're not that big a company, you don't have that much capital; you want this ban lifted so that you can, hopefully, sell it on to someone else.

The value of your project is affected by policies such as this; if you're a big company, you might have all sorts of other motivations here. You might be trying to secure and amount of supply, no matter how unlikely you are to use it, but you might want to secure some amount of supply for strategic reasons for your LNG plants over on the east coast. Conversely, you might want to make sure one of your competitors doesn't get that. And, of course, as a big company pushing towards marginal projects, you might just hope that the government might just subsidise the hell out of it, and do it all for you, and make it viable.

And, if that seems unlikely, just look at Queensland, and the whole mess of the Adani Project; where we're really looking at putting a billion dollars worth of tax payers' money, hundreds of millions of dollar's worth of free coal, and all sorts of other infrastructure potential subsidies at a project that really isn't viable. And it can't be viable, because if it was viable, it wouldn't be eligible for the billion dollar loan; but, let's not go down that rabbit hole at this point.

And, of course, if you're an individual within a large company whose job it has been to manage your NT gas projects, it's pretty bad for your career if we have to write that off, eventually. If the company is carrying ... And we'll come to an example shortly. Carrying assets on its books at considerable value, and you're the manager of that project, or indeed the approvals manager, or some title like that, and you don't get it approved, and you or your boss has to front up to the board and say, "You know that asset we've got on our books at $100 million, it's not worth anything anymore."

There's huge incentives for companies of all sizes and for individuals within companies to push for approval of projects that are not necessarily economically viable. And there's a fantastic decision, which I'm quite pleased with, that's just come out of the New South Wales Planning and Assessment Commission saying exactly this in relation to a coal mine in the Bylong Valley, where they go into a bit of detail, and they take quotes from the proponents about why you would pursue what appears on the face of it to be an uneconomic project.

So, while it's in individuals' and companies' interests for us all to be here talking about overturning the fracking moratorium, it's not in the interest of NT citizens. NT citizens already have enough gas. They don't get a great deal of money out of the industry, and they don't get a lot of jobs. It's not in the wider Australian interests, because of the economics of unconventional gas in the Territory, it's extremely unlikely that expensive gas from the Territory can be piped east to somehow push down gas prices in the east. I'm happy to go into more detail on that if you'd like, but I realise time is growing short. And, similarly, the development of unconventional gas in the territories is not really in the interest of the wider world, where we have what appears to be an abundance of supply of LNG at the moment, at a time when demand for LNG is, if not falling, certainly falling short of expectations.

I'd just like to move on, I guess, to a few detailed comments about ACIL Allen, and some of my interactions with them in our consultation period. So, I realise that the panel has said, and ACIL has said that no assumptions in their modelling will be made without the panel's understanding and oversight. Unfortunately, this doesn't reflect the reality of how economic modelling works. They've already made many decisions. They've made a decision to focus on GSP, gross state product, that I've argued is not a good measure of what we should be focusing on. They've made that decision because it's easy for their model, and it's what their model usually does.

They've already decided on using a CGE model. And maybe a CGE model is a good idea in some ways, but a CGE model takes no account of what happens with water. And one of my big concerns from our consultation was, I wasn't speaking with the modeler; I was speaking with the project manager, who, from my conversation with him, clearly didn't understand CGE modelling. It's quite a specialised field. And when I said to him, "Are you looking at using a micro industry approach," he actually didn't know what that means. And that doesn't mean that he's not a good economist, it doesn't mean he's not a good project manager, but he doesn't understand how a CGE model works, because micro industry approach is one that ACIL certainly use ... This is an example from the Narborough Gas Project, which, as you can see, projected economic impacts, 4.1; the first thing they will look at is real GDP. That's how their assessments of gas projects tend to work.

And, another cut from that project, a brief look at water availability, but it doesn't actually form part of the model. We can talk about that later; I'm anxious to not run over time. So, here's this micro industry approach, which I asked, "Are you looking at taking this approach?" Which almost certainly I knew they would, because I've looked at these models in a lot of detail; in fact, in the New South Wales Land and Environment Court in front of Justice Payne. And so, I do know a fair bit about how this works, and this approach will largely ignore all of what we've talked about of the viability of these projects.

And micro industry approach is attractive for a CGE modeler to take because it's nice and neat. You go along into the project proponent, in the case of the Narborough Gas Project that ACIL did Santos, and you say, "What's your budget for how much you're going to spend on each thing in each year?" And you really just put it in as an extra line at the bottom, and it works very neatly. Whereas, if you're asking the modeler, "What would happen if the existing gas industry expanded by some percentage or other in different years," it's a much more complex project to go through your model. And there's pros and cons to this, but there's a lot of cons, and I wanted to talk about that with ACIL, and we were unable to, because their representative didn't actually know how this worked.

And we know that there's a problem with how this model takes financial viability, because ... I've sort of put them the round way around. Down on the bottom, you can see that ACIL estimated that the Narborough Gas Project is projected to increase the real economic output of the Narborough region by $11 billion. Which sounds big, and strong, and economically viable, and great. Unfortunately, if the quote above that is from Santos posted in February 2016, when due to price impacts and other things effecting the oil and gas industry, they've posted an impairment on their assets and financial statements; the effect of this impairment is to write down the remaining book value of the New South Wales assets. Santos carries the Narborough Gas Project on its financial statements at zero. Whereas, ACIL's assessment is saying it will bring economic output of $11 billion.

Now, GSP and book value are not quite the same thing; but, zero and $11 billion are not the same thing either. And the reason for this screaming disparity between what investors in the stock market know about Santos, and what ACIL's model was telling New South Wales planning, is that ACIL's model, taking a micro industry approach, assumed the viability of it. And so, that's why I think it's really problematic if ACIL are taking this approach. And this is not an isolated incident. And, just as a final example, in the NT, ACEL have also recently done the economic impact of the proposed Nolan's Project, a mineral sands project near Alice Springs.

And, look, I'm generally opposed to the idea of an unconventional gas industry in the NT. I've no bone to pick with a mineral sands project near Alice Springs or Aileron, but I really have a bone to pick when economists ... And you can see at the top there; they've assumed operating expenditure of $188 million a year, revenue of $520 million a year. They're assuming earnings before interest, and tax, and so on. They're assuming, essentially, a profit of $332 million a year. Any company that should be turning a cash profit of $332 million a year have done some back of the envelope conversations. The stock market should value that company at between $1.3 and $2.1 billion, depending on discount rates.

As you can see, in the bottom of the slide, just a look at Yahoo Finance yesterday; the stock market values are at fewer resources at $40 million. So, you need to be very careful with what goes into assessments by commissioned economists like ACIL, because they have a tendency to not look hard at whether or not that's realistic. If they'd done that with their company, they would sort of say, "Well, there's probably a problem here because the stock market values this at about 20 times less than what our assessment's saying it should be." It's not that ACIL can't do good work and haven't; I was really interested in some of their work that was reported in the Sydney Morning Herald yesterday, looking at the Adani Project. But, based on my conversations with them so far, I'm very concerned at the way this modeling's likely to work, and the way our consultation's gone so far. So, I'll leave it there, and I hope we've got time for a few questions.

Hon. Justice Rachel Pepper: Thank you very much, Mr. Campbell. Just a few things I wanted to, perhaps, correct, or at least inform you of. First, in relation to [inaudible], they've been instructed to use the estimates, as has ACIL Allen, given to us by Origin and Santos. At the moment, that's all we can go on in terms of the size of the projected industry. And, indeed ... I don't know what you were watching this morning, but Santos was quizzed about those estimates this morning, and reiterated them.

I don't think we've ever said in the interim report that we're looking at something like the United States market.

Roderick Campbell: It was a short reference to it.

Hon. Justice Rachel Pepper: Oh. In any event ... Finally, I just wanted to ask, just in relation to ... You appreciate that ACIL Allen was selected to do the work for the inquiry on the basis of a public tender. Did you submit a tender?

Roderick Campbell: No.

Hon. Justice Rachel Pepper: Why not?

Roderick Campbell: We're a research organisation, and we don't generally focus on commissioned research. We're not really set up to do our work for state governments or agencies set up by them. Which doesn't mean we haven't in the past, but, at the moment, we didn't have the capacity to do that.

Hon. Justice Rachel Pepper: Any questions at all?

Dr. Vaughan Beck: You were talking-

Hon. Justice Rachel Pepper: Dr. Beck.

Dr. Vaughan Beck: If I may, you were looking at opportunities for developing the gas market. You did mention that there could be possible strategic reasons for the gas companies to developing the market in the Territory, and you did mention potential application, or supplied LNG trains. So, would you care to elaborate on that particular possibility?

Roderick Campbell: Yeah. I think it's really interesting that both Origin and Santos have both got LNG facilities in Gladstone, and particularly Santos reportedly struggling to find the gas to put into that. And so, if you were an aggressive, or very competitive gas company in Australia, and you wanted to make one of your competitors feel a bit more pain, why wouldn't you try and stop them from getting their hands on supply that they might otherwise be very keen to take on, even at very sub economic rates, because of the money that they've put in their LNG facilities.

That's purely hypothetical, but the idea that you might like to have some degree of certainty around your access to and rights to extract a particular resource ... I guess this is a big issue with approvals; they tend to confer the right, but not the obligation to extract something. And so, if you're looking down the track at how much gas you might have, maybe not next year, maybe not in the next 10 year, but in the really long term; is it worth spending a few million dollars now to get the right but not the obligation to ensure you've got supply in 15 years time, when maybe a friendly government has built a better pipeline, or some other way of getting to that gas. Maybe it's a gamble on very high prices. Maybe there could be a big war in the Middle East, or something like that.

There's a lot of value, and economists and financiers usually refer to it as option value, and options trading, usually, is based on this idea that you have the option to, but not the obligation to do something. And so, I think there's a strong incentive for resource companies, particularly if you've built a big expensive facility like an LNG train, and maybe if you've got the right but not the obligation to build more LNG trains in the future at Gladstone, as I know some proponents do. Then, a relatively small investment to get that option value could be seen, as I say, a strategically good move, rather than necessarily something that reflects in financial statements or in economic assessment.

Dr. Vaughan Beck: I understand what you're referring to in terms of option values, but in the context of the Northern Territory, you said that one company might try to stop other companies developing. But, at the moment, we've got each of the companies, Santos, Origin, and [inaudible]; each have got exploration permits. So, I'm not sure how you use the word stop development given that there's potential exploration options that are already there and available to the three companies.

Roderick Campbell: I guess I'm sort of wanting to say things cautiously, because I wouldn't want them to be misinterpreted. But, and this is purely hypothetical, I think if you were Santos, and you've got this struggling LNG project, perhaps the great bonanza in the Northern Territory, or the best part of it, could be something that your board or your shareholders are particularly interested in exploring; because you're in a vulnerable position with your troubled LNG asset. And I wonder, and I emphasize that this is speculation; would a corporate competitor like Origin be interested in ensuring that Santos didn't get access to the better part of that resource for their own competitive reasons. This is speculation.

Hon. Justice Rachel Pepper: Is it ever.

Dr. Vaughan Beck: Indeed. Okay. I note your comment about speculation.

Hon. Justice Rachel Pepper: Hang on, Dr. Smith.

Dr. Ross Smith: Let's take you back to the employment figures that you had very early on in the presentation, and just point of clarification; when you're talking about employment within the resources sector; I presume that was only direct employment, and it wasn't that all indirect employment was in the other categories, a number of which seem to, in the Territory, seem to have certainly some relationship to the resources. Is that fair enough?

Roderick Campbell: Yeah. So, those figures are all the industry that the ABS categorizes people, or in fact, they've categorized themselves as working in on census night. And so, indirect employment is a bit of a vexed question, and it tends ... The Australian Institute put out some estimates a few years ago; if all industries calculated their indirect employment as well as their direct employment, we'd end up with a labour force about three times larger than it actually is. We'd need about 60 million people in Australia.

The calculation of indirect jobs is a fraud and subjective exercise, and that's what we're seeing all these arguments over will Adani create 10,000 jobs, or 1,400 jobs. The idea that we should go ahead with a particular project based on its indirect jobs calculations, I think is really problematic. Those calculations are really subjective and difficult, and I think proponents have an obvious incentive to overstate them. I think, in terms of the particular graphs we had up there, you could probably argue some of what's classified as construction would relate to the construction of LNG facilities. So, yeah. There's certainly crossover there, and I think that's worth talking about on a case by case basis.

But, regardless, I just think the notion and framing employment in the NT is driven by the resource sector really isn't borne out by any data, whether or not you're including indirect jobs or not.

Dr. Ross Smith: I think it certainly fair to say that calculations, what number there are-

Roderick Campbell: Because nurses and teachers create indirect jobs as well. They also have jobs, drive cars and get haircuts, and eat pies, and the pie shops buy meat, and that sort of thing as well. So, everyone has indirect jobs.

Dr. Ross Smith: And some parts of the public service are related indirectly to the resources industry.

Roderick Campbell: Certainly.

Dr. Ross Smith: So, there's a number of sectors of employment within the Northern Territory that certainly do either exist in the resource sector as well-

Roderick Campbell: I'm sorry-

Dr. Ross Smith: It can be overstated, but it can also potentially be understated that the importance of indirect jobs, in the title job market, in the territory we do need to be careful. Thank you.

Roderick Campbell: I'm sorry, was there a question at the end there?

Dr. Ross Smith: No, no. I was thanking you-

Roderick Campbell: Oh, thank you.

Dr. Ross Smith: Because I think it was good that you pointed it out that it's complicated and that it can be overstated, but I was saying it can also be understated.

Roderick Campbell: Thank you.

Dr. Ross Smith: Thank you.

Hon. Justice Rachel Pepper: Dr. Andersen.

Dr. Alan Andersen: One of the key concerns, to me, about stakeholders is about water availability, water [inaudible]. It seems that, in many of these operations, cost of water is not factored into anything. Could you comment, perhaps, on the economics of water supply, and how that might be factored into these kinds of operations?

Roderick Campbell: So, certainly, in terms of if you're doing a CGE model analysis, you usually wouldn't have a line for water. Most of these models are based on tables called input output tables, which the ABS calculates. And they estimate what inputs each industry takes from each other industry, and what outputs it sells to each other industry. But, water is almost never ... I've heard of academic exercises that try that. But, in terms of-

Dr. Alan Andersen: In terms of environmental economics, which is-

Roderick Campbell: In terms of environmental economics, it's obviously a huge issue, and what I'd love to see would be some cost benefit analysis around potential use of water in different parts of the Territory. And, also, I'm not exactly sure how Northern Territory water rights work, but in projects I've looked at, for example, in the southern highlands of New South Wales; it'd be really important to look where water pricing is relatively transparent. I'm always concerned when I see a coal mine come in and say, "Well, we'll just buy up all this water at $2,000 a mega litre." Except, they might be buying ... Which might be okay. That might be the market rate for buying five mega litres. But, if you're looking at a sort of grand water region that has a total of 40 mega litres, and you're looking at potentially impacting 19 of those, suddenly, I think you've got to do some different analysis on the value of that water.

Hon. Justice Rachel Pepper: And ecosystem services.

Roderick Campbell: I'm sorry?

Hon. Justice Rachel Pepper: Ecosystem services calculations as well.

Roderick Campbell: Certainly. So, I think that is really hard, and I think that's why it's very difficult when it's so unclear what the development of an unconventional gas industry might look like, and its size, and timing. So, that kind of analysis is really difficult.

Dr. Alan Andersen: But important.

Roderick Campbell: But important, definitely.

Hon. Justice Rachel Pepper: Dr. Ritchie.

Dr. David Ritchie: Thank you, Mr. Campbell. You have gone to some lengths to, I suppose, put a corrective in the way of the economic significance of the resource sector, as regarded from a policy point of you. I think you probably overstated, and I think you said that cute example of doing it by area was a step too far, quite frankly; but, I get your point. I think, though, that the thing about the resource ... Well, there's two things. One, is that we all get that the Territory is heavily subsidised by everybody else. But, part of the proposition, as a federation, is that the territories and states that are receiving money from everybody else are doing what they can to become as independent economically as possible.

And so, it's been, in Northern Territory, when it was run by the South Australian government, the Commonwealth government, and now it's a self-driven territory. It's part of policy to develop the resources that we have as best we can. And one of the things that I wanted you to comment on was, the thing about the resource industry is that it does stuff in the regions, and that one of the arguments that there are benefits, that they can put infrastructure roads, among other things, airstrips, and actually create employment in areas where there is none. And I think that that's the stuff we're really focusing on; are the benefits that are likely to come from this industry actually going to deliver something that can be captured. I mean, we all understand that it's not necessarily forever, but there is an enduring value created in the regions. And I think that's the important thing. I just wondered if you've got any comments on that, or how might this go about it?

Roderick Campbell: Yeah. I take your point that we should be encouraging states to be as independent as possible. But, I'd argue that doesn't mean you'd develop everything or anything; and especially not when the economics and risks of something are really quite challenged. But, I certainly take your point, and it's a regularly discussed potential benefit of development in the regions. I guess, as an economist, if my policy, or if my minister's or government's policy goal was roads and airstrips, I'd recommend directly building roads and airstrips, rather than hoping that an industry might build them for us. And I'd want to assess what are the costs and benefits of building a particular road, or a particular airstrip, and how can it be best built to maximise those benefits, rather than getting into the vexed question of, "We'll hope that the gas company will build a road that also maximises, or at least contributes, to community benefits." Economists are usually concerned about those kind of indirect options like that.

So, yeah. This comes to a broader question of how do we develop Northern Australia? Or, how do we develop regional Australia? I guess Northern Australia's in the news a lot because we had and now we have again a minster for northern Australia, and we have $5 billion to spend on Northern Australia. I'd love to see a more sophisticated discussion around how do we develop Northern Australia, and how do we develop regions in Northern

Australia. Really, look at what do we want that to mean? Do we want that to mean big dams and big mines, or do we want to actually invest in communities that we've got there, in making them places that people want to live in, people want to move to, and people want to stay in.

And so, I think there's no shortage of ways we can develop Northern Australia and develop regional Australia. It's certainly not an easy task, because, by a lot of measures, we've been going backwards since about the 1850s. But, I think there's a lot of ways to do it, and I think hoping that it'll be done indirectly by an extractive industry is optimistic at best, and tends to ignore the reality that state governments end up building things for resource industries rather than the other way around. We put out a paper a couple of years ago where we'd crawled through each state and territory's budget papers for six years, looking at line items, and estimating whether or not they entirely, mainly, or partly, were for the benefit of the resource industry.

And so, over six years, state governments had spent $18 billion, to some extent, building things that were for the resource industry. So, the resource industry building things for communities ... I mean, there's contrary examples; sure. Certainly, I follow, in New South Wales, voluntary planning agreements and things like that. But, you don't have to ask me; you can ask WA Treasury. When they go into GST negotiations, they go armed with estimates of how much it's cost them to develop gas in the northwest shelf. I think their estimate was about $8 billion was how much it cost the state to develop the northwest shelf.

So, I certainly take your point, and there's potential there, but if that's the policy goal, I think there's better ways of doing it, and it also ignores a lot of the costs that state governments end up incurring.

Dr. David Ritchie: Can I just [inaudible]?

Hon. Justice Rachel Pepper: Yes.

Dr. David Ritchie: So, your research would indicate that that's a risk that we would be wanting to draw the government's attention to. In that work that you've done, is there any ... Apart from making sure that you're not subsidising the whole effort, are there any other downsides, though? I mean, apart from once the environmental stuff, and we're dealing with that and the social issues. I mean, you use a sort of a ... You said, either we do it kind of properly, where we're investing in communities, or we have this rampant kind of other industry, that's sort of a bear. That's the way you're speaking it’s an either or. And I don't necessarily see if there's an either or if you can get it right, which is what this whole commission's been set up to do.

Roderick Campbell: Yeah, sure. I take your point that there's probably a lot of grey between those ends of black and white. [crosstalk]

Dr. David Ritchie: Possibly light.

Roderick Campbell: But, I guess it's also worth, I think, having a think about the ... Well, I realise we're probably out of time; about the northern gas pipeline, and what it sort of represents. At least according to the public recording of it, it's something that a company's going to put $800 million into to transport $20 million worth of gas per year. They're not going to get the $20 million for transporting it. Clearly, someone else is going to be picking up the tab for that. And, unfortunately, we're not sure who it is, but I would venture to guess that either the tax payers, or Power Water customers, who are largely the same people, are looking at picking that up.

So, there could be benefits along a pipeline there; sure. But, they often come at costs. But, I take your point.

Dr. David Ritchie: Okay. Thank you. Thank you.

Hon. Justice Rachel Pepper: And that remark about the pipeline you'd have to accept is, again, is speculation, to use your word.

Roderick Campbell: No, actually. I don't think so. I mean, that's pretty publicly out there, that this pipeline will cost $800 million.

Hon. Justice Rachel Pepper: It's more about who's picking up the cost, all right. You see you've got some data or evidence to show who's picking up the costs for the shortfall?

Roderick Campbell: So, Jemena, as I understand it, based purely on publicly available information; Jemena will pay the capital cost of $800 million, and they have some kind of take or pay agreement with Power Water that isn't public, and we don't know what that take or pay agreement might be, and what terms it might be on. So, perhaps, Jemena are just hoping that there'll be a lot more gas, or perhaps they have some kind of take or pay agreement. But, it just seems like an incredibly irrational thing to do; to invest $800 million in something that's only going to transport $20 million worth of gas. Because that would take, what, 40 years to pay off, even if you were getting the entire value of the gas to the pipeline operator. It's clearly not, on face value, a financially sound investment.

So, perhaps, there's some, again, strategic value in owning a monopoly pipeline between the Northern Territory and the east coast of Australia. Maybe they're banking on changes to policy. Or, maybe this take or pay agreement provides some kind of better economic return. But, I mean, I don't think it's speculation to say that, on the face of it, it appears a very strange deal for Jemena shareholders, which are largely the Singapore government and the Chinese government. Financially, it appears a very poor deal, and we're not able to see what the agreement that it's based on is. So, I guess, to some extent, it's speculation, but it certainly seems very strange.

Hon. Justice Rachel Pepper: Professor Hart.

Prof. Barry Hart: Just to comment on the discussion we're having on groundwater allocation; the situation down south is that in each resource, and surface water and groundwater, there is a sustainable diversion limit, what one can take out, and that is divided into mega litre entitlements, a couple of thousand that you talked about. So, at least using that, you might get the sustainable diversion limit wrong, but that's the amount of water that can be taken, and in fact, in service water it varies each year, in terms of you can have an entitlement, but you don't necessarily get it during droughts. That's not what the situation is in the Northern Territory. So, I think you sort of indicated that a company might be able to exceed the diversion limit. If that's done properly, it can't occur. The only way that they can get water is if there's not the total allocate ... They'd have to buy it from government, otherwise, they'd have to buy it from another operator. So, I think there are ways of ensuring that you don't get over allocation, at least in the situation here.

The other point I just want to check with you; we've had this discussion about, which entices us, I guess, why the companies are lining up to develop what you're arguing and what a few others have argue is an unsustainable or very high price gas resource. I just wanted to check, I don't want to go through it all again. You've put up some speculative ideas, and some others that may have greater relevance; you're going to put some of that down in written report? Okay. Good. Yep. Thank you.

Hon. Justice Rachel Pepper: Any further questions? One last question, do you know whether or not, ACIL Allen used the CGE analysis in their recent report, with respect to Adani, to conclude that it was not profitable?

Roderick Campbell: They didn't.

Hon. Justice Rachel Pepper: They didn't? What did they use? Do you know?

Roderick Campbell: I have read it, and it's largely ... It's not a modelling exercise. It talks about the logic of-

Hon. Justice Rachel Pepper: It's more qualitative exercise rather than a quantitative exercise?

Roderick Campbell: Yeah. And it goes into quite a lot of detail around the investment mandate of the NAIF. It's really a consideration of, "Should NAIF money be put into this rather than a modelling exercise?" So, it goes into a lot of those regulations, risk apartheid statements, or lack thereof. So, yeah. It's a qualitative look at, "Should NAIF money be going into this rather than a modelling exercise on it?" I'll be really interested to compare their qualitative look at that that's been reported this week with a lot of their expert witness evidence in the Queensland land court case on Adani that I was also involved with. But, that's probably a story for another day.

Hon. Justice Rachel Pepper: Thank you very much. Thank you for giving up your time today to speak to us. I'm sorry we've gone over, and I apologise to those behind you who are patiently waiting, but it's been a fruitful discussion. Thank you.

Roderick Campbell: Thank you, and I'll be in touch.