Justin Tutty – Hearing Transcript

Please be advised that this transcript was produced from a video recording. As such, the quality and accuracy of the transcript cannot be guaranteed and the Inquiry is not liable for any errors.

10 March 2017

Darwin Convention Centre, Darwin

Speaker: Justin Tutty

Justin Tutty: Yeah, endorsed the terms of reference, they're useful. And thank you for the discussion paper, I think that's an appropriate starting point. I appreciate the range of expertise that's been thrown at this. I feel like we've got a good team, some foundational documents, a good solid process that's being well supported by community organisations. I think we can expect good things from this. I notice that your meeting so far have heard a range of detail and various risks so to be weighed and managed. I'm interested in exploring just one particular set of unavoidable impacts that represent an unacceptable level of environmental harm and standards and outright disqualification to the broad scale exploitation of shale gas. That is the contribution to runaway climate chaos from unmanaged carbon emissions at every step of the industrial chain.

I'll avoid any detail about the cumulative impacts that are anticipated due to greenhouse gas pollution and the cascading effects on the global climate system. I'm not sure if anyone has or will but I suspect you've heard about it, the greatest moral challenge of our time, someone said. I trust you noticed that angry summer, more than 200 temperature records were broken in Australia over those three months. Personally I'm pretty tuned into the threats of increased cyclones and mosquitoes. Noting the time we've got together, let's accept that the threats, risks and impacts of climate change are well explored elsewhere. If you worry you might be ill-informed, I'd be satisfied if you just looked at any conventional authority.

Hon. Justice Rachel Pepper: Well-informed about the imminent threat of climate change. Imminent and perhaps present threat of climate change.

Justin Tutty: It isn't really a matter of debate in this context because the climate imperative is perversely exploited by the frackers as a rationale for onshore gas exploitation.

I just want to focus on two specific features. Firstly, fugitive emissions, which I appreciate the terms of reference specifically identifies in the context of a request for advice on the nature of any knowledge gaps. I was pleased to see that. And then with that we might be better equipped to reflect on the cumulative impact of the full cycle carbon burden of fracked gas.

I appreciate from the discussion paper that you're already well aware of the contention around the consideration given to fugitive emissions. It's particularly significant because of the higher greenhouse warming potential of methane from unmanaged release, versus the carbon dioxide from burning the fuel. The comparative carbon burden of gas as an energy source greatly depends on what fraction is emitted to the atmosphere, versus what fraction is burned as fuel, where looking at surface mined coal is dirty because of the direct carbon dioxide.

Shale gas with about two thirds of that direct carbon burden can be just as dirty in worst case scenarios, due to methane emissions. I know that CSIRO assure us that around one percent is leaked and, if we accept that, then gas looks cleaner than coal as we're often told. We'll discuss that a bit more. I understand that that one percent is a heuristic taken from LNG experience. I know CSIRO did some measurement at well heads but that doesn't tell the whole story. We've learnt that diffuse or migratory emissions from fracking can spread through the geology much further than far beyond the well head.

I looked at that 2011 American research initiated by Howarth at Cornell. It made some big claims. He suggested that shale's carbon burden is comparable to coal because fugitive emissions, including both unmanaged, unintentional leaks and controlled venting, can significantly exceed that low one percent expectation. I guess I will write to you and share with you a list of the research that I've read. I noticed that that particular paper kicked off quite a bit of academic discussion, people initially offering research that differed, then further research that seemed to endorse those concerns. One Turner at Harvard in 2016 used satellite imaging showing significant increases to methane emissions in parts of the USA where onshore gas exploitation had commenced in recent years. Also some Aussie academics have ground truth CSG fields around Queensland and found higher emissions around gas fields compared to comparable locations. Researchers from Southern Cross Uni have used a cavity ring-down spectroscope to measure methane emissions around Tara and that's what their results show. Higher landscape emissions in gas fields compared to non-mined local areas. That calls into question the Australian status quo of focusing on well heads.

Then there's, I don't know if you saw on TV a couple of weeks ago, that fellow Tim Forcey, he used to be a gas principal at the Australian Energy Market Operator, now he's a specialist researcher with the Melbourne Energy Institute at Uni Melbourne. He's been investigating fugitive emissions with a forward looking infrared camera. I've been reading that fellow Richard Dennis who's an economist at the Australia Institute, who commissioned reports from Forcey, writing that we don't have a comprehensive analysis of the extent of these fugitive emissions that seep through the soil and water, and into the atmosphere. The Australian Government has chosen to estimate the level of fugitive emissions based on conventional LNG wells in the USA.

There's some prior work from Dr Hawk, I'm sure you're familiar. First report acknowledged that this assumption acts as a disincentive to industry to better account for their unmanaged waste stream. That Inquiry for the first report heard significant concern about fugitive emissions, identified the need for accurate accounting including pre-development baseline measurements that would have been good. His report called it a significant challenge for Government policy and regulation. It seems to me that this significant challenge is largely being handed to a captive body, the Gas Industry Social and Environmental Research Alliance.

I think it's worth noting that Dr Hawk warned that some fugitive and methane emissions in America have been attributed to leakage from closed wells. I've been able to listen in to your livestream, I know you've already heard discussion about long-term integrity of decommissioning. All wells fail means all wells leak.

The previous anti CLP Government ignored critical advice to include independent inspections of well integrity into the regulations. Dr Tina Hunter's review of those draft regulations specifically recommended for well inspection by an independent certified third party inspector as a mandatory component. Now this Government's Resource Minister, Kim Vales, when he was in opposition he saw that this recommendation was ignored and told us, Dr Hunter said that all the draft regulations had to be brought in, that's not the case, we can't support this. The true extent of the burden of fugitive emissions of gas fields is an unacceptable knowledge gap that demands the precautionary principle. Let's remind the Resource Minister that the existing regulations are inadequate. Let's not pretend that the industry can be relied upon to address this knowledge gap.

I mentioned, I've missed their name now, but that Gas Industry Social Environmental Research Alliance ... Out of balance like ... This isn't a reporting feature, it's a fundamental go or no factor, this is Government's responsibility. So let's disallow the continuation of onshore shale gas exploitation while we get a grip on the nature and extent of the high warming potential methane waste this industry would inevitably add to the carbon burden we're giving our children.

From there I'd like to look at the life cycle contribution to the global carbon burden. The discussion paper acknowledges climate issues under risks to air. We know that climate chaos from unmanaged greenhouse gas pollution in turn leads to impacts on water, land, public health, society.

We've discussed how assumptions being held regarding the carbon intensity of fugitive emissions from gas fields appear to be wrong. In fact, some are so wrong that the touted benefits over coal may not stand up, which I guess is significant given the rhetoric, but growth economy where there's no rains on carbon, it's inconsequential whether shale is only two thirds as dirty or more dirty than coal. Without a shared plan, including active overarching controls, it should be recognised as being additional to existing coal consumption. That transition fuel thing, it's a capacity, not an inherent

attribute. Simply putting the transitional label on the ship doesn't guarantee an environmental benefit to our exports. That capacity would hinge on the dubious paradigm of wise use. To realise the fuel's capacity to help transition towards a cleaner, safer future, we would want to be able to show that the gas is actually displacing rather than augmenting existing coal or dirty fuel use. And that there's a viable plan to continue a rapid transition to renewables. We'd want to share an agreed framework with checks that uses of our dirty fuels, account for the direct pollution and play their part in a collective plan to move to a clean energy economy.

At one point, it must be 12 years ago, that framework was emissions trading. Back then both Governments, NT and Federal, and all major parties, Liberal, Labour, Green, supported this approach. That's not where we are today. Today the Federal Libs have abandoned emissions trading, NT Labour have no emissions target. This sets us off without a map or a compass.

I look at this in the context of projections from the International Energy Agency, they do the world energy outlook. Global primary energy consumption is of course rising as fast as it is and, despite the unexpected success of renewables, with strong growth in total demands, comes a strong corresponding growth in global energy fuel demand. More electricity, more gas, more coal, more oil. Where once we pursued an international protocol to avert climate change, the best hope we're being offered by world governments right now is a level of disruption that we can somewhat adapt to.

In the absence of any domestic or global action, we might look bilaterally, we might consider who are the customers for the Territory's gas. Maybe the end user can rescue the transition claim. It's not going to happen locally; we don't use coal in the Territory so we're not displacing coal here. I guess you've seen, someone wants to spend almost a billion dollars building a pipeline to the Queensland ports, so it looks like export. Where would it go? I'm not sure. I think that maybe we don't know yet. I'd like to hear otherwise. My understanding is that the market will allow these decisions to be made later, which means that right now we have no basis for imagining that the resource is being wisely applied to displace dirtier fuel.

I do note that investors in the Beetaloo Basin, the most advanced prospective province maybe, include American Energy Partners and that huge Texas-based private equity investor, Energy and Minerals Group. I think that American participation in the threat to turn our landscapes and our precious finite water resources over to the fossil fuel harvesters, is significant given the propensity of the USA to go to extremes in pursuit of fossil fuels. Their significant and dominant role in discouraging effective global action for a safe climate and the tone of the new administration, perhaps you saw overnight, the US EPA chief, Scott Pruitt?

Hon. Justice Rachel Pepper: Pruitt.

Justin Tutty: Thank you. Said, "I do not agree that carbon dioxide is a primary contributor to the global warming that we see." That fellow, the American President, Mr Trump, a little while ago called climate change a hoax created by China. Specifically said he's determined to undo his predecessor's policies controlling emissions, and wants to de-fund UN climate change work. I think this is important context regarding the global energy economy we appear to be about to surrender our resource to. The Territory has no target. Australia has largely abandoned emissions trading. We appear to me to be racing to pump it out before regulation catches up, rather than wisely applying the resource within a scrutable plan to transition to renewables. The customers for our gas may be doing it better than us.

With this perspective, I reckon if we frack the Territory, we're not fighting climate change, we're fuelling it. I see no net climate benefit. I see it as feeding a fossil fuel addiction, while distracting precious time and capacity from real renewable solutions. By trading gas without accounting for its lifecycle carbon burden, without tying that trade to a credible agreed plan, there is no system that we can interrogate to determine that existing dirtier fuels are being displaced. I'm calling this out as a knowledge gap. I'm asking you to report that in this context, in this policy environment, no-one can demonstrate just how we might imagine fracked gas would help rather than hurt our ambitions for a safe climate. And I urge you to carefully consider the extent of harm, which I think has been overlooked due to the glib label of transition fuel. I think by putting that sticker on we have avoided, unfortunately avoided, giving due attention to the full range of impacts from the carbon burden of onshore gas. I would like to see this industry judged on its significant climate detriments.

That's all I've got to share with you today.

Hon. Justice Rachel Pepper: Thank you very much, thank you. You've referred in your presentation to a number of, obviously you've done research and had a look at various articles and scientific publications, will you be sharing those with the Inquiry later on?

Justin Tutty: Yeah, I'll give you a reading list, for sure.

Hon. Justice Rachel Pepper: Yes, that would be most helpful, thank you very much. Any questions? Yes, Ms Coram.

Ms Jane Coram: Thank you for your presentation. I'm just wondering, what would a transition plan to renewable energy look like, because I appreciate it's not a simple matter of simply having the technology, it's also the economic drivers for making it happen. So I'm just wondering what would you see as the essential components of that plan?

Justin Tutty: This is way over my head, I don't have much skill or expertise to offer. I would think maybe you would start with rolling targets. We used to have that.

Hon. Justice

Rachel Pepper: Yes.

Prof. Barry Hart: A couple, if I could. You've made the case that this an unacceptable, this is the fugitive emissions, unacceptable knowledge gap and there would massively, I think you said it would massively add to the greenhouse gas load. I just wonder what evidence, and you said you were going to share it with us, so you do have some evidence? We've got to go on evidence so-

Justin Tutty: I'd like you to-

Prof. Barry Hart: You can assert that.

Justin Tutty: I would like you to. I guess right now I'll share with you that my reading showed that a wide range of claims about the fugitive emissions-

Prof. Barry Hart: Yeah.

Justin Tutty: In particular, the Hawk report, I think agreed with the perspective that we shouldn't be relying on the heuristic that we need evidence to ... Okay perhaps it will end up being a set level, which we assume applies across an area, but we need something better than what we've got. We need to-

Prof. Barry Hart: You mentioned a few examples, I guess just want to tease those out, not now, but in a written submission, that would be great.

Justin Tutty: Yeah, I'll share my reading list with you. And what I would like you to take from it is that there is great uncertainty, there is a wide range of opinions or ideas about what impact fugitive emissions may contribute.

Prof. Barry Hart: Yep. The other one was, again you made probably a throwaway line, saying that all wells leak. Is that true?

Justin Tutty: I'm just aware that you've been told that.

Prof. Barry Hart: Have we?

Hon. Justice Rachel Pepper: That doesn't make it true.

Prof. Barry Hart: That doesn't make it true, no.

Justin Tutty: No, I was riffing off our previous evidence. I don't know much about gas wells, I'm just saying if wells fail, as previous people have told you, they leak.

Hon. Justice Rachel Pepper: I have to say we have not been furnished yet with any evidence that says all wells fail, so if somebody comes up with that, that would be very useful obviously, and very important evidence. But at the moment no-one has presented that to the Inquiry and we haven't found it.

Justin Tutty: I think I heard the people from the Central Australian Frack Free Alliance, or whatever they call themselves, describing a couple of examples of failed, decommissioned wells, so obviously there are a couple of examples which have-

Hon. Justice Rachel Pepper: Absolutely.

Justin Tutty: I'm not going to back up their claims that all wells leak, I'm just saying that what I meant was that if wells fail, if decommissioning is unreliable in the long-term, then that means they leak.

Hon. Justice Rachel Pepper: Well not necessarily, with great respect, it depends on how you define fail. Just because a well fails doesn't necessarily give rise to leakage, and again I'd want to see evidence of that definition and how that then relates to the concept of leakage, and leakage of what.

Justin Tutty: Yeah, I totally endorse your approach.

Prof. Barry Hart: The last one I had was the Haworth paper, 2015, Cornell guy, Robert. Do you have that paper?

Justin Tutty: I'm sorry, I was referring to a 2011-

Hon. Justice Rachel Pepper: 2011 I think it was.

Prof. Barry Hart: Oh, it must have been a different one, okay forget it. We've got the front page of a later paper of his, again on methane.

Prof. Barry Hart: Have you? Oh good. Forget it. Thank you.

Hon. Justice Rachel Pepper: I think, Mr Tutty, you were going to provide us with a reading list, which would be most helpful.

Justin Tutty: Yes.

Hon. Justice Rachel Pepper: Thank you. Yes, please, Dr Beck.

Dr. Vaughan Beck: You quite rightly acknowledge that there's quite a range of results available in terms of emissions, including fugitive emissions from gas fields, but then you say that there's an unacceptable knowledge gap. So I'm just trying to reconcile the fact that you talk about a large amount of spread of data, but then an unacceptable knowledge gap.

Justin Tutty: Yep. I guess the knowledge gap I'm referring to is the knowledge which is being applied in development of Australian regulations. So, as far as I'm aware, inadequate attention is being given by Australian regulators to that full range of research evidence.

Dr. Vaughan Beck: Can you just elaborate for me; you're saying that there has been insufficient regulatory development to reflect that range of values that are in the literature?

Justin Tutty: I think I described my understanding is that Australian regulations are based on the heuristic, the assumed heuristic, of one percent methane fugitive emissions at the well head. I described that there's been a range of research in Australia and the USA showing that we should also be looking at emissions across the whole gas field. That there are concerns about far reaching migratory emissions.

Dr. Vaughan Beck: Right. I think we had a presentation earlier that talked about point five percent for the Australian situation, so it would be very useful if you could then document the one percent basis that you are referring to in your paper-

Justin Tutty: Yeah, it's in my reading list.

Dr. Vaughan Beck: And that would help clarify the dichotomy that you're talking about.

Justin Tutty: Thank you.

Hon. Justice Rachel Pepper: Thank you very much.

Justin Tutty: I assumed that this was controversial given that Dr Hawk made similar comments.

Hon. Justice Rachel Pepper: I'm not sure that we can make any of those assumptions in this Inquiry anyway. Thank you very much, I look forward to the reading list.

Dr. Vaughan Beck: Thank you.

Hon. Justice Rachel Pepper: Anything further? Mr Tutty, thank you very much for making yourself available certainly at this late hour, we appreciate your time. Thank you very much.

Justin Tutty: Yes, thank you. Thank you for your work.