

TRANSPORT AND RESOURCES COMMITTEE

Members present: Mr SR King MP—Chair Mr LL Millar MP Mr BW Head MP Mr JR Martin MP Mr LA Walker MP Mr TJ Watts MP

Staff present:

Dr J Rutherford—Committee Secretary Mr Z Dadic—Assistant Committee Secretary

PUBLIC BRIEFING—CONSIDERATION OF AUDITOR-GENERAL'S REPORT NO. 5 OF 2021-22. MANAGING QUEENSLAND'S TRANSITION TO RENEWABLE ENERGY

TRANSCRIPT OF PROCEEDINGS

MONDAY, 24 OCTOBER 2022

Brisbane

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The committee met at 9.01 am.

CHAIR: Good morning. I declare open this public briefing for the committee's consideration of Auditor-General's report No. 5 of 2021-22, *Managing Queensland's transition to renewable energy*. My name is Shane King. I am the member for Kurwongbah and chair of the committee. I would like to respectfully acknowledge the traditional custodians of the land on which we meet today and pay our respects to elders past and present. We are very fortunate to live in a country with two of the oldest continuing cultures in Aboriginal and Torres Strait Islander people, whose lands, winds and waters we all share. With me here today are: Lachlan Millar MP, member for Gregory and deputy chair; Bryson Head MP, member for Callide; James Martin MP, member for Stretton; Les Walker MP, member for Mundingburra; and Trevor Watts MP, member for Toowoomba North.

This briefing is a proceeding of the Queensland parliament and is subject to the parliament's standing rules and orders. Only the committee and invited witnesses may participate in the proceedings. Witnesses are not required to give evidence under oath or affirmation, but I remind witnesses that intentionally misleading the committee is a serious offence. You have previously been provided with a copy of instructions to witnesses, so we will take those as being read. I remind members of the public that they may be excluded from the briefing at the direction of the committee. I remind committee members that departmental officers are here to provide factual or technical information. Any questions seeking an opinion about policy should be directed to the minister or left to debate on the floor of the House.

These proceedings are being recorded and broadcast live on the parliament's website. Media may be present and are subject to the committee's media rules and the chair's direction at all times. You may be filmed or photographed during the proceedings and images may also appear on the parliament's website or social media pages. I ask everyone present to please turn mobile phones off or to silent mode.

MARTYN, Mr Paul, Director-General, Department of Energy and Public Works

SHANKEY, Mr David, Deputy Director-General, Energy Division, Department of Energy and Public Works

CHAIR: Welcome. You have been invited again to brief the committee on the Auditor-General's report. This follows on from the briefing we had on 14 March 2022. I invite you to make a short opening statement, after which we will have some questions for you. I note that responses to any questions taken on notice today should be returned to the committee by 4 pm on Tuesday, 8 November 2022.

Mr Martyn: Thank you, Chair, and thank you members. Firstly, I will join you in acknowledging the traditional owners of the land on which we meet today and pay my respects to elders past, present and emerging. Thank you for the invitation to provide further information. In your invitation you noted that the targets and the Queensland Energy and Jobs Plan are of direct relevance to recommendations 1 and 2 of the Auditor-General's report. Recommendation 1 focused on managing the transition by publicly announcing a vision and objectives. Recommendation 2 asked that we conduct a review by 2025 to formally assess progress and consider further actions to support achievement of the government's renewable energy target.

I am pleased to say that since we last met the plan has been publicly released. The Premier launched the plan at her 2022 State of the State address at CEDA on Wednesday, 28 September 2022. The government also released with the plan a *Queensland SuperGrid infrastructure blueprint*, which outlines in detail how we aim to achieve the new targets set by the plan. We have copies of both those documents here today for the committee's perusal.

As recommended by the QAO, the plan and infrastructure blueprint outline the Queensland government's vision and objectives for the energy transformation and information on the desired end of state for the plan. The plan has a vision to deliver clean, reliable and affordable energy, providing power for generations. This means building a Queensland SuperGrid, which will drive more investment in renewable energy, create more jobs and meet the 50 per cent Queensland renewable energy target and new targets of 70 per cent renewable energy by 2032 and 80 per cent by 2035. Brisbane - 1 - 24 Oct 2022 The infrastructure blueprint publicly sets out the optimal infrastructure pathway to deliver the Queensland SuperGrid over the next 10 to 15 years. The SuperGrid will need around 25 gigawatts of renewable generation by 2035. This is eight times the current three gigawatts of large-scale wind and solar currently operating in Queensland. Building the SuperGrid also includes the construction of two large-scale, deep pumped hydro storage projects to provide around seven gigawatts of long-duration storage as well as, in addition to those, three gigawatts of grid-scale storage and up to three gigawatts of low- to zero-emission gas for firming at around 1,500 kilometres of new backbone high-voltage transmission across the state. By 2035 our publicly owned coal-fired power stations will be repurposed and operating as clean energy hubs providing system strength, security, storage and new generation in the SuperGrid.

The infrastructure blueprint represents around \$62 billion of public and private investment in the energy system to 2035. Both the plan and the infrastructure blueprint are based on independent energy market modelling and expert advice. This modelling estimates that Queensland will achieve our QRET early—in 2028—and achieve our renewable energy targets. Releasing the plan and infrastructure blueprint provides confidence that the Queensland government has a credible plan. It provides information to investors in capital markets to drive investment in the new energy infrastructure Queensland needs and at the right time.

In relation to QAO recommendation 2, to undertake a review and assess progress, the Queensland government is committed to establishing a new energy transformation governance framework for the plan. This includes the establishment of a new Queensland energy system advisory board. The board will develop an annual market snapshot which will track progress towards our targets and progress on the blueprint. The board will also provide technical advice to government to inform updates every two years to the infrastructure blueprint. The first update to the infrastructure blueprint will occur in 2025, as recommended by the QAO. Updates to the infrastructure blueprint will also be made to address any emerging risks or developments in terms of delivering the optimal infrastructure pathway. This will keep Queensland on track and seize opportunities to accelerate the energy transformation while also ensuring energy system security and reliability are maintained.

These updates go beyond the recommendations from the QAO to undertake a review in 2025. Publication of the annual market snapshots and infrastructure blueprint updates will serve as critical ongoing checkpoints for delivering the plan. The government is also preparing a renewable transformation bill to be put before the House for consideration in 2023. This will legislate the new renewable energy targets and key enabling mechanisms. This further reinforces the commitments in the plan and infrastructure blueprint to decarbonise Queensland's energy system.

CHAIR: Are there any recommendations that the plan does not address?

Mr Martyn: Several of the recommendations have already been actioned. The QAO asked us to update our methodology in terms of calculating our progress towards QRET. This has been done. They further recommended that we provide more detail on those calculations—again, this has been done—and that that be published. Our departmental website has been updated to indicate that information. It provides a lot of contextual information around how we calculate the targets. When you combine the plan and its deliverables with the work that has already been done, it is our view that the Auditor-General's recommendations have been implemented.

Mr Shankey: One of the key parts of the plan the government has committed to is legislating the targets. Of course, as we go through that process there will be further detail and discussion around precisely how renewable energy is calculated as they move through parliament.

Mr WATTS: I am trying to understand how many turbines and how many solar panels we would need by 2035 and comparing that to how many we have so that I can work how many we need to install per annum. Do you have those figures?

Mr Shankey: Those figures are actually in the infrastructure blueprint. I can find that if you give us a moment and I will come back to you.

Mr WATTS: What I am trying to work out is how many per week we need to be installing. Then I want to compare that to how many we are installing currently.

Mr Shankey: Perhaps another way of looking at it is that we are looking at installing an additional 22,000 megawatts of both solar and wind. You can break that down per year to around 2,000 megawatts—sorry, it is less than that. We have 13 years to 2035, so you could divide it up like that. What I would draw the committee's attention to is that we have moved into a significant change in the scope of projects that are being deployed. A wind project or a solar project that was deployed in, say, 2015 was around 20 megawatts in size. You will not get a solar project off the ground now Brisbane -2 - 24 Oct 2022

that is not 10 times that. We have moved into a phase in renewable energy deployment that I would call industrial deployment. Projects are of very significant size. We may have needed 10 to 20 projects of a 20-megawatt size. When you are deploying projects around 200 to 300 megawatts, you are looking at five to 10 of those per year.

Mr WATTS: What sort of acreage would need to be under solar panels?

Mr Shankey: Again, this figure is in the blueprint. I will have a quick look and come back to you.

Mr MARTIN: How does the plan enable future investment in more metals and minerals processing and manufacturing?

Mr Martyn: Indeed, in a global economy transforming to clean energy and technologies, demand for resources-particularly for green metals-is going to grow exponentially. We expect this to occur as, due to capital replacement and the emergence of new technologies, that will require more components to be produced. For example, a typical electric vehicle requires six times the mineral inputs of a conventional car, and an onshore wind plant requires nine times more mineral resources than a gas-fired power plant. The scale is growing with the demand.

Queensland is very fortunate in the sense that we produce resources, such as aluminium, copper and zinc, which are expected to benefit from that higher demand. Due to increases in demand there is the potential for a global aluminium supply shortfall of almost 30 per cent and a copper supply shortfall-very relevant in Townsville, can I say-of up to 85 per cent. This does pose significant challenges for the clean energy transformation. These supply shortfalls tend to be accompanied by increases in the market price. What we see is an increase in demand and a shortfall. Queensland is uniquely placed to fill that gap.

What we have seen is that, due to this unprecedented and consistent growth in the demand for aluminium and copper, there is going to be a need to catch up and the prices will remain high. This also, if not addressed, has significant implications for Australian manufacturing. The Energy and Jobs Plan commits to build the SuperGrid, which I talked about in my opening remarks, which will deliver a cleaner electricity system and be a platform for accelerating economic growth. This unlocks opportunities in both existing and new industries. The additional renewable energy capacity will allow existing industries to decarbonise more quickly and more cheaply. It also creates scope for new load-for new energy intensive industries, particularly in metals processing.

Independent modelling undertaken has figures that the Energy and Jobs Plan will deliver 36,000 more jobs in green growth opportunities in sectors like renewable hydrogen, battery manufacturing, resource mining and metal manufacturing. Importantly, those jobs will be in regional Queensland, by and large. The modelling also indicates that the economy will experience up to \$25.7 billion more growth to 2040 than without a plan. Again, sectors like metals processing et cetera are the ones where the green growth opportunity for Queensland matches global demand. We are uniquely positioned as a safe, stable and reliable trading partner to provide those minerals overseas.

Mr Shankey: To clarify, the infrastructure blueprint provides for 12,200 megawatts of new wind generation, which equates to around 2,700 turbines, each with an average capacity of $4\frac{1}{2}$ megawatts. Total land area for 2,700 wind turbines is approximately 540,000 hectares. It does the same in the infrastructure blueprint for solar.

Mr WATTS: What was the acreage figure for solar?

Mr Shankey: It is 10,000 megawatts of new large-scale solar capacity, which equates to around 40,000 hectares for solar farms based on an average of four hectares per megawatt. Queensland's total area is 185.3 million hectares. The area required for wind is 0.3 per cent of the state's land area and 0.02 per cent for solar. They are rules of thumb that we have.

Mr HEAD: You mentioned the clean energy hubs that coal-fired power stations will be transitioned to by 2035. Is there anywhere in the world where coal-fired power stations have been transitioned to clean energy hubs-that is, is this technology readily available?

Mr Martyn: I will provide some context in terms of what is a clean energy hub. A clean energy hub in the plan is where an existing coal-fired power station remains open but begins to provide other energy services—for example, batteries are located there and hydrogen is produced there. It serves as a base for operation and maintenance of renewable energy projects located in and around it. I can point to Kogan, which is an existing power station where already the government is investing in a large-scale battery and already there is a hydrogen project underway providing hydrogen for Brisbane - 3 -24 Oct 2022

large-scale vehicles. The government has also announced a 100 per cent hydrogen-ready gas-fired PICA to be built there. Already Kogan, which is a 750-megawatt coal-fired power plant, is changing and it will change over its life.

What we see in other states in Australia is a recognition that coal-fired power plants sit at the middle of the existing grid, so they have the infrastructure, highly skilled workers, water and a range of other assets that mean they are valuable sites for the energy system even after they stop producing coal. The other thing we have said we would do is look at the opportunity in the plan as we begin in five years the gradual transition away from coal. The coal-fired units go into what is called seasonal operation, so they will operate in summer, peak winter et cetera. That is something Queensland has done before; we know how to do that. Over time, some of them will be transformed into synchronous condensers—large-scale spinning machines—that provide system strength. Again, it is about still contributing to the energy system and not necessarily generating coal-fired power.

Mr Shankey: A lot of facilities that we looked at in the UK or in Germany do not have the renewable energy opportunities that Queensland does. They do not have wind and solar that they can easily locate near their existing coal-fired power stations. There are existing coal-fired power stations in the UK that converted to things like biomass or woodchip burning in their facilities. That is possibly a similar example. In most countries in Europe they are very constrained in pursuing the clean energy hub concept, because they do not have the associated renewable energy resources.

Mr HEAD: Are there key figures, modelling or anything to state the number of jobs and the wealth that is provided by coal-fired generators and whether these renewable energy hubs are going to match that?

Mr Martyn: The government has committed that all workers at those publicly owned power stations have a job guarantee, and that is backed by a \$150 million fund, so the workers continue to be employed. Indeed, drawing on Mr Shankey's observation, the experience in the UK is that you cannot afford to lose those workers. Indeed, there is provision to provide for retention payments to actually keep key workers there.

What we are seeing—again, Mr Shankey makes an important point—is that these coal-fired power stations are located where there are enormous renewable energy opportunities. You know that in your own electorate—certainly in the Surat Basin and Darling Downs—there are huge new opportunities. We see that the communities there will benefit. The government has also invested \$200 million in a proposed renewable energy transformation fund to support those communities to access those growth opportunities. There is significant opportunity there for those regions, those power stations and those workers to participate in this renewable energy future.

Mr HEAD: You said that generator workers have that jobs guarantee. Does that encompass the coalmine workers, the contractors, the accommodation providers and everyone else associated with that, or is it strictly for the energy industry workers?

Mr Martyn: If you look at the tripartite charter that the government has signed with the government owned corporations and the unions representing energy sector workers, you will see that, in terms of where there are coal mines that are dependent on coal-fired power stations, the charter extends to those coalmines. We know that 85 per cent of Queensland's coal is metallurgical; only 15 per cent is thermal. There are only two coalmines that exclusively provide coal to government owned coal-fired power stations. Our target will be obviously looking at addressing those. The demand for thermal coal globally continues. Most of those other coal-fired power plants have other options. It is also important to remember that the transition does not start for five years and it is gradual after that. It is a very measured transition that allows for alternative markets to be accessed. Where they cannot be, the charter extends.

Mr Shankey: Every type of generation of course has a different employment profile. We have tried to look at the electricity system as a whole. That indicates that, although there are changing roles in generation, there is an overall increase in other parts of the energy system such as transmission and distribution. That is why the government is confident of the fact that it can say that if there is someone who wants to continue working in the electricity system they will be able to do that.

Mr WALKER: What does this plan do for the North West Minerals Province?

Mr Martyn: A decarbonised electricity grid provides enormous opportunities for the resource sector, as I indicated. What is really interesting in the North West Minerals Province is the opportunities for critical minerals such as vanadium emerging as crucial to our transition to a low-carbon future, presenting Queensland with a significant growth opportunity. Vanadium has two Brisbane -4- 24 Oct 2022

types: low-grade vanadium is used in steel manufacturing; high-grade can be used for battery production for redox batteries. That is where there are enormous opportunities for growth. The opportunity is there for green energy. The government has indicated that the SuperGrid 500-kV line will extend to Hughenden, where there are enormous renewable energy opportunities, and then a 300-kV line to Mount Isa. There are active discussions with the Commonwealth government around opportunities to explore those areas of growth.

The government is obviously building on its north-west minerals strategy, which has provided a lot of direction for the region. We think there are significant opportunities to create a supply chainnot just the mining of the critical minerals but their actual use in Queensland, particularly in batteries. The addition of \$500 million for the purchase of batteries, with a preference for Queensland production, provides additional certainty around that. We see over the next 20 years opportunities to unlock the critical minerals in that region and to create particularly a supply chain for production here in Queensland, potentially in places like Townsville, to create not only mining jobs but also manufacturing jobs.

CHAIR: You piqued my interest there with the grid extension. You said 500kV to Hughenden and then 330kV from Hughenden to Mount Isa. Does that follow the path of CopperString?

Mr Martyn: Yes, it does. The government is in active conversations with the CopperString proponents at this time.

Mr WATTS: I just want to clarify the actual budget for the Queenslander Energy and Jobs Plan-where the money is sourced from and the balance between state, federal and the private sector.

Mr Martyn: In terms of the funding of the plan, the Treasurer made a statement to the House on 12 October which I think covers off those issues. We would not have anything to add to that. The plan's budget is \$62 billion spread between the public and private sectors. That is over the period to 2035. It is worth noting by way of context that since 2015 we have seen \$11 billion invested in renewable energy projects as we begin to scale up. We can expect to continue that in the future.

Mr WATTS: Are there any agreements in place between the private sector, the state government and the federal government for the \$60-plus billion?

Mr Martyn: In terms of agreements between the private sector and the government on renewable energy projects, there are many.

Mr WATTS: As part of the \$62 billion?

Mr Martyn: There are agreements in the pipeline that will start to flesh that out.

Mr WATTS: So not yet?

Mr Martyn: If you look at the government's own generating companies-Stanwell, CS and CleanCo-each of them is partnering with the private sector in one way or another, supported by the government, to deliver renewable energy projects, be they wind farms, solar farms, batteries et cetera. Those are already in place and that model is absolutely central to how the government sees the delivery of the SuperGrid.

Mr WATTS: Can you let us know if there have been any discussions with the federal government, its interest in this project and where it is at in terms of financial commitment?

Mr Martyn: There have been active discussions, yes, on numerous occasions.

Mr MILLAR: In regard to the hydro proposition in the Pioneer-Burdekin, when were the landholders told about this? How long did you and your department know about this plan before the Premier announced it at the CEDA lunch? What is the time frame from when the Premier announced it at the CEDA lunch to when your department was working on it?

Mr Martyn: The Premier announced I think in June last year that the state would develop an energy plan. The department was working on that from June until the date of the announcement, which was 28 September. Queensland Hydro, which is the new entity that has been formed to deliver the hydros, was on the ground that afternoon-Wednesday, the 28th and on the 29th-and since then engaging with landholders. In terms of the development of our understanding of hydro and hydroelectricity, studies have been underway since the 1970s on hydro and hydro-electricity. Over the last several years there has been more and more work-

Mr MILLAR: Excuse me, Director-General, just to get right to the question, it is more about this plan and not about studies. Sure, there have been studies on hydro for a long time, but when was this plan worked on? How long had you been working on it before the Premier announced it? Brisbane

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Mr Martyn: From June 2021 until September 2022.

Mr MILLAR: Finally, when were landholders in the Netherdale region informed?

Mr Martyn: The teams were out visiting landholders on 28 and 29 September. It is important to note—I just want to give this context to the committee—that going and talking to a landholder about a pumped hydro-electricity project without the context of the energy plan would make no sense, because people would not understand why we need to do this project. You can only engage with people effectively on these projects when they see the total picture, and these pumped hydros make sense in the context of the energy plan.

Mr MILLAR: I agree with that, Director-General. The issue there is that landholders found out through the media.

Mr Martyn: I can tell you that the Queensland Hydro staff were on the ground as soon as possible after the announcement to talk to landholders.

CHAIR: I have one final question. Time has beaten us. Will these dams for pumped hydro be used for purposes other than just pumped hydro—for water supply?

Mr Martyn: No. They are closed systems. Basically, the water is contained there. Only enough is being taken to do the initial fill and then to allow for evaporation and seepage.

CHAIR: I was just using Wivenhoe as an example. Thank you very much. We really appreciate your time. A transcript of these proceedings will be available on the committee's webpage in due course. I declare this public briefing closed.

The committee adjourned at 9.31 am.