



Note that minutes are paraphrased to an extent and may not exactly match actual statements.

Project	Gloucester Coal Seam Gas Project	From	Michael Ulph
Subject	Community Consultative Committee	Tel	4910 7788
Venue/Date/Time	Thursday 17 December 2015 Gloucester Country Club 10.00am – 12.45pm	Job No	21/17714
Copies to	All attendees		
Attendees	Jerry Germon [JG] – Community Representative Rod Williams [RW] – Community Representative Tony Summers [TS] – Mid Coast Water Alex Kennedy-Clarke [AKC] – AGL Project Manager Ray Dawes [RD] – Barrington Gloucester Stroud Preservation Alliance Clr Tony McKenzie [TM]– Dungog Shire Council Stuart Redman [SR]– Gloucester Business Chamber Ed Robinson [ER] – Lower Waukivory Residents Group Nicky Coombes [NC] – The Gloucester Project Les Seddon [LS] – Port Stephens Council Karyn Looby [KL] – AGL Community Relations Manager Anna Kaliska [AK] – Mid Coast Water Michael Ulph [MU] – GHD (Chair) Alexandra Parker – GHD (Minutes)	Apologies	Toni Laurie – AGL Land and Approvals Manager Clr Karen Hutchinson [KH] – Great Lakes Council James Duggelby [JD] – AGL Hydrogeological Specialist Paul Minett – Dungog Shire Council Ian Shaw [IS] – AGL Lands Officer Clr Katheryn Smith [KS] – Gloucester Shire Council
	Observers / Presenters Nigel Bean [NB] – AGL Head of project development	Others not present	Lee McElroy – Port Stephens Council Linda Brook-Franklin [LBF] – Mid Coast Water Lisa Schiff – Great Lakes Council

Notes	Action
-------	--------

Michael Ulph (Chair)

*Welcome and Acknowledgement of Country
 Introductions for new committee attendees and observers*



Notes

Action

Welcome

Nigel Bean – AGL Head of project development.

Apologies

Toni Laurie, James Duggelby Ian Shaw, Karen Hutchinson & Paul Minet.

Introductions around the room to familiarise newer members

Meeting commenced at 10:15

MU: I will call to accept the last minutes from the 15 October 2015 as a true and correct record.

Moved: Rod Williams Seconded: Jerry Germon

Meeting agenda

- Welcome, Apologies, Introduction
- Acceptance of last minutes and matters from the previous meeting
- Project Update, including water update (Alex Kennedy-Clarke)
- Morning tea break
- Community Engagement update (Karyn Looby)
- AGL renewables fleet presentation (Nigel Bean)
- General business
- Next meeting & close of formal proceedings
- Lunch

Action items from the last meeting

MU:

Circulate links as per last CCC meeting - Actioned

Distribute links to October monitoring update report by email to CCC members - Actioned

Provide update on number 12 well in next report update – Alex Kennedy-Clarke to discuss today

Provide all links to current information by email to CCC members – In reference to water portal – Actioned. Demonstration will also be provided today in morning tea break. Wording to be changed in last meeting minutes. ACTION.

Alex Kennedy Clarke to provide the molarity of the acid. Action missing from table in last minutes. ACTION.

AKC: The molarity of 15% acid was 4.4.

Action: MU to change wording of action 4 in last meeting minutes to read water portal.

Action: MU to amend Actions in last meeting minutes.



Notes	Action
<p>MU: Next action. To confirm new CCC meetings do not overlap with other CCC groups to avoid cross over. – Actioned, we are holding quarterly meetings next year.</p>	
<p>ER: Do you have dates for GRL? A new chair has been appointed to the CCC.</p>	
<p>MU: Karen Hutchinson said they haven't been meeting for quite some time.</p>	
<p>ER: This only happened in the last few days.</p>	
<p>MU: I will double check that and confirm.</p>	<p>Action: MU to confirm GRL CCC schedule.</p>
<p>JG: Who is it?</p>	
<p>RD: There has been no information circulated. It is only through second hand information. I haven't received that information, nothing has been distributed.</p>	
<p>MU: I will pursue that to make sure we don't have any double ups. ACTION</p>	<p>Action: MU to amend spelling error in October CCC minutes</p>
<p>*Ray Dawes notes spelling mistake in minutes to be clarified* ACTION</p>	

Project Update – Presented by Alex Kennedy-Clarke

Exploration Update

- Waukivory Pilot Project
 - Waukivory Pilot is nearing the end of the data gathering phase.
 - Reservoir modelling and analysis underway.

ER: What's the reservoir modelling?

AKC: That's developing a model to show how much gas and at what rate we are going to be extracting the gas out of the reservoir. All the data we gathered from the pilots and all the other wells and information we have collected over the years of exploration will go into this model and provide us information around well simulation and how that is going to develop into production stage.

The next stage on the pilot is for us to conduct an extended pressure build up test. We will be halting the removal of water and gas from 3 of the 4 wells at the moment. That allows us to measure the amount of water and gas levels in the wells and understand the extent of the area we are able to drain gas from, from the wells.

ER: Why would there only be 3 of 4?

AKC: The Waukivory 12 well is the one we did the workover on. We need to keep that well going for longer as we are still getting the gas and water flow data. We will be continuing to evaluate the data that comes out of that well and determine the right time for us to put that well under an extended pressure build up test.

ER: So this Waukivory 12 well has obviously had major problems. It has had the workover rig on it for 5 weeks. It is obviously not producing a lot of gas, so you really have to work on making produced gas, 25% of your produced gas wells at Waukivory Pilot are not working the way it should be.

AKC: At the last meeting we gave a detailed update on that.

MU: Ed asked about it but didn't attend the last meeting. We answered that at the last



Notes

Action

meeting.

AKC: The workover rig had some mechanical issues. It broke down on site and was out of action for a couple of weeks. There is an explanation in the last minutes. We've done the workover now and will switch it over when we get the data that we need.

- Workover Rig – Maintenance Activities
 - Whilst the workover rig was in Gloucester a number of maintenance activities were completed, including the change out of the wellheads at some of the older suspended wells.

Stage 1 Project Update

- Project Approval
 - Work is continuing towards satisfying the conditions of the Project Approval.

RD: At what stage is the water recovery? Is it still flow back or produced water?

AKC: At this stage it is still flow back water in some wells and produced water in others.

RD: Is that what you predicted? It seems like a long time.

AKC: It has taken longer than expected.

RD: Is the gas flow not as you predicted?

AKC: We are still working through the data. The reservoir modelling and analysis is what is going to tell us that.

RD: When will you predict the end of the flowback water? Is that being organised yet?

AKC: Not at this stage.

ER: It has been 12 months since you fracked the wells. Yet there is still flow back water out of them. It seems very strange.

AKC: We were shut in for six months with the suspension. We didn't start flowing until August. The wells were fracked in October-November last year. Due to a range of reasons we didn't start flowing wells until August this year.

AK: So three of four wells are now finished? From these three how many were producing produced water?

AKC: We haven't finished. We are still doing the extended build up pressure test at this point.

AK: So there will be no more water coming out?

AKC: Correct.

NB: Three are currently on flow back water, twelve are on produced water.

AK: So twelve is produced [water] and the three are flow back water?

NB: Correct.

RW: With the reservoir modelling, is that a whole stage approach? Does the Waukivory Pilot hold any significant weighting on the whole Stage 1 area? Or is it in the mix?



Notes	Action
<p>AKC: It is in the mix. All the wells we have drilled, and that data so far feeds into that model. It actually extends beyond stage 1. It is a whole of basin model and the Waukivory Pilot contributes to that dataset.</p>	
<p>NB: Waukivory Pilot is 25% of the [stage] 1 dataset for the reservoir modelling.</p>	
<p>AK: For other wells you have done in the past, it is the same story? You cannot switch produced water? You just pump flowback water? Or this is the first time the pumping is still not produced water?</p>	<p>Action: AKC to provide response to pumping water questions.</p>
<p>AKC: We would have to get back to you on that. ACTION</p>	
<p>AK: It is quite complicated. There is a definition of flow back water and produced water. It is not really a good definition.</p>	
<p>It looks like to me the amount of water put in fracking has not been recovered. That can happen quite often.</p>	
<p>NB: Alex and I are not geologists or engineers but I understand it is not that uncommon to not be able to recover 100%. It depends on permeability. I am happy to recover some commentary for you as we are not able to take that on the table now. ACTION</p>	<p>Action: NB to provide clarification around recovery of water from fracking. It is common to not recover 100% of fracked water?</p>
<p>ER: Flowback water pumping ongoing. It is all going down to the storage tank? All the flowback water is being disposed of offsite. So no water is being transferred off site to the Tiedmans East dam?</p>	
<p>NB: Correct.</p>	

Water update – Presented by Alex Kennedy-Clarke

From late October 2015 to present with upcoming items (to occur after 17 December 2015) shown in italics.

General

- Water portal telemetry live for groundwater and surface water data at Waukivory. Visit: <https://www.agl.com.au/waterportal>
- Water quality data sets required under our EPL are published on AGL main website under: <http://www.agl.com.au/about-agl/how-we-source-energy/monitoring-data> (note these data reports are comprehensive and reports are split into Irrigation Program reports and Waukivory Pilot reports)
- All technical/scientific reports continue to be released, published and archived on the AGL Gloucester website at <http://www.agl.com.au/about-agl/how-we-source-energy/natural-gas/natural-gas-projects/gloucester-gas-project>
- Technical/scientific reports relating to the Waukivory Pilot Project are published and archived on the AGL Waukivory website at <http://www.agl.com.au/about-agl/how-we-source-energy/natural-gas/natural-gas-projects/gloucester-gas-project/waukivory-pilot-program>

Groundwater Investigation Program:

1. Groundwater monitoring program:
 - Ongoing 4-monthly (water level) monitoring program across whole



Notes	Action
-------	--------

- network (Oct 15, Feb 16, and Jun 16).
- October 4-monthly FY16 monitoring update report – published November 2015.
- Annual report for FY15 – published 11 December 2015.

2. Waukivory Pilot Testing Program:

- All monitoring bores and surface water gauge sites are operational and data available via Water Portal (except for WKmb05)
- Flowback water pumping ongoing – all water is being transferred from the four Waukivory wells to the above ground storage tank at WK13. All flowback water is then disposed of lawfully offsite. No water has been transferred to the Tiedman East Dam
- A fourth quarterly report detailing water quality and level trends for water monitoring locations - Waukivory Pilot for the period 1 July to 30 September was published on 26 November 2015.

ER: As I understand it. In the Teidman's dams there is six mega litres of mixed produced water, fresh water and a mega litre of produced water in one other dam. Is that correct?

AKC: We have got two dams with water at Tiedman's. Tiedman's East has got some blended water. A mega litre of produced water blended with fresh water from rainfall. That was part of the irrigation trial.

ER: That's the six mega litres?

AKC: We have had rain and the volume has changed. There is 1 mega litre of produced blended with other water but I don't know the exact volume in Teidman's East dam.

Tiedman's north dam has got rain water and water that has been captured from the run off of the irrigation trial. Tiedman's south dam is currently empty.

ER: So the catch dams are still operational and will continue to be operational?

AKC: At this point for the irrigation trial, we have submitted the final report. We are not irrigating any water. It is still on out EPL so we have to continue operating and catching the water from those catch dams, etc and doing all the monitoring and reporting as that is still under the Environmental Protection Licence.

ER: is that ongoing?

AKC: As long as it is on the EPL, it is ongoing.

ER: How long does it last on the EPL?

AKC: We have provided all the final reports to EPA and DRE. We are waiting for comment.

ER: So they sign off and the catch dams are disconnected?

AKC: Yes.

MU: Once they take that requirement off the EPL?

AKC: Correct. We submitted that report about three months ago.

3. New drilling programs and monitoring network expansion:

- Monitoring ongoing at Wards River:

Notes

Action

- *Wards River monitoring bore completion report to be published Q1 2016 – pending results of isotopic analysis of water samples.*
- 4. Other investigation water studies:
 - No new investigations.
- 5. Numerical modelling
 - *Updated Conceptual Model report will be submitted to the Dept of Planning in December 2015.*
 - Phase 3 numerical groundwater modelling ongoing – two models: local scale (fault) model and regional model (whole basin) under way. Reporting deferred to 2016 due of Waukivory Pilot delays.

Tiedman Irrigation Program:

- The TIP approval expired on the 30 April 2015
- Water and soil monitoring sampling and reporting programs are complete:
 - water and soil sampling events completed in May 2015
 - water sampling event completed in August 2015
- Final water and soil monitoring program reporting completed – two compliance reports published in August 2015.
- Additional soil and water sampling rounds (for EPL compliance) undertaken in November 2015.

Extracted Water Management Strategy

- *Final Draft will be submitted to the Dept of Planning in December 2015.*

ER: That's the draft?

AKC: Yes. We are still waiting on comments from the EPA, that has held up submitting it to the Department of Planning.

ER: Has this draft been discussed with the Dialogue?

AKC: It has been presented to Council, the CCC and at information sessions for people to come and review that.

NB: Yes, it has been discussed with the Dialogue and there is a special meeting with the Dialogue in February to discuss it again.

AK: We only had access to the final draft. The final document will be submitted to the Department. We haven't seen that yet. There is a special meeting in February to see that and the Dialogue will see that. I think the Department said it will be put on their website. We just have to watch.

RW: There is a bit of discussion with the agency about if they need to fast track or not. It was a little bit vague.

ER: It seems funny to me that the final draft is going to the Department of Planning yet the dialogue and Council haven't discussed it.

NB: Council has seen this and been briefed on numerous occasions and it will be presented to the dialogue in February, and we financed a water scientist [position] through Council.

ER: I would have thought as consultation goes on and amendments are made that you



Notes	Action
<p>would keep going back to check that the amendments made are approved by those that have put the amendments in.</p>	
<p>NB: In any consultation process you will receive many views and amend as you go along and the proposed changed will make some people happy and not others. In the end we are not the final arbiter of the plan. We put that plan to the Department and they are the final arbiter.</p>	
<p>LS: Through the Department does it go on exhibition? Or do they just decide to accept or reject?</p>	
<p>AKC: I believe they need to consult with the key stakeholders. Whether they choose to put it on exhibition or not is up to them. It is not required under the conditions.</p>	
<p>LS: It is still essentially another opportunity for council to [review it].</p>	
<p>RD: I assume the work at Waukivory will produce the fault model? Does that satisfy all the requirements of Dr Evans? I'd like to see a comment on each of the 23 or 25 flaws that he found in [the original independent review], and how they have been addressed.</p>	
<p>RD: I have an interest. I don't share James' view of his assessment of faults. The holes really weren't that close. I would have thought you'd put a well right through the fault in a couple of different places to see how the fault was going to behave. Is it going to be a problem in the future?</p>	
<p>AKC: We can respond specifically to those recommendations specifically.</p>	<p>Action: AKC to provide response to Dr Evans list of recommendations following the independent review.</p>
<p>As we are building the conceptual model and numerical model, that process will probably addresses those 23 concerns in that. Those models will again be independently reviewed and assessed by the Department of Planning. There is a broader program of analysis of that data.</p>	
<p>RD: Will Dr Evans be involved in that peer review?</p>	
<p>NB: No. We employ a third party independent peer reviewer.</p>	
<p>AKC: That's signed off by the Department of Planning as per the approval conditions.</p>	
<p>AK: This other peer review. Is it a different review as it is at the end in a different stage? Dr Evans was on the conceptual model in the early stages. This other independent review to review in the numerical stage.</p>	
<p>AKC: It is the conceptual [model] as well.</p>	
<p>MU: Let's break for morning tea, and take the opportunity to look at the water portal and other pages on the project web site.</p>	
<hr/> <p>Community engagement update – Presented by Karyn Looby</p>	
<p>Consultation and Stakeholder Engagement</p>	
<ul style="list-style-type: none">• AGL continues to host visits to our site as this is an opportunity for people to see and experience how we operate first hand. We were pleased to host a session for GCCC representatives on 23 November 2015. Thank you for attending.	
	<p>RD: How many site visits have you run through in total?</p>
<p>KL: About four groups a month.</p>	



Notes	Action
<p>TM: Is that Tomago as well?</p> <p>KL: No but we are looking to do Tomago as well. Would you like to? I can organise that.</p> <p>TM: I'd like to.</p>	<p>Action: KL to organise tour of Tomago facility and invite TM.</p>
<ul style="list-style-type: none">AGL has been undertaking a Social Impact and Opportunity Assessment (SIOA) over the course of 2015. The study has considered the economic and social impacts associated with the development of Stage 1 of the project. <p>Since this time AGL has progressed planning for the project, including continued testing of the Waukivory Pilot wells, ahead of a Board decision in early 2016.</p> <p>As part of AGL's planning process and commitment to the Gloucester community and the region, the consultant returned last week to speak with people who participated in the Dialogue Cafés earlier in the year. Questions included alternative approaches to investing in the community depending on the outcome of the Board decision.</p>	
<p>ER: I didn't go because you there was an assumption that the project will go ahead. AGL has not signed off on that project. I thought that unrealistic at the time so I didn't attend. Those who did were all those in favour of the project.</p>	
<p>KL: The invitation was extended to a broad stakeholder base in the community. We wanted all points of view. This is also just one tool we use to gain feedback. It is about understanding that not everyone is involved in every process but exploring other avenues and channels to reach those people.</p>	
<p>NC: The research I have done of the café dialogue suggests it is a very biased group. Do you think this is a fair representation of the community sentiments of the whole of Gloucester?</p>	
<p>KL: We won't be relying solely on that. We are incorporating that into the whole gamut of what we actually do.</p>	
<p>NC: Who will peer review?</p>	
<p>KL: It is an internal document. We will provide feedback to those who participated, and more broadly through the community development plan etc.</p>	
<p>JG: The group I was in had the full gamut of views.</p>	
<p>RW: It is absolutely incorrect to say they were all supporting. It's an absolutely incorrect to make those assumptions.</p>	
<p>ER: It was in black and white that to go to the Café dialogues you went on the assumption that the project went ahead. To go you were on the assumption that you were approving the project. That's in black and white.</p>	
<p>RW: It is absolutely incorrect we are just passengers in this journey. It's your choice not to go. It is inappropriate for you to condemn the process.</p>	
<p>ER: I am not condemning it I am saying the café dialogues were biased. That is fact.</p>	
<p>MU: In regards to bias. In any survey process where people are invited to opt in or opt out there is bias. That is the nature of the process, - in an online survey, or asking people in the street. So it is quite difficult to conduct research and say definitively that there is no skew.</p>	



Notes	Action
<p>RD: Karl indicated to me the survey was for the sole purpose of the Board. Can we have a statement about the purpose of the survey?</p>	
<p>KL: I wasn't in that meeting with Karl. It's not solely just for the Board, it is a piece of information, like all the work we do in the community. It will be of interest to the Board but that wasn't the scope of work that we gave Karl.</p>	
<p>TM: I felt there was a lot there [for] if this doesn't go ahead. How does AGL save face if it doesn't go ahead?</p>	
<p>When we went through this with Hunter Water [re: Tiligerry Dam] and how will they do their withdrawal. It took a long time to get that land back on the market, and get different things in town.</p>	
<p>I raised these things with Karl and what AGL would have to do if they pulled out. I thought it was pretty well even.</p>	
<p>We were at one where there were lots of personal views.</p>	
<p>RD: There are a lot of very smart people in this community who were not part of the process because of the strong mistrust. It is a pity that they didn't get input from those people.</p>	
<p>TM: I raised at the café about work camps, and the mystique surrounding them.</p>	
<p>RD: We had quite a discussion about work camps.</p>	
<p>TM: It was very broad based.</p>	
<p>RW: I got the impression that they were putting two business cases together – a go-forward and a retreat option. To gather information.</p>	
<p>RD: That was contrast to the café dialogue at the Roundabout pub. There was no discussion of the science where as I spent some time discussing my concerns with Karl. None of that was discussed at the first dialogue.</p>	
<p>They were not interested in the science.</p>	
<p>MU: I am purposely not involved in this consultation process but my understanding is that this was about social impact and opportunities in relation to the project, so not really around the science.</p>	
<p>RD: I feel you should sort the problems out first before you start making money. The science is the real issue. Once the science is sorted I will resign from this committee as there is no further use for my skills.</p>	
<p>TM: Do you feel you have had a fair input at this meeting?</p>	
<p>RD: Yes. I had an hour and a half of the man's time.</p>	
<p>TM: It has achieved somewhat of what you're aiming for. You are not totally happy yet. But you could put forward your concerns.</p>	
<p>RD: Yes.</p>	
<p>MU: I would say that being a representative of the community in this forum you have an obligation to also be a conduit between the community and the project and bring any of their issues back to this forum, science based or not.</p>	
<p>RW: No process is perfect, but I think there was reasonable mix. All things considered.</p>	



Notes	Action
<p>ER: I'm glad both sides were expressed. The original café dialogues were not set up to do that.</p>	
<p>RW: There is a real acknowledgement that there is a Plan B. I think that is very important.</p>	
<p>TM: There was no Plan B for Hunter Water and it completely fell over.</p>	
<p>RW: I am part of a region that lost every opportunity that was put in front of them. Here these fellows are actually acknowledging, [the possibilities].</p>	
<p>LS: To clarify the context of this study. Does it feed into the approvals process, or is that something outside?</p>	
<p>KL: It's something outside. In Stage 1, we have the government approvals but we still have to go through an internal approval process. In regards to the Board making a decision early in the year, a financial decision. That's why we need a Plan B to understand and plan to all scenarios.</p>	
<p>LS: Is the study made public?</p>	
<p>KL: No. it is an internal study. There are components that will go back to the people who were involved in it to provide feedback. It will also be part of our planning process so you will see that through the planning that we deliver.</p>	
<p>The survey participants know it is a process, they have been consulted. Some of the views were not black and white and some they may not wish to be published.</p>	
<p>NC: If there is a Plan B and you do seek retreat will you then discuss with the broader community what they expect from you? There is a Sustainable Futures Committee, they set up sub committees and some of them have hopes and dreams for AGL. If I got in touch with their sub committees and tried to open that door for you, would you be interested?</p>	
<p>KL: Yes. Absolutely. Thank you.</p>	
<p>Community Investment</p>	
<ul style="list-style-type: none">o Community events – AGL supported the Rotary Community event held at Tugwood Winery in early December.o The latest initiatives that the Gloucester Gas Project team are proud to support through the LCIP round two grants for 2015 are listed below. The community contribution for this round was \$33,633.	
<p>MU: LCIP stands for?</p>	
<p>KL: Local Community Investment Program.</p>	
<ul style="list-style-type: none">o Sponsorship of the Gloucester Junior Cattle Show.o Equipment to support the Gloucester Thunderbolts Swimming Club's coaching, club nights and carnivals.o A public address system for use at the Gloucester Chill Out Festival and other community events.o A 'cool down station' for the Gloucester community outdoor fitness trail.o A shade structure over play equipment at Gloucester Primary School.	



Notes

Action

- Sponsorship of Gloucester Aero Club's annual community family fundraiser for the Westpac Rescue Helicopter Service and club project.
- An upgrade of the St Johns Stroud Parish and Community Hall, including a disabled toilet for the town.
- Book prizes for Gloucester High School's annual presentation night.
- Funds for the local Masonic Hall to complete the upgrade of their kitchen.

NC: In regards to the Jetty Research Program survey. Why was there an age bracket?

KL: There wasn't an age bracket. They wanted to get as many different age groups as possible. At the beginning they may have filled some brackets so they wanted to focus on filling the others.

NC: Who selected the questions?

KL: It was an internal survey and internal processes and planning. The survey has been going for three years, to try and have a baseline. I wasn't involved in that process. I'm sure it would have come around from questions received from the community and AGL based on the types of questions we need to do our planning etc.

NC: What kind of question is 'How do you feel about anti CSG activists?'

It's highly emotive and highly inappropriate. Why was it in there? You may as well ask 'How do you feel about Advance Gloucester'.

KL: I don't know if that is exactly how that question read. The information we receive is for our internal use. Obviously we need to get a sentiment of what affects AGL and affects our project.

NC: I think it is highly inappropriate.

RW: Just comment. Fair call. Advance Gloucester is not painting slogans on Buckets Way, defacing and putting signs up on public land and public property. We are not doing that.

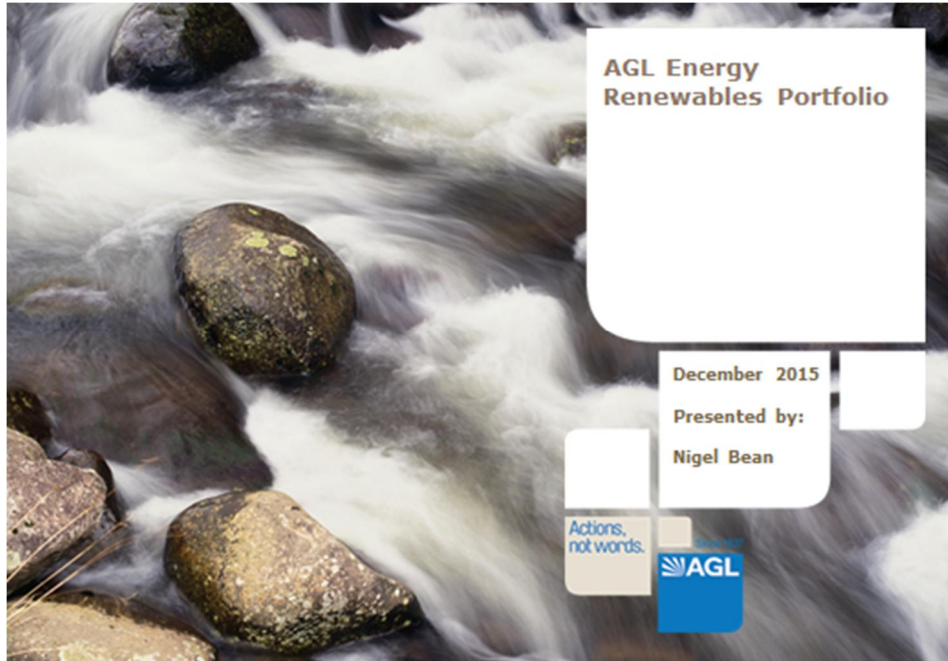
NC: I think that question itself drives a wedge. People I spoke to who were surveyed were upset by that question. That raises more trust issues with AGL and doesn't do you any favours.

Action: AGL to present recent survey and methodology to CCC.

KL: That's good feedback. Last year we went through the survey questions with the CCC. We can do that in the same format as last year.

AGL renewables fleet presentation – Presented by Nigel Bean


MU: So this came from a request from the CCC two meetings ago.



Agenda 2

- 1** AGL Renewables Fleet
- 2** Wind
- 3** Hydro
- 4** Solar

> AGL Energy Renewables Portfolio
> December 2015
> Presentation to Gloucester CCC



Renewables at AGL Energy

3



Renewables and AGL

4

- > AGL is the largest private developer and operator of renewable generation in Australia
- > Entered renewables with purchase of Southern Hydro in 2004
- > Developed;
 - 6 wind farms totalling 838 MW;
 - Bogong Hydro 140 MW
 - Nyngan and Broken Hill Solar totalling 152 MW
- > Value of plants developed exceeds \$2.5Bn

JG: How big a town would all that power supply?

NB: Difficult to answer. We are talking essentially about a couple of thousand megawatts of renewables.

TM: What's your plan for Muswellbrook?

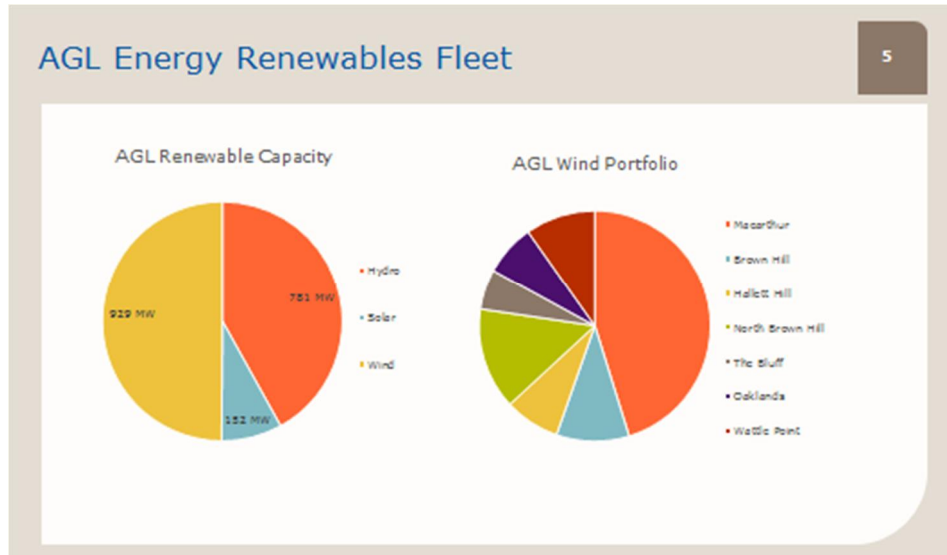
NB: The power stations?

TM: The big plant out there.

NB: We have two. Bayswater and Liddell. I was the project director for the acquisition and integration of those plants. That was my last job before joining here.

We have said that we are going to close Liddell power station in 2022 and Bayswater no later than 2035. Those assets have a specific used by date.

Action: NB to comment on the supply capacity for AGL renewables. How big a town could be supplied power by all the renewables?



NC: At your last presentation you said gas is not considered a transition fuel.

NB: Yes. Around the world the phrase "gas is a transition fuel" is widely used. Most places will have expensive power. We are very cheap in coal in Australia. With gas there is not a big difference.

We have very cheap coal, gas is more expensive. Going from coal to gas doesn't make sense. What will happen is we will transition from coal to renewables.

Gas has many other uses, not just used for power generation. Important industrial feed stock; it is used in fertilisers, by people in their homes. There is an ongoing use for gas and demand for domestic gas is likely to increase.

It is an incredibly versatile fuel. AGL has been involved in it since 1837.

AKC: With gas there is a future to help with peaks. As you get more renewables in the market the sun will shine at a particular time, the wind will blow at particular times, until solutions are readily available gas has a role to play in generating peak power. Not as a baseline fuel but working hand in hand with renewables.

NC: Why not keep coal fired plants?

AKC: They operate differently. Coal gives you electricity flat 100% set at a flat rate each day every day. With a gas peaking power plant you can from zero to 100 megawatts in 6 minutes.

RW: With Liddel and Bayswater. What is the annual capacity of those?

NB: Instantaneous generating capacity is about 4,600 megawatts.

NC: Andy Vesey [CEO] talked about community based solar. What are the odds of something like that for here?

NB: We have been doing a little bit of work with that. One of the difficulties is working with grid, the owners take the view that the grid is there, they want to receive the same amount of money however the grid is used.

I would suggest you could put it forward as a legacy project if we look at that Option B, we were talking about earlier.

Notes Action



Wind 7



<p>Information:</p> <ul style="list-style-type: none"> > 7 Wind Farms > 394 wind turbines <ul style="list-style-type: none"> > Suzlon S88, Vestas V82 & V112 > MSA Agreements with OEM's 	<p>Location: Victoria & South Australia</p> <p>Capacity: 928 MW</p> <p>Production: 2664 GWh (FY14)</p>
--	---

> AGL Energy Renewables Portfolio
 > December 2015
 > Presentation to Gloucester CCC



MU: What is the height of a turbine?

NB: The diameter of the disc is 112 metres. From centre to end of the blade is 56 metres and the height of the middle of the box is 84 metres in the air.

RW: With a windfarm like that, what the output through the day. Is it night versus day and throughout the year do you get lag times?

NB: Yes. Different places different times. There is seasonal variation. Our Wattle Point site is coastal so you get an afternoon breeze.

Hallett Wind Farm

94.5 MW

8



Information:

- > 45 x 2.1 MW wind turbines
- > Suzlon S88
- > Commissioned 2007

Location: Hallett Region, SA

Capacity: 94.5 MW

- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



Hallett Hill Wind Farm

71.4 MW

9

Information:

- > 34 x 2.1 MW wind turbines
- > Suzlon S88
- > Commissioned 2009

Location: Hallett Region, SA

Capacity: 71.4 MW



- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



North Brown Hill Wind Farm

132.3 MW

10

North Brown Hill Wind Farm

Information:

- > 63 x 2.1 MW wind turbines
- > Suzlon S88
- > Commissioned 2011

Location: Hallett Region, SA

Capacity: 132.3 MW



- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



The Bluff Wind Farm

52.5 MW

11

The Bluff Wind Farm

Information:

- > 25 x 2.1 MW wind turbines
- > Suzlon S88
- > Commissioned 2012

Location: Hallett Region, SA

Capacity: 52.5 MW



- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



Oaklands Hill Wind Farm

67.2 MW

12

Oaklands Hill Wind Farm

Information:

- > 32 x 2.1 MW wind turbines
- > Output restricted to 63 MW (line limit)
- > Suzlon S88
- > Commissioned 2011

Location: South Western, VIC

Capacity: 67.2 MW



- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



Wattle Point Wind Farm

90.75 MW

13

Wattle Point Wind Farm



Information:

- > 55 x 1.65 MW wind turbines
- > Vestas V82 (NEG Micon NM72)
- > Commissioned 2005

Location: Yorke Peninsula, SA

Capacity: 90.75 MW

- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



Macarthur Wind Farm

420 MW

14



Information:

- > 140 x 3 MW wind turbines
- > Vestas V112
- > Commissioned 2012

Location: South Western, VIC

Capacity: 420 MW

- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



Hydro



Hydro

16

Information:

17 Stations 34 Units

Capacity: 781 MW

Kiewa Scheme – 391 MW

Dartmouth – 180 MW

Eildon – 120 MW

Victoria Other – 38 MW

NSW – 54 MW

Age: 1920s – 2009

Location: VIC, NSW

Production: 1299 GWh p.a.



- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



Kiewa Hydro Scheme

391 MW

17

Clover Power station

Information:

> McKay Creek – 160 MW

> Commissioned 1965

> Bogong – 140 MW

> Commissioned 2009

> Clover - 29MW

> Commissioned 1942

> West Kiewa – 62 MW

> Commissioned 1954

> (upgrade 2009-2015)

Location: Kiewa Valley, VIC

Capacity: 391 MW



- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



Dartmouth Power Station

180 MW

18

Dartmouth Power station

Information:

- > Largest single hydro generator in Victoria
- > Commissioned 1979

Location: Mitta Valley, VIC

Capacity: 180 MW



- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



Eildon Power Station

134 MW

19

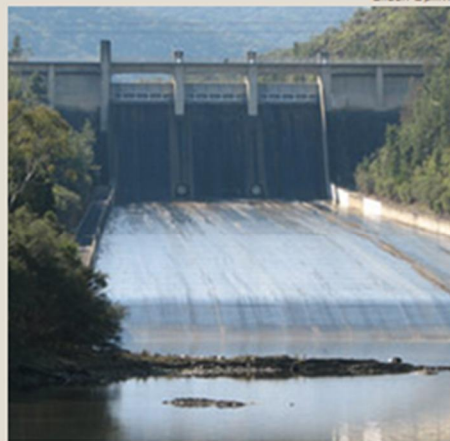
Eildon Dam

Information:

- > 2 x 60 MW generators
- > 2 x 7 MW generators
 - > (Only during low dam level)
- > Commissioned 1956

Location: Goulburn Valley, VIC

Capacity: 134 MW



- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC





Nyngan Solar Plant
 102 MW

Artists Impression of Nyngan Solar Plant



Information:

- > Completed October 2015
- > 1,350,000 solar PV modules
- > First Solar Thin Film Technology
- > <https://www.youtube.com/watch?v=q4fHqKTzsuU>

Location: Central NSW

Capacity: 102 MW

> AGL Energy Renewables Portfolio
 > December 2015
 > Presentation to Gloucester CCC



JG: Are they flat on ground?

NB: No. They are tilted up so at noon they are square on to the sun facing north. South of the site is the Barrier Highway which goes to Broken Hill.

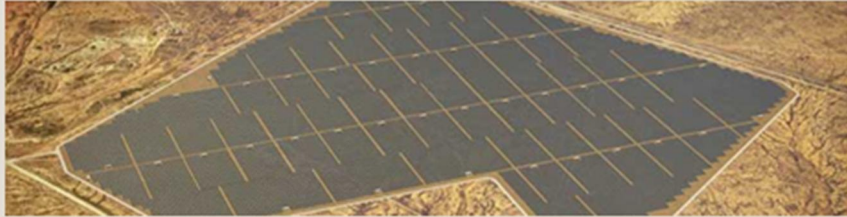
They are on rack ends. Several panels on a rack. Posts are hammered into the ground, there is no concrete. At the end of life you just unbolt them and pull them out.

Broken Hill Solar Plant

53 MW

22

Artists Impression of Broken Hill Solar Plant




Information:

- > Completed December 2015
- > 650,000 solar PV modules
- > First Solar Thin Film Technology
- > <https://www.youtube.com/watch?v=GHQnQsX3KQ>

Location: Broken Hill, NSW

Capacity: 53 MW

- > AGL Energy Renewables Portfolio
- > December 2015
- > Presentation to Gloucester CCC



NB: This is what we have done to date. We are doing more. I am looking forward to that and this is a portfolio I am very proud of.

RD: Origin Energy are marketing batteries, do you intend to do that and offer a complete package for the domestic user?

NB: Yes. We started selling batteries before Origin.

General Business

MU: I wanted to discuss membership a little bit but we will go around the room first.

RD: I would like to table a letter from the Mid North Coast Regional Organisation of Councils to Mike Baird. My concern is paragraph four, 'The wide community impacts on residents mental health and the division in a community's social fabric caused by the risks associated with CSC exploration and production can no longer be accepted. It is intolerable for the government at any level to allow these risks and impacts to continue.' On the basis of that I suggest we ask Dr Robertson retired, he is a retired psychologist to address the CCC to outline some of these problems.

General discussion.

MU: OK. Thank you for your input and commentary. What I suggest we do, is that I will append this letter to the minutes, and make mention of this suggestion Ray.

We have requested that the CCC put forward ideas of people we could invite along to this forum. Ray has done that. I will put this into the minutes if we have consensus on that, and make it an agenda item to discuss at the next meeting.

NC: I was wondering if I can I get a list of your 200 local suppliers?

KL: They may not be comfortable.

NC: I don't think you should state that you have 200 local suppliers.

KL: It has been audited. We have a legal company that audits all the work we do. We



Notes	Action
<p>have to declare it for our sustainability report. It has been audited but I don't know if the companies themselves would be comfortable.</p>	
<p>SR: I'd be pretty sure some would definitely say no.</p>	
<p>ER: A month or so ago your survey on methane emissions came out. I am no scientist but I thought it was a very weak document. It needs to be backed up by science and it needs to be peer reviewed. People in the community don't believe a word of that. There was no science in that document at all. It was very vague. You need to peer review those things or don't it put out.</p>	
<p>Also, I want to get an update on where you are with the farming on your 1200 acres. We have had a reasonable good season so far, I know there was a problem with giant Parramatta grass down there, what is the control plan for noxious weeds? Is the farm manager still there? Is he controlling these things? What is going on?</p>	
<p>NB: Our plan is to lease all that land.</p>	
<p>TM: AGL is on our letter of licence at the moment.</p>	
<p>ER: I assume that in the lease documents there is weed control.</p>	
<p>NB: If you spotted something and give us details we will follow up. We are the owners and we want it in good condition.</p>	
<p>MU: I will mention membership. We have received forms from Nikki and Ray in relation to the vacancies that appear and the change in the structure. I am not aware if BGSPA has formally shutdown?</p>	
<p>RD: No, but it is very much on the way.</p>	
<p>ER: They are waiting for clearance from fair trade.</p>	
<p>MU: The test I guess is, if it's still a forum that you can be a conduit and spread information.</p>	
<p>ER: I question if it's a conduit. It doesn't hold meetings anymore and it doesn't function as a body.</p>	<p>ACTION: MU to append letter to the minutes and place as an agenda item for the next meeting.</p>
<p>MU: I'll go back through our processes, and look at that.</p>	
<p>RW: What's the difference between that and you, Ed?</p>	
<p>ER: That is what I said a couple of meetings ago. The body I represent, a couple of people I speak to personally but there are no formal meetings or structure now.</p>	
<p>Do I need to forward a new application to become a community representative?</p>	
<p>MU: I will send you a form if needed.</p>	
<p>This is a lot of value in having the history here at this meeting.</p>	
<p>Groundswell Gloucester has established itself since this CCC started and doesn't have representation. It meets regularly, hold meetings and has opinions about this project</p>	
<p>ER: I can't speak for them but I don't think Groundswell would want to join this committee due to its nature. It is an AGL committee run by AGL.</p>	
<p>MU: We did advertise for people to put their hand up. We didn't receive any response beside those we were expecting. There has been an opportunity there.</p>	<p>Action: MU to send ER CCC membership nomination form.</p>
<p>Also, if you are 'in the tent' you can say your piece and if you are not you don't have</p>	



Notes	Action
<p>that opportunity. It's unfortunate if there is an organisation that is very interested in this project, one way or another, that hasn't taken the opportunity.</p>	
<p>ER: I don't think Groundswell sees it as a meaningful body. Much the same as Groundswell is not represented in the Dialogue either. If they are not represented in the Dialogue what's the point of being represented in this meeting?</p>	
<p>JG: They are trying to stay outside to make a political impact?</p>	
<p>ER: It is not a political organisation; it is to do with the sustainability of the Gloucester region.</p>	
<p>MU: And you attend meetings but you are not on the committee?</p>	
<p>ER: I'm not on the committee, no.</p>	
<p>RW: I think the key thing is that consistency is valuable. It would be a shame to see you guys not continuing on the committee for technical reasons.</p>	
<p>SR: I am amazed that it has taken this long for this CCC to get a representative from the local business committee.</p>	
<p>ER: Tim Hickman was on the committee for a number of years. He represented the businesses in the main street.</p>	
<p>MU: When Lucas Energy started the CCC, they advertised and put out an expression of interest.</p>	
<p>SR: If groups don't choose to engage.</p>	
<p>MU: Yes.</p>	
<p>I want to look at the terms of reference in the new year. I have passed copies around. It talks about obligations and aims etc. I want to look at this in the new year particularly as we have new members. It is an opportunity to have a look and see if everything is still the same.</p>	
<p>RD: We need to change it where it says that the committee meets 6 times a year.</p>	<p>Action: MU agenda item for next CCC 'Review of CCC Terms of Reference'</p>
<p>MU: We need to put something in there that says "unless otherwise agreed". At the last meeting we decided we should hold quarterly meetings next year. The first meeting for 2016 will be held in March. Generally, because of the current [lack of activity].</p>	
<p>NC: Come February it may be in a higher state of excitement. Isn't a final decision being made in February?</p>	
<p>AKC: There is a board decision on the financial capacity.</p>	
<p>ER: When were quarterly meetings decided?</p>	
<p>MU: Last meeting. This is minuted on the last page of the last minutes.</p>	
<p>ER: I think that quarterly is ridiculous. I want to put in a rescind motion. If we put a question out to AGL and they want to take it on notice. That is 6 months before we get an answer.</p>	<p>Action: MU agenda item for next CCC 'Review meeting regularity'</p>
<p>TM: Didn't we put something in to say it will change if it was deemed necessary</p>	
<p>KL: Also to give us questions prior to CCC.</p>	
<p>TM: There was also discussion that those answers could be circulated around via email.</p>	



22 Tate Street
Gloucester, NSW, 2422
Australia
Tel: - +61 2 6558 1166
Fax: - +61 2 6558 1066

Notes	Action
<p>MU: We can change it again when the consensus is we ramp it up. I suggest we meet in March and then decide if we keep going.</p> <p>We will put an agenda item for the next meeting to discuss meeting times going forward. Are we all ok?</p> <p>*General consensus*</p>	
<hr/>	
<p>Next meeting</p> <p>March 17 2016 10:00 am to 12:00 noon</p>	
<hr/>	
<p>Meeting closed at 12:40</p> <p>Michael Ulph</p> <p>GHD – Stakeholder Engagement</p>	



ACTION ITEMS	
Action	Responsibility
Change wording of Action 4 in October meeting minutes to read water portal.	Michael Ulph
Amend Actions in last meeting minutes to include molarity action.	Michael Ulph
Confirm GRL CCC schedule.	Michael Ulph
Amend spelling error in October CCC minutes.	Michael Ulph
Provide response to pumping water questions.	Alex Kennedy-Clarke
Provide clarification around recovery of water from fracking. It is common to not recover 100% of fracked water?	Nigel Bean
Provide response to each of Dr Evans 23 recommendations in his independent peer review.	Alex Kennedy-Clarke
Organise tour of Tomago facility and invite TM.	Karyn Looby
AGL to present survey questions to CCC for review at future meeting.	AGL
Provide comment on the supply capacity for AGL renewables. How big a town could be supplied power by all the renewables?	Nigel Bean
Send ER CCC membership nomination form for completion.	Michael Ulph
Agenda item for next CCC 'Review of CCC Terms of Reference'	Michael Ulph
Agenda item for next CCC 'Review of CCC meeting regularity'	Michael Ulph