PETROLEUM AND GEOTHERMAL ENERGY LEGISLATION AMENDMENT BILL 2013

Consideration in Detail

Clause 1 put and passed.

Clause 2: Commencement —

Mr M.J. COWPER: I am interested to know why this is called the Petroleum and Geothermal Energy Legislation Amendment Bill and why is there no mention of geosequestration in the title of the bill.

The SPEAKER: We have moved passed that, member for Murray–Wellington; we are now on clause 2.

Mr M.J. COWPER: Perhaps the minister would care to answer it in any event.

Mr W.R. MARMION: I am happy to make a comment.

The SPEAKER: We have moved past clause 1, and we are now on clause 2.

Clause put and passed.

Clause 3 put and passed.

Clause 4: Long title replaced —

Mr C.J. TALLENTIRE: This clause seeks to change the long title to —

> **An Act relating to —**
>
> - **the exploration for, and the exploitation of, petroleum resources, geothermal energy resources, and certain other resources, within certain lands of the State; and**
> - **the injection and storage of greenhouse gas substances within certain lands of the State,**
>
> **and for incidental and other purposes.**

During members' contributions to the second reading debate, there was much discussion about the point of this legislation being about geosequestration. To some extent, that is captured in this long title, but a major point of this discussion—I believe the purpose of this amendment—is the exploration for those geologically appropriate sites where carbon capture and storage could be located. I understand from the minister's response to the second reading debate his interest, enthusiasm and support for the South West Hub, which I think is a worthy project for the minister to contribute to. I am concerned to note that this long title does not actually reflect anything about the, for want of a better term, exploration necessary for the finding of these sites. The Petroleum and Geothermal Energy Legislation Amendment Bill 2013 refers to the purpose being the injection and storage of greenhouse gas substances within certain lands of the state, but it does not actually indicate that this legislation is about the exploration mechanism. During the second reading debate, we touched on the issue of the release of acreage, and the minister assured me that although we currently use this acreage system for the release of areas that may be prospective for oil and gas exploitation, he thinks this could be the appropriate system for the finding of sites where geosequestration could occur. My concern is that we do not have mentioned in the bill that this is about exploration as well as injection and storage.

Mr W.R. MARMION: Exploration is a subset of the process, and we would not put all the subsets in. It is dealt with in immense detail in other clauses; this is just simply the title, and it mentions the injection and storage of greenhouse gas substances. There has to be exploration before it can be done, and that is implied.

Mr C.J. TALLENTIRE: I thank the minister for that response, but I note that the government is happy to talk about exploration in the first part, which reads —

> - **the exploration for, and the exploitation of, petroleum resources, geothermal energy resources, and certain other resources …**

But the government is not happy to talk about exploration when it comes to the sites that might be suitable for injection and storage. It seems inconsistent to me.

Mr W.R. MARMION: The injection and storage, as I said before, can occur only after exploration, so it is implied. The member can take it up with parliamentary counsel, but I am happy with the way parliamentary counsel—the expert drafters of the legislation who are far more experienced than I—have done it. I think they have done an excellent job, and I think it is well worded.

Clause put and passed.

Clause 5 put and passed.

Clause 6: Section 5 amended —

Mr W.J. JOHNSTON: In this clause, we are amending definitions. Would the minister make a comment about the meaning of geological formation? The minister mentioned it in his second reading reply, and I thank him for that. If the minister wanted to say anything else about it, it would probably be worthwhile because it is unusual that "geological formation" is defined to include part of a geological formation. What is a part of a geological formation? A geological formation may be huge, so we are really talking about, sometimes, only a part of a geological formation, if the minister sees what I mean. I want to know whether those words are actually what the minister means. The minister also has in the bill —

> (b) a prescribed greenhouse gas, whether in a gaseous or liquid state …

That is what proposed greenhouse gas substance or GHG means. I understand the government is going to prescribe that by regulation. But what other gases are contemplated in that definition? That will be all from me on the definitions, but if the minister could make comment on that to clarify matters. When the bill refers to geological formation, what scale is the minister referring to? Is the whole of Canning Basin a geological formation or is it that part of the Canning Basin that forms what the minister is talking about? What is being gotten at in that definition? I would imagine that nobody will use the whole of a basin, but it could be argued that it is a geological formation. The bill refers to part of a geological formation; has the minister understood the question?

Mr W.R. Marmion: I think I do, and I think I could give an answer, but I have a technical answer being drafted.

Mr W.J. JOHNSTON: I will stay on my feet for two seconds, if the minister likes.

Mr W.R. MARMION: Because we cannot get absolutely pure CO_2—that is why it is a little general—the other gas that may be either mixed in with CO_2 is methane. Methane is a by-product of liquefied natural gas. That is why methane could be another element in with pure CO_2. In terms of the geological formation —

Mr W.J. Johnston: So you are not intending other gases apart from methane?

Mr W.R. MARMION: No. I have raised this: it is not including —

Mr W.J. Johnston: Not at this stage?

Mr W.R. MARMION: It is not SO_2 or SO_3, which is a question I raised. No, they are not included.

I have advice on geological formation. I think the definition for geological formation is put in this bill to make clear what a geological formation is—all the bit and pieces—so that when anyone is talking about a geological formation, they know what it is. The general definition used by industry is, "in which, or a part of which, may be used for storage". In terms of the scale, it is the extent of the formation of the basin. The scale means the total basin of the formation, if that helps.

Mr M.J. COWPER: The explanatory memorandum states that —

> "identified GHG storage formation"—is that part of a geological formation that, using the fundamental suitability determinants set out in the application, is part of an eligible greenhouse gas storage formation …

Applying that to my electorate of Murray–Wellington and storage in the south west, it initially started with an area including the boundaries of Government Road, Riverdale Road, Old Coast Road and Forestry Road. I understand it has now been extended to the east, right to the fault line of Darling Scarp, and I understand there is a fault that runs, if you like, on the same trajectory as Darling Scarp onto the Swan coastal plain, and further north into Waroona shire. The actual footprint that was initially to be used for exploration has been changed. I am interested in, firstly, why that occurred, and, secondly, how the goalposts got changed. The minister is setting out that areas to be explored have to be identified. I understand that the Lesueur aquifer is to have a fence put around it. But how is it that the goalposts can be moved halfway through an exploration process, which of course impacts heavily on the landowners?

Mr W.R. MARMION: I am guessing that the member is alluding to a definition of a clause to divert and talk about a more specific operational issue in terms of what is happening in the South West Hub. Does the member have a concern with any of the definitions or does the member have a specific concern about the operation of the boundary of some exploration? I am seeking some clarification of which definition under clause 6 the member is referring to.

Mr M.J. COWPER: I am referring to the explanatory memorandum, under heading "Clause 6 – Section 5 amended". The second dot point reads —

> "identified GHG storage formation" – is that part of a geological formation that, using the fundamental suitability determinants …

I refer to the paragraph following "GHG", and it looks as though it is in alphabetical order under "Definitions".

Mr W.R. Marmion: Yes, go ahead.

Mr M.J. COWPER: I understand that proposed section 69E, "Declaration of identified GHG storage formation" refers to the types of suitable places in which geosequestration can occur. Proposed section 69E(1)(b) in part reads —

> … using the fundamental suitability determinants set out in the application —
>
> (i) that part is an eligible GHG storage formation;

The minister can make that declaration under proposed subsection (1)(c). As I understand it, the South West Hub application related to an area bounded by Forestry Road, Government Road, Riverdale Road and Old Coast Road. That was the initial application, and where the initial seismic exploration was done. It has since been perpetuated, made bigger and expanded upon. It goes from virtually Old Coast Road to the Darling Scarp, out beyond South Western Highway and further north into the Waroona shire nearly as far north as Coronation Road. The footprint of the South West Hub has now expanded. If the minister is saying that the definition means that the initial application has to determine or define where it will be looking, it would appear that this legislation will restrict things. There is some sort of implication that says this will be defined. The area has almost doubled in land mass and I would like the minister to explain why he has applied this, given that he has almost free rein over a wide aspect of private property.

Mr W.R. MARMION: I am advised that this bill has not come in; so what the member is talking about has no application to this. What is happening on the ground there is just happening.

Mr M.J. COWPER: In the future, what will happen? How will it work in practice? Will we be required first of all to define an area that we are going to search? If it goes beyond the area defined, does there have to be a separate application, an additional application or an amendment to the application?

Mr W.R. MARMION: Once the Department of Mines and Petroleum has identified an area, it will release it for people to put in submissions. We are going through an exploration phase. We can explore an area and make it bigger or smaller, however we like, as we explore it and do our 3D modelling. I cannot see the member's point. Is the member suggesting that the bill will identify a particular area and that we should never ever change that area? When we explore an area, it changes; it will move when we get more information. I am sorry, but I cannot understand the member's point.

Mr M.J. COWPER: The point is that clause 6(2) inserts the new definitions that will be applied. It states that an identified GHG storage formation means a part of a geological formation that has been declared under proposed section 69E(1)(e) using "the fundamental suitability determinants specified in the application". For instance, we know that three different formations might be suitable—near Moora, York and Harvey. I want some clarification from your good self, but I suspect that after making an application to explore a certain area, they now want to expand that area—either they realise the Lesueur aquifer is bigger than first thought or they just want to expand their horizons. The minister says that under this legislation they have to define the area. But they did not do that in this instance. Will they be restricted by this definition?

Mr W.R. MARMION: We have not identified anything, member. We are going through a process of identifying an area and proving up a 3D model of that area. The member mentioned three areas, but there could be 100 or 1 000. The member stated that to his knowledge there are possibly three. They have not been proven, but certainly the South West Hub is one area. We can define the area for the 3D modelling, which we then explore; but then we realise it might go further, so we have to do more exploring and the 3D modelling will go further.

Mr M.J. Cowper: Do they need to make a further application?

Mr W.R. MARMION: Can I just finish? I have four minutes. When we develop the area, there is no point saying they cannot go out of that area because then it cannot be proved that it is a confined space or know about the permeability so that it is secure. When we are exploring, we have to look at the whole area of the stratification to define the area and whether there is sedimentary rock suitable for storing CO_2. We might start off with a certain area. We are only in the exploration phase. Before the Department of Mines and Petroleum releases that tenement down the track, we will have worked out what the 3D model says. It may say that it will be safe and secure, but we might find that the sedimentary layer goes further. We would be talking about three kilometres below the surface. We might explore it and go out further. We want to make sure we know about the permeability of all the strata around the hole—let us call it a void, if you like, but it is not a void; it is porous sedimentary rock. All we are doing here is stating the definitions. We are not specifying anything in the definitions. These define what an identified GHG formation means. We are not defining how it operates. That is in other clauses.

Mr W.J. JOHNSTON: We are starting to explore something that I think we will be talking about in the third reading debate. I remind the minister that we all agree that in the future the legislation will be amended. One of the issues here, which the member for Murray–Wellington is focusing on, is that the geological formation will be massive. Although the person doing the exploration looks at this bit of the formation, they do not know whether it is sealed, because it goes into someone else's area or an area that is not in their permit. There is no question that the member is right when he says these definitions will potentially expand the area of the South West Hub. I acknowledge that the South West Hub is not related to this legislation, because the bill has not passed through the Parliament, and given this legislation is not in force, whatever they are doing there does not relate to this. Of course, once this legislation is passed, what they are doing will relate to this. They have identified a bit of land, which the member described because he knows the physical locations down there, but as they explore, they have found the geological formation to be much bigger —

Mr W.R. Marmion: Or smaller.

Mr W.J. JOHNSTON: — or smaller; but potentially it is much bigger. It is more likely to be bigger than smaller, is it not?

Mr W.R. Marmion: Possibly not.

Mr W.J. JOHNSTON: I am not talking about the injection site or "identified GHG storage formation"; I am talking about the geological formation. The storage formation is a part of that other thing, which might stretch for an enormous distance. When they start exploring, they are not sure if the formation can be sealed so they keep looking and eventually they find where the formation ends. The applicant for a title is only interested in the bit that they have got title to. I know we are getting onto a debate that we will probably come back to later, but I think the member is onto something and it is worth getting it resolved. Whether the minister says we will resolve it later when we reach proposed section 69E(1)(c) or now, I think it is worth making clear what we are agreeing to. I understand that the member is right, and even though we are looking at this little bit, the geological formation stretches for a long, long way.

Mr M.J. Cowper: It goes out to the ocean.

Mr W.J. JOHNSTON: It could do. But there could be a geological formation on the border with the Northern Territory, and we will talk about that later when we get further into the legislation. So we have these two things working together, have we not, minister? We have: what is a geological formation? We have had a quick chat about that. Then there is the question of scale, which is what my advisers asked to have put on the record, and then there is the question of identified GHG storage formation, which is part of a geological formation; it is not the whole of the geological formation. That is the issue the member is raising with the minister. He is right. It does not mean necessarily that we will vote against the legislation, but it is worthwhile identifying the fact that the issues he is raising are important, and we probably need to get something on the record that identifies the fact that he is raising a serious issue and whether there is any way of addressing it here—or maybe it is not addressed here; maybe it is addressed later.

Mr W.R. MARMION: I do not know what the serious issue is; I do not understand what the issue is. If the member wants to talk about how it happens, which I think might help —

Mr W.J. Johnston: Sure.

Mr W.R. MARMION: First of all, a person gets an exploration permit. It is not the government that defines it; it is the proponent, who wants to possibly use the area to inject CO_2 or to sequester CO_2 in the future. So they have to explore. Declaring the storage formation site, as it says in this clause, comes under proposed section 69E(1)(c). That is about when a storage formation is declared for a possible injection site. The exploration phase should address this point.

Mr W.J. Johnston: Okay. While you are on your feet, minister, say somebody comes and gets a permit for this piece of land. They think that something is down there but they can't be sure. They drill and they don't find that it is capped, but it is not sealed. It is not permeable, but it is not sealed on the edge. They find that the seal is somewhere else off the permeation.

Mr W.R. MARMION: Then it is possibly not suitable. They cannot prove that it is impermeable all around; so it is not suitable and they will not get a tick-off by the department.

Mr W.J. Johnston: What's the likelihood of somebody, without knowing what is down there, picking the right piece of ground?

Mr W.R. MARMION: I am not the geologist; the member's daughter is.

Mr W.J. Johnston: No, she's not yet.

Mr W.R. MARMION: If the member goes to the Geological Survey of Western Australia website, he will see an enormous amount of information from all the drilling that has been done during 100 years of mining operations in Western Australia, and also drilling for water. There is a lot of geological knowledge about the strata of Western Australia. It is less knowledgeable in the desert, but certainly around —

Mr W.J. Johnston: But, minister, how often do people go out to find hydrocarbons and they find that the reservoir is two-thirds in their lease and one-third in somebody else's lease?

Mr W.R. MARMION: It is not an issue. That will be the issue for the proponent to deal with. All we are doing is putting in place some legislation around someone who wants to do that, so it is not an issue.

Mr M.J. COWPER: Rather than get bogged down, I want to move on to another part of clause 6. It refers to geothermal drilling reservations.

The ACTING SPEAKER (Ms L.L. Baker): Which part, member?

Mr W.R. Marmion: Which page?

Mr M.J. COWPER: If we turn over to the next page, the minister will see clause 6(6) and reference to the definition of "geothermal drilling reservation".

Mr W.R. Marmion: I'm sorry; you've lost me.

The ACTING SPEAKER: Does the minister have it? It is on page 10.

Mr M.J. COWPER: Unfortunately, my copy is not marked with a page number, but it is the following page.

The ACTING SPEAKER: I will just clarify that. It is page 10 of the minister's copy, clause 6(6).

Mr W.R. Marmion: I have it.

Mr M.J. COWPER: It is an amendment to the definition of "geothermal drilling reservation". It is to delete the reference to section 43D(2) and replace it with the words "under Part III—introduction to a greenhouse drilling reservation. There are now three types of drilling reservations. Would the minister be able to explain to me what those three drilling reservations are and how that applies?

Mr W.R. MARMION: At the moment the act refers to petroleum and geothermal—so that is two. When this bill is enacted, it will bring in geosequestration of greenhouse gases—so that is the third one. They are the three drillings: drilling for petroleum, drilling for geothermal energy and drilling for greenhouse gases.

Mr M.J. COWPER: I am interested to know that the three types include petroleum, which is crucial to our western society. I understand that we have geothermal energy as a potential energy source, which is fantastic. If we could get that working, that would be great too. The third one is that we are going to use it for sequestration. I am struggling to understand how the capturing of carbon and putting it underground is in the same league, in the same ballpark or of the same importance as, say, petroleum or water or some other matter that is critical to the sustenance of our society. Simply put, CO_2 sequestration is a new technology; I repeat that it is relatively new technology. It has been done in only two other places in the world, and it has never been done in a sandstone formation such as we have, albeit porous; but it has never been applied in this sense. I cannot understand how it can be judged or seen in the same vein as, say, petroleum or geothermal energy.

Mr W.R. MARMION: We have two choices: either we do not do anything or we do something. Some people have a different view. Certainly, the green groups might have it the other way around; that is, geosequestration is a better drilling activity than—probably not geothermal—perhaps drilling for petroleum. I look at the member for Gosnells, who might know some people who say that, which might be counter to where the member for Murray–Wellington is coming from. At the end of the day, as I keep saying, we are void in the space of geosequestration. All this bill is doing is putting in place a framework around it if that happens. I think it is good to have it. The member has also made the point that it may never happen. That is not a reason to not have the legislation. Other people say that it might happen. We do not know what might happen years down the track. I know that the carbon price is low at the moment. It might be high in a few years, so it might be more economical, and better seismic testing might be developed in the future, which means that it is very easy to analyse geological formations kilometres below the surface, and that will make it even cheaper to do that. All we are about is putting this legislation in place so that we have a legislative framework. Whether the member thinks it is a good idea or not, if someone wants to do it, we will have legislation in place for it to happen.

Mr C.J. TALLENTIRE: On page 4, I am looking at the definition of "closure assurance period". In dealing with the definition of that, we need to go forward, so I am happy to be told to wait until we get to this clause as well. But proposed section 69JR(1) sets out more detail around the definition of "closure assurance period". One of the key components seems to be the term "site closing certificate", and that has me wondering why we are not defining that term "site closing certificate". The reason I am worried about this is the notion of a closure assurance period. I can imagine that people such as the constituents of the member for Murray–Wellington

would want to know that a geosequestration activity has come to an end and that it is in its closure phase. However, I find this term "site closing certificate" a bit vague. It needs to be defined. It is not currently, yet I think it would be a key document in the closure process—that is, there would be the issue of this site closing certificate. My understanding, looking ahead to proposed section 69JR(1), is that it is effectively an application for the relinquishment of liability, and I think that needs to be clear; otherwise constituents such as those in the electorate of the member for Murray–Wellington will say, "This company is trying to get rid of any responsibility it's got", when it is actually in a pending phase. I think the terminology around that needs to be clearer. My suggestion is that we look at this notion of a definition that refers to "application to relinquish liability", as that could be a more accurate term than these vague ideas of site closing certificates and closure assurance periods.

Mr W.R. MARMION: We are talking about just definitions here. If the member thinks there should be another definition, that is a different story. There are a lot of definitions in the bill and they are put there so that when someone reading the bill sees something they do not understand, such as "closure assurance period", they can find out what it means. If the member wants to talk about the way the process of closure occurs, that is under proposed section 69JR(1). I think we should deal with that issue when we get to that proposed section.

The ACTING SPEAKER (**Ms L.L. Baker**): That reference is in the act, minister, not in this bill.

Mr W.R. MARMION: I see.

Mr C.J. TALLENTIRE: I accept the minister's point to some extent, but I wanted a definition of "closure assurance period". There is no actual definition in the bill; I am just told to look at proposed section 69JR(1).

The ACTING SPEAKER: Sorry, there is just a small bit of confusion. We looked for proposed section 69JR(1) in the bill and could not find that reference. We had a rethink and we found proposed section 69JR(1) under clause 81 at proposed subdivision 5 on page 105, it is all as clear is that! Has the member found it?

Mr C.J. TALLENTIRE: Yes, thank you, Madam Acting Speaker.

The ACTING SPEAKER: Jolly good, so we have sorted that now.

Mr M.J. COWPER: I refer to the next definition, which is that of "detection agent". It reads —

> ***detection agent*** means a substance, whether in a gaseous or liquid state, that —
>
> (a) when added to —

Mr W.R. Marmion: What clause is that?

Mr W.J. Johnston: We are still at clause 6.

Mr M.J. COWPER: Clause 6.

The ACTING SPEAKER: On page 4.

Mr M.J. COWPER: I am on the definition of "detection agent".

Mr W.R. Marmion: I'm totally lost.

The ACTING SPEAKER: Page 4, clause 6, line 8. Only 172 clauses to go, do not worry minister!

Mr M.J. COWPER: The definition states —

> ***detection agent*** means a substance, whether in a gaseous or liquid state, that —
>
> (a) when added to —
>
> (i) another substance; or
>
> (ii) a mixture of other substances,
>
> facilitates the monitoring of the behaviour of that other substance or that mixture, as the case may be; and
>
> (b) is specified in the regulations;

Can the minister advise what sort of materials are typically used as detection agents? The minister can appreciate that if some sort of additive put into the material to see how it reacts is ever to escape there may be potential for it to combine with other materials. We already know that the Lesueur aquifer in my electorate has some limestone in it. If carbon dioxide is added to limestone, calcium carbonate is formed and it becomes solid. I am interested to know what "detection agent" means. Will we pump in some sort of a fracking material or detergent or whatever is used in other drilling operations? I am very curious to know what the detection agents may be. Is it red dye? I do not know.

Mr W.R. MARMION: I am advised that it is an inert trace element. It is inert and it will have no —

Mr M.J. Cowper: Will it be mineral based?

Mr W.R. MARMION: I am looking at my technical adviser, who says it could be mineral based.

Mr M.J. Cowper: Could it be chemical based?

Mr W.R. MARMION: Everything is a chemical.

Mr W.J. JOHNSTON: This will be my last contribution, I hope, for clause 6. I noticed that there are a whole lot of definition changes in clause 6(2). The following subclauses deal with definitions that will be modified. I would like an assurance from the minister that the effect of those subsequent amendments will not change the existing activity or practice under the legislation and that we are not making some consequential amendment that has an effect on existing geothermal or hydrocarbon production or exploration.

Mr W.R. MARMION: That is a very good question. Parliamentary counsel has gone through this bill with a fine toothcomb. This really just adds elements to do with geosequestration of greenhouse gases. The member will find that a lot of the clauses just add that component to the legislation. I am obviously not parliamentary counsel—it is quite a specialised field and I do know a few personally—but I am advised that there are no consequential detriments to the current legislation.

Clause put and passed.

Clause 7: Sections 6AA, 6AB and 6AC inserted —

The ACTING SPEAKER: Imagine that! Member for Cannington, is it?

Mr W.J. JOHNSTON: Yes, if that is all right by Madam Acting Speaker!

Proposed sections 6AA(1) and 6AB(1) are the guts of the bill. Proposed section 6AB(2) on page 16, line 17, refers to the amount of gas being less than 100 000 tonnes. Can the minister explain what will happen? I will go through a couple of things if he likes. Proposed section 6AA(1) on page 15, line 29, states —

> For the purposes of this Act, a potential GHG storage formation is a part of a geological formation that is suitable for the permanent storage of a greenhouse gas substance injected into that part.

If we are only starting to look, how do we know that it is suitable for permanent storage?

Mr W.R. Marmion interjected.

Mr W.J. JOHNSTON: The bill refers to a potential GHG storage formation that is apparently suitable only for permanent storage of the gas. How will we know, if we have not looked, if it has not been tested and nothing else has been done? That is my second question. I have a couple of others, but I will draw those two questions first.

Mr W.R. MARMION: I think the member will have to ask them one at a time, otherwise I will get totally bamboozled. I will deal with the first one about the amount of 100 000 tonnes.

Mr W.J. Johnston: That's a nice easy one!

Mr W.R. MARMION: I have not asked my advisers the answer yet, but one presumes it has to be considered of a certain size, and I will get this clarified, otherwise it will be something of a tiny formation. A body has to be a certain size before we consider it to be a serious formation. I ask my advisers whether that is a reasonable comment.

Mr W.J. Johnston: So what is the answer?

Mr W.R. MARMION: My answer is right.

Mr W.J. Johnston: Anything less than 100 000 tonnes is a trial, is it? Is that what the minister is saying?

Mr W.R. MARMION: Yes, it is a trial or a pilot.

The other point the member made was that proposed section 6AA(1) states —

> For the purposes of this Act, a potential GHG storage formation is a part of a geological formation that is suitable for the permanent storage of a greenhouse gas substance …

The member is turning everything around a bit.

Mr W.J. Johnston: Does that proposed section not turn it around?

Mr W.R. MARMION: Once the exploration is done, it becomes suitable to store greenhouse gas, because that is how it is defined. The proposed section says what it is: a GHG storage formation is a part of a geological formation that is suitable for the storage of greenhouse gas. If it is not suitable for the storage of greenhouse gas, it will not be a potential storage formation.

Mr W.J. Johnston: But minister, it says that it is a potential GHG storage formation, but it is only a potential storage formation if it is suitable for permanent storage. How do you know, if you haven't done the appraisal? You're letting a lease on land that is suitable, but even though it is suitable, it is only potential.

Mr W.R. MARMION: Once the proper studies have been done, once we have released what we call a potential GHG storage formation, it has to be proven.

Mr W.J. Johnston: How can it be potential if it is suitable?

Mr W.R. MARMION: It is potentially suitable.

Mr W.J. Johnston: Okay, but the provision does not say that.

Mr W.R. MARMION: If the member reads it slowly—this is parliamentary counsel's wording. I think they have done a pretty good job on this one. The member should think about it. They are saying that a potential GHG storage formation happens to be something that is suitable for permanent storage. The outcome is it has to be suitable to be a permanent storage facility, but the member has to read it slowly. I understand it. I had to read it three times but I now understand it. Everything is potential until a lot of work has been done, and once all that work has been done, we can be convinced that it really is a better permanent storage of greenhouse gas, and the Department of Mines and Petroleum will probably give the tick to start injecting—that is how I read it. We would not have something that is "not potential" if we did not think it would be "suitable" as permanent storage. If we thought it was "possibly suitable" but not "suitable" as a permanent storage, then under this definition it would not be a potential GHG storage formation.

Mr W.J. JOHNSTON: I think we have quod erat demonstrandum on this clause. If it is suitable for permanent storage, we know that only because we tested it and found it out. Let us put ourselves in the position of an applicant who makes an application for an exploration lease to do exploration in respect of storing GHG. It then finds that the geological formation it has identified is not suitable for the permanent storage of GHG. This means that the lease was invalidly granted because we can only validly grant the lease if the formation is part of a geological formation that is suitable for the permanent storage of a greenhouse gas substance. If we do the testing and find that it is not, then that applicant was not allowed to do the testing in the first place.

Mr W.R. Marmion: The member is defining a process.

Mr W.J. JOHNSTON: No, I am not. I said that a formation is either suitable for the storage of GHG or it is not, and we will know that at the end of the process described in the bill about finding out whether a place will work. Let us use the hydrocarbon example. If the minister said that an applicant can get an exploration lease either anywhere that there is gas —

Mr W.R. Marmion: Now the member is talking about a process, not the definition in proposed section 6AA(1), which tells us what a potential GHG storage formation is.

Mr W.J. JOHNSTON: Yes, but let us imagine it were not a GHG storage formation. Let us say it is a potential oil field or oil reservoir, and for the purpose of this legislation a potential oil reservoir is a part of a geological formation that is suitable for being an oil reservoir. However, if we then go and look for the formation and do not find it, then we never had the right to do that because it was never there.

Mr W.R. Marmion: Using petroleum is a good example.

Mr W.J. JOHNSTON: That is because this provision should work with anything, but surely it should be a geological formation that is judged by the minister to be potentially suitable for the permanent storage of greenhouse gases.

Mr W.R. MARMION: Parliamentary counsel has done a great job on this but they are just saying what it is. The member has then turned it around and said that if the department releases a tenement for exploration, which is not what this provision is about. For the purpose of the bill, this provision is about a potential GHG formation. The member is talking about a process, and I will use petroleum as an example if the member likes, but it could be a geothermal exploration or what we are talking about. A tenement is released to "company SOS" right in the middle of the ocean in state waters and it has the potential for gas. The company drills and does not find any gas. Bad luck; that is the risk the company takes. It is the same thing here. It has to be proven. The company has to do all the exploration and the modelling, it is a lot of work, and that is why we will not get a $2 company doing this because it is a huge risk. It is a bit like working with petroleum, and probably more so because if a hole is drilled out in the ocean, which costs millions of dollars, that company might then be able to onsell it, which is the point that both members made, and a good point too, but it might be a little harder to onsell—

Mr W.J. Johnston: It is going to be very hard.

Mr W.R. MARMION: Yes, so the really big players are involved here. We are getting down to semantics here, which the member probably enjoys. However, he is talking about the process rather than what is worded in the provision.

The ACTING SPEAKER (Ms L.L. Baker): Perhaps one more question member.

Mr W.J. JOHNSTON: Thank you Madam Acting Speaker. Yes, we are dealing with semantics. We are dealing with the words on the piece of paper and if they do not mean what we intend, then it is not what we intend that gets passed by the Parliament, it is the words we use. I do not understand how the minister can say—proposed sections 6AA and 6AB are the critical parts of the bill. This is where we set up what we are doing. Proposed section 6AA is about how we define what a potential GHG storage is, and proposed section 6AB is how we go about dealing with the storage. My point is that if the site is suitable for permanent storage that is a conclusion.

Mr W.R. Marmion: You do not know that—

Mr W.J. JOHNSTON: Yes, but in this definition we have a conclusion. Proposed section 6AA(1) states in part that if —

> …a geological formation that is suitable for the permanent storage of a greenhouse gas substance injected into that part.

That is pretty damn conclusive to me, if I can use that term and not be unparliamentary.

Mr W.R. Marmion: It could not be a potential GHG storage formation if it were not suitable for the permanent storage of a greenhouse gas.

Mr W.J. JOHNSTON: No, it could be, because we go out and look and find out that it is or is not suitable; that is why we do the exploration because we do not know in advance whether it is suitable for GHG storage, otherwise why would we look? If we already knew, there is no reason to have an exploration phase and we can go straight to the injection phase. We are setting up legislation that will allow exploration, injection and security maintenance in the future. I do not see how the minister's definition suits because we are talking about potentiality, not conclusion. The minister's definition in proposed subsection (1) says that —

> …a potential … storage formation is a part of a geological formation that is suitable for the permanent storage of a greenhouse gas substance injected into that part.

If it is suitable, then why are we saying it is "potential"; it is suitable and it will happen.

Mr W.R. MARMION: The more I read the provision, the clearer it becomes. This definition is very logical. It is only "potential" because a lot of work has to be done. This provision says that here is something that will potentially be useful, but it will only be useful if it reaches this outcome. We are actually defining and letting the person know that this is a potential storage formation but it has to reach that outcome, which is to be suitable for the permanent storage of greenhouse gas.

Mr W.J. Johnston: After the end of this debate and before the bill gets to the other chamber, let us look at this provision because at the moment the minister is saying that "potential" means only if it is suitable, but we only know if it is suitable after the exploration has been done.

Mr W.R. MARMION: We are talking about a potential storage formation. They will not know about a potential storage formation until they have done the exploration. When they have done the exploration, they will want to know that once they have proved that it is suitable for permanent storage of a greenhouse gas, they have hit the jackpot. This is saying that it is a potential GHG storage formation if it is part of a geological formation. When they have proved that it is suitable for permanent storage of a greenhouse gas substance and they can inject CO_2 into it, there will be a very good chance that the Department of Mines and Petroleum, which has a very good work plan around it, will agree to that. I am happy with the wording. But I am very happy for my learned colleagues around the table to check with parliamentary counsel that we are not going around in circles here and they have not slipped in an adjective when they should not have done that. But it seems logical to me.

Mr C.J. TALLENTIRE: I am concerned that we are putting into the definition some form of prejudgement, and that by so doing, we might give an indication to a potential geo-sequester that the state had done the proving up of capability. I understand that the minister will take that further, so I am happy to leave it at that point.

Mr W.R. Marmion: The state will not have done the proving up. The possible tenement will be there for the proponent to prove up. We are not going to give any guarantee. It is like what the commonwealth does with petroleum tenements. A proponent has a tenement and is licensed to do some exploration. It is at their risk. They might have done some geological survey and someone might have drilled around the area, so they would have a bit of an idea. But they will not know definitely that it will be suitable for the permanent storage of greenhouse gases until they have done more work.

Mr C.J. TALLENTIRE: I understand that the minister is going to double-check that with parliamentary counsel.

Mr W.R. Marmion: I will check to see whether it can be worded better.

Mr C.J. TALLENTIRE: Thank you, minister.

I have a further point on proposed section 6AB(8) at page 18. This is a point that I raised earlier. It states —

> The ***notional site closing certificate time*** is the time estimated under subsection (6)(e).

Subsection (6)(e) states —

> estimating the earliest time after the end of that period when the Minister would be in a position to issue a site closing certificate in relation to the identified GHG storage formation.

I would like an explanation of that. This comes back to the misunderstandings that could arise around the term "site closing certificate". I think the minister would do well to think about a term that would convey the transfer of liability issue. This is about an application that a company would make after it had done the sequestering of, for example, 100 million tonnes of CO_2. The company believes that the project is sound and there is no risk of leakage and therefore no risk to the environment, and it is looking to get a site closing certificate. I think we could also call that certificate an application to relinquish liability.

Mr W.R. MARMION: I am not sure whether the member is suggesting a different wording. Basically, this is just saying, as the member has said, that the notional site closing certificate time is an estimate of the earliest time after the end of the period at which the minister—which will be me—will be in a position to issue the site closing certificate in relation to the storage formation; and, after the site closing certificate has been issued, the proponent will have a minimum period of 15 years during which it will be monitored.

Mr M.J. COWPER: I refer to proposed section 6AC at page 18, headed "Incidental greenhouse gas-related substance". I want to get some understanding of what this means. Carbon dioxide and other greenhouse gases will be captured. I understand they will be in a liquid form. They will be pumped to a site and pumped into the ground. Subsection (2) states in part —

> For the purposes of this Act, each of the following is an incidental greenhouse gas-related substance …

I am interested to know what those incidental substances may be. For example, if we were to capture the carbon from—it will not be Muja A, will it?—the Collie coal-fired power station, I understand that some of the emissions from that power station might be fairly innocuous things. But they might also be fairly nasty things, such as arsenic and other heavy metals. Would that fit within the meaning of "incidental greenhouse gas–related substance"? My obvious concern is that CO_2 material might escape from a particular aquifer or reservoir onto farmland. So I am interested to know what those potential substances could be, and what is acceptable.

Mr W.R. MARMION: That is a good question, member, because this is the first question that I asked when I was briefed on this bill. The aim will be to get as pure a form of CO_2 as is possible. But, as the member says, in capturing the CO_2, which is what is covered here, there could be some incidental substances. That is what will be monitored. DMP will not approve anything that it is not happy with. The aim of the exercise is that those substances will be removed. So anything like an SO_2 or SO_3 will need to be removed. That can be monitored by DMP so that they are not part of the CO_2 gases. But methane is included as part of the CO_2 mixture.

Mr M.J. COWPER: I appreciate that explanation. What does "incidental" mean? Is incidental one part per million, or 10 per cent, 20 per cent or 30 per cent? What is an incidental amount of material? I am not talking only about what is coming out of the ground and the potential for that to leak. What about the transmission lines that run from Perth to potentially Collie and across the landscape? I imagine that it would be some sort of poly-pipe. What would happen if that pipeline ruptured? If CO_2 goes into the atmosphere, that is fine, but what will happen if there are other incidental gases that might potentially be of concern?

Mr W.R. MARMION: In the composition of the flue gases, as I have said, SO_2 and SO_3, and NO_2 and NO_3—heavy metals—must be removed prior to entering the pipe. It will be monitored at that point, and the EPA will set standards. There are minor variations in microscopic particles. I guess there are Australian—indeed world—standards that the EPA would specify.

Mr M.J. COWPER: This leads me to wonder why, if we are going to extract potentially, for instance, from the Collie power station where we are taking arsenic and lead—I do not know what other emissions come from coal gases—why do we not do that now? We are taking it out before we transmit the CO_2; if it is harmful to the environment why are we not doing that now? For the purpose of transporting CO_2, the government is prepared to take out all the impurities before it is sent. I find it curious that it is incidental. It worries me that "incidental" might be zero or minute particles. But I know that certain heavy metals accumulate. Farmers know that when

they feed animals there is a process so that when an animal ends up in the marketplace they can track who produced the beast and what minerals or impurities may have accumulated in it along the way. How can we know with confidence that the materials that are captured, transmitted and injected will have a cumulative effect on these heavy metals?

Mr W.R. MARMION: Let us use Collie power station as an example. We have good assurance that emissions are already monitored by the Environmental Protection Authority. As the Deputy Premier; Minister for Health knows, Australian standards cover what percentage there can be of various elements. I do not know what is in there, whether it is lead or arsenic, but they have to be microscopic, otherwise the EPA will not allow the plant to operate. Those gases are already monitored by the EPA, and we will be taking out the CO_2 from the emissions, transporting it by pipe and sequestering it into the geological formation. If there is any consequential, incidental minute substance, it will have to conform in my view. I am not the EPA, but all these projects will be vetted by the Environmental Protection Authority and the environmental section of the Department of Minerals and Petroleum. They will get a very comprehensive going over before the work and injection programs are approved. I would be very confident, member, that anything incidental will be very incidental to the CO_2 But, as I said before, methane is one, I guess, largish component that could be in the gas in addition to the CO_2. That is what I have been advised.

Dr K.D. Hames interjected.

Mr W.R. MARMION: The member for Collie–Preston mentioned that in his second reading contribution.

Mr M.J. COWPER: In technological terms, geosequestration is a new science that does not have a lot of history, but has been done successfully in other parts, and primarily, as I mentioned in my second reading contribution, has been pumped back into voided oil deposits. Most of those have been on, I think, the north west coast of the Americas and in the North Sea off Scandinavia. I do not know of any such geosequestration practice that looks at pumping it through the heartland of farming communities that are very important to the state. For the purpose of *Hansard*, I would like the minister to say that we, as a state government, are extremely confident that we can capture this material, transport it along a pipeline to a position and pump it into the ground without it escaping. If it cannot be done with confidence, I would like to know that the project will not go ahead.

Mr W.R. MARMION: I can say that that is why we are going through this process. The first point is we are legislating so that we can have a framework around geosequestration. There will be a rigorous process to make sure we have a three-dimensional model and that the capture of CO_2 cannot escape the basin. It will then be monitored by the EPA. If there is any suggestion that it will not work, the EPA will not tick off on it and not only the environmental section of the Department of Minerals and Petroleum but also the technological section will not tick off on it. We have those processes.

Dr K.D. Hames: Use the C word—confident.

Mr W.R. MARMION: I am very confident.

Dr K.D. Hames interjected.

Mr W.R. MARMION: That is right, otherwise, as the minister, I would not have brought in the legislation.

Mr W.J. JOHNSTON: I raise a question about proposed section 6AC(1) at the bottom of page 18, lines 27 to 28, which read —

> (a) carbon dioxide;
>
> (b) one or more prescribed greenhouse gases.

The definition of greenhouse gases from the IPCC website is as follows —

> Greenhouse gases are those gaseous constituents of the *atmosphere*, both natural and *anthropogenic*, that absorb and emit radiation at specific wavelengths within the spectrum of *infrared radiation* emitted by the Earth's surface, the atmosphere, and clouds. This property causes the *greenhouse effect*. Water vapor (H_2O), *carbon dioxide* (CO_2), *nitrous oxide* (N_20), *methane* (CH_4), and *ozone* (0_3) are the primary greenhouse gases in the Earth's atmosphere. Moreover there are a number of entirely human-made greenhouse gases in the atmosphere, such as the *halocarbons* and other chlorine- and bromine-containing substances, dealt with under the *Montreal Protocol*. Besides $C0_2$ N_20, and CH_4, the *Kyoto Protocol* deals with the greenhouse gases *sulfur hexafluoride* (SF6), *hydrofluorocarbons* (HFCs), and *perfluorocarbons* (PFCs).

Mr M.J. Cowper: Spell it!

Mr W.J. JOHNSTON: No.

Apart from the fact that I am not sure what some of those things are, there are a lot more gases than just carbon dioxide and methane. Here we are seeking to prescribe other greenhouse gases. I understand that the minister is seeking flexibility in the legislation and I understand that it will be a disallowable instrument, but I wonder whether we are providing a huge scope. The minister has already said he does not want to put nitrous oxide or sulfur dioxide in the ground, but what about carbon monoxide or sulfur? There are all these other things. Why are we allowing such a broad scope for regulation? Would it not be better to prescribe this more narrowly so that we know what we are allowing in the legislation?

Mr W.R. MARMION: A good question, which follows from the last one and the question I asked, as I said before. The word "prescribe" is exactly why, as the member said, it gives us a bit of flexibility, which is acceptable. As I said, it will be mainly methane. But as the member said, it is there to give some flexibility, but the intention is that it is primarily for CO_2 but with CH_4, methane, being acceptable.

Mr W.J. Johnston: Why is the minister not prepared to put on the record that it will not go into the ground? The member for Murray–Wellington was referring to incidental issues. I am not asking about those issues. I am asking about what the minister will prescribe.

Mr W.R. MARMION: The problem with prescribing something is that microscopic particles of every single element under the sun could be in anything we look at. This gives the flexibility. If someone says there is a gold particle —

Mr W.J. Johnston: That is an incidental item. I am not asking about incidental issues; I am asking: are you prepared to put on the record what you will not allow to be prescribed as a greenhouse gas? The obvious question then, minister, is: if you are not prepared to put on the record what is not a greenhouse gas, what are you hiding?

Mr R.H. Cook: Yes, what have you got to hide?

Mr W.J. Johnston: That's it; we don't trust you; come on! I'm referring to the list of things I read out from the IPCC, and cyanide is not on that list, minister.

Mr W.R. MARMION: The trouble is that if an element is specified, there could be 0.00001 parts per million involved.

Mr W.J. Johnston: No, minister, that is not —

Mr W.R. MARMION: I am not enough of a technical expert to be able to say what that measure is.

Mr W.J. Johnston: No. But this isn't that; this is what are you going to say is a greenhouse gas? Are there elements I have read out from the IPCC list that —

Mr W.R. MARMION: Hydrofluorocarbons, SO_2, NO_2?

Mr W.J. Johnston: — are greenhouse gases that are able to be prescribed by this clause?

Mr W.R. MARMION: I will be able to come back with an answer to that.

Mr W.J. Johnston: Good.

Debate adjourned, pursuant to standing orders.