Planning Inspectorate
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Event Transcript

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TRANSCRIPT_KEADBY-NEXT-GEN_ISH1_SESSION2_2026-01-21

00:00
Good morning. It's now just gone 20 to 12. I'm ready to resume. I'm hoping all the parties are back. So I will just progress with the next month on the agenda we're still on to be on climate effects and emissions. And I'd like to take sort of Part B of item to be, which is the assumptions on hydrogen source supply and upstream emissions. So I think here, I think it would be helpful again, perhaps for all parties taking part, if the applicant can explain, if you like the different colors or of hydrogen, and in particular, which one. I have no idea what that right. Okay, there we go. I have, if you could perhaps just set out what, where your sources of hydrogen for this, for the proposed power plant would be, if you can, thank you.

01:10
Aramesh, for the applicant, Dr Lowe will address that question. Sir Richard

01:16
Lowe, representing the applicant. So from our perspective, we are using this project as an enabler to help develop the Low Carbon infrastructure and low carbon hydrogen infrastructure, because, as you appreciate, sir, there are three parts to the hydrogen economy and the hydrogen chain. There's hydrogen production facilities to produce the appropriate hydrogen. And I'll come back to that in a second. Then there's the hydrogen transmission, the pipelines to bring that hydrogen to the off taker or user the hydrogen. And then there's the hydrogen user or off taker, and this project is the hydrogen off taker. Now, at the moment, as you may have seen from the development of hydrogen infrastructure in the UK, there are a number of projects progressing on the production side, and a recent example of that is the h 2t side blue hydrogen production facility that was progressing through the development consent order process had gone through examination, and now that project has been withdrawn. But there are other projects similarly going through either nationally significant projects or as local planning applications and local development projects. For example, the applicant has a partnering arrangement with another company called equinor, who are developing hydrogen production facilities to develop low carbon hydrogen and provided into the system. So those production facilities will need certainty that somebody will require the hydrogen to be used, and this is an enabler for that hydrogen, and that's one of the purposes of this project. The other part of that chain in the middle is the hydrogen connections, the transport infrastructure to bring hydrogen from production to use. And there are a number of projects ongoing to try and develop that and pertinent to this particular application and this particular site, there's a project called East Coast hydrogen, which is a partnership between national gas, northern gas networks and cadent to bring infrastructure to move forward to allow hydrogen to then be delivered to off takers, and there's work ongoing on those projects to do that. So it's important to stress that we are not tying this project, this power station, to any particular hydrogen production facility,

because of that uncertainty as to which facility will move forward, which facilities go ahead and which production facilities come forward first, is an evolving piece back to that point around the uncertainty around The market. We are still collectively awaiting the hydrogen strategy that was due to be issued by government, October, November, time last year, 2025, we're still awaiting that hydrogen strategy to be published. That hydrogen strategy will set out government's expectations as to which infrastructure will be developed. Our expectation and our understanding having conversations with government is that the strategy is likely to favor a cluster led approach around hydrogen production, to hydrogen off takers. So all of those are in play, and as a result, we cannot in a we're not in a position to specify which hydrogen production facilities would supply the hydrogen to this to this facility, any more than we could mandate for or the applicant could mandate for the operational QB two power station. That power station relies on gas provided by the National gas transit. System, at no point can the operator of the QB two power station say, I want that gas to come from this gas field over here or that supplier over there. The gas transmission system is a regulated business which provides natural gas into the system and uses the transmission network to supply the users of that gas in terms of the colors of hydrogen, the question that you've raised, as you appreciate so there are, there are a range of different colors, and there are different terminologies used for the different colors of hydrogen. In simple terms, I'll just briefly explain those and where they may be coming from. So at one end of the spectrum, and this is where a significant effort has been made by government to develop this infrastructure is production of what is called Green hydrogen. So that is taking hydrogen from water and using electrolysis to break the water molecule, which is H, 2o to allow that hydrogen to be formed. And the expectation, or most of the projects looking to develop green hydrogen, as it's called, are using renewable electricity, for example, surplus electricity that's available from offshore wind when the UK transmission system doesn't require that to use that to break the water molecule and produce the green hydrogen from that. There are a number of projects in development to develop green hydrogen in that way. There's a project, for example, that's nearing production. It's going through construction and commissioning now, which is called h1 100, which is up in Scotland as an example. So a number of projects are developing through that, and the government has incentivized those projects to come forward through a hydrogen allocation round, H, A, R, and there were, there have been two allocation rounds to date supporting those hydrogen, green hydrogen projects. But I think it's fair to say that at the moment, those green hydro projects are emerging technology. They are moving forward at pace, but the scale of production of green hydrogen in the UK today is relatively small. Blue hydrogen is perhaps the next color of hydrogen along from green, and that is a project such as the aforementioned HTT side, where natural gas is then used through the two or three main technology options to how to produce it, but steam methane reforming as an example, where the natural gas molecule, which is CH four, is split and the carbon is removed to produce the hydrogen that is then low carbon hydrogen. And this is going back to the points made before our break relating to the low carbon hydrogen standard. So by developing a production facility where you can then capture the carbon that source, when you remove the carbon molecule from the from the natural gas molecule, that carbon can then be captured and put into a carbon capture network, for example, as being developed in Teesside. And that would then allow hydrogen to be low carbon and then put into the national gas transmission system, or the hydrogen transmission system to be able to be used. So that's the blue hydrogen. And those projects are still under development, but there are, I would say, at least an order of magnitude higher in scale in terms of production output that could be facilitated from Blue hydrogen than green hydrogen in the current market. So our expectation is that blue hydrogen will probably take the bulk of any hydrogen produced

to be able to facilitate the use in a power station of this size and scale. There are other colors of hydrogen, as you have mentioned. There's one which often is called turquoise hydrogen, sometimes other terms used, which is hydrogen from nuclear power station and taken off from that. Again, a number of projects are in Concept and Development to consider that, but nothing yet is available from a from that alerted to feed into a natural gas hydrogen network. But that would be another option available, and again, that is another low carbon hydrogen solution, because it's not relying on the use of natural gas to produce that hydrogen. And then in the UK, currently, it has been for many, many years, there are existing hydrogen production facilities typically associated with refineries, and they are using natural gas to produce hydrogen, because that hydrogen is needed in coolers. It's needed in the refining processes. So that's an established practice, and has been for many years. But what those existing hydrogen operations are not doing is capturing that carbon. They are venting that carbon dioxide straight to atmosphere. So they are the gray hydrogen, exactly that, yeah, gray or sometimes they come with different colors, gray, gray, brown, black. Are different sort of they. Evidence of that, but exactly that's it. Yeah. So our expectation is that as government policy is moving to clean power, 2030, as hydrogen is seen by government as a key enabler, to enable a switch from natural gas to a low carbon fuel, then the expectation is that the hydrogen production network of low carbon hydrogen will be continued under government policy and in accordance with government mandates, that will then allow the hydrogen transmission network to be developed. As an example the East Coast hydrogen, which then links to what's called Project union, which then is a sort of spine of hydrogen developed across the UK, and then those will be used by the development this proposed development, and this will be a key off taker of that.

10:51
Thank you. I just want to question some of the things that you've said. Dr Lowe, now you talked about the three parts to hydrogen. You talked about the production, the transmission, and then what you are is, is the off taker, the user. But to calculate the carbon emissions from the whole project, we have to take the whole the whole supply line, don't we? I mean, for the law requires us to know where the hydrogen is coming from, how it's being transported and then, and then what's being happened to it on site. We'll come on to the scenarios in just a moment. But in terms of calculating the carbon emissions, we can't just isolate ourselves as the off taker, can we? That's right, isn't it? And isn't it?

11:43
So certainly the life cycle does need to be considered, sir, yes. I think what we have the way to do that, because the source of the hydrogen is not yet confirmed, and we therefore have made some assumptions around how to calculate that, and we're using the low carbon hydrogen standard as a mechanism for doing that. So, in As previously mentioned, the H 2t side examination concluded several months ago, and as part of that, there was consideration given to how can they come that project meets the low carbon hydrogen standard with the production of hydrogen from its facility, and it's transported that into

12:23
the network. Yeah, so I'm just so you've answered the question, carbon emissions must be considered as part of the whole cycle, and you've talked about that the three you talked about green hydrogen, blue hydrogen, possibly turquoise. I know that there is a there's yellow as well, I believe, for solar and

others, if it's your intention, your expectation that you will be using hydrogen from a low carbon source, why can't the order, even though you don't know where the hydrogen is coming from, I accept that it's, it's quite in its infancy. But my question is, why can't the Why can't the application, the order restrict that the hydrogen source is only from one of those low carbon sources? Because, as I see it, and you can correct me, and whilst I fully accept you, it's your intention to use a low carbon source, and I accept, and the government is pushing that, as you said, but nevertheless, there are some what I would endeavor to say, non low carbon sources of hydrogen that you could use. And then, wouldn't that then undermine your whole assessment in that respect,

13:43
Richard Lowe represented the applicant. I think, from our perspective, we, as discussed, are reliant on the wider chain of hydrogen production and supply. So I do keep drawing parallels back to the existing national gas transmission system for the provision of natural gas to the existing power stations. It's not in the off takers control as to where that natural gas comes from, and nor do I see it could be under our control to specify where the hydrogen would come from.

14:19
No, sorry to interrupt you, but, but I'm because I'm very keen to get down to this point, but that, but that's very different, isn't it? Natural gas. Because gas is, is gas. And then you, for example, if you take your key be three scheme, you would have collected the carbon on site from from the combustion of it. So, but with, with hydrogen, there are various ways in which that hydrogen can be made. It is different to gas, isn't it? It you can't really say, well, we can't control the sources of gas. Therefore we shouldn't be able to, we shouldn't be obliged to control the sources of hydrogen. I mean, that that's a different case, isn't it? Or is it not?

14:57
Well, I think I would, uh. I would say that there are parallels, because, for example, one of the points that Dr Boswell makes is that there's a proportion of LNG coming into the UK gas system flexes and changes over time. And so I think it is similar in that there are certain supplies of natural gas into our system which are lower carbon than others. So the mix is provided and regulated to meet a gas standard by by the operator of the system, national gas. And that's exactly how it will continue to be for hydrogen that they that will become a regulated system where the gas will meet a certain standard. Now is it Government's intention to mandate what the hydrogen, the carbon intensity of the hydrogen in that system would be? I would suggest that that's quite likely, and therefore we can rely on that low carbon hydrogen standard. I think as you, as you say, sir, there's no expectation that the hydrogen supplied would not meet the low hydro, low carbon hydrogen standard. But I don't think it's for the off taker to mandate that, because how would we regulate that in practical terms, if the hydrogen coming through that system to our support to our power station certainly has a slug of of higher carbon hydrogen, well, how would we manage that we can't turn the power station off mid mid operation on the basis that somebody detected a slightly higher carbon intensity. Nor do I see how we would actually practically be able to measure that during the operation of the power station. So I think I totally understand the symptom, sir, and I understand exactly the question, but I don't see how practically this project as the off taker could impose controls on that we have to work. And I think what the applicant has done, and is very clear, we have worked hard with the partners to look to develop low carbon

hydrogen infrastructure. So the partnership with equinor on the Humber hub as an example, is looking at developing a hydrogen network to connect low carbon hybrid production to the pipeline system to storage, because that's another key component, and then into the off taker. So we're trying to create some vertical integration of that network to deliver low carbon hydrogen. But I don't think it's this individual project's responsibility to control that, nor do I say practically how we could control that. I think so sorry. So one of the point having worked on production facilities for low carbon hydrogen, as well as this as an off taker that, as I say, that challenge is put back to the production facilities, as much as it is to the off take it. How are you going to meet the Low Carbon hydrostatic for the hydrogen that you produce? And that is something that then is set through normally, through the fiscal mechanisms with government, a production of hydrogen will be made, which, if it qualifies for low carbon hydrogen standard, then receives the appropriate fiscal support to be able to for it to be produced and put into the network. And I see that as the way of controlling the low carbon hydrogen standard and maintaining and meeting it, and the more that green hydrogen can be brought forward to be able to do that, the better, because that lowers that intensity even further. But I think the control point has to be at the production, not at the user.

18:33
Yes, I understand that. But of course, as we go back to the original point, I'm not sure there's not much more asking you another question on it because but it Yes, I may agree with what you're saying, but it doesn't excuse this project from calculating what its carbon emissions will be, as you have to consider, or you have to make assumptions on where it is coming from, and My This is why I wanted to ask that, given that you have to calculate the carbon emissions of the whole of the whole lot to so to speak, of the three stages is whether there is some guarantee you can provide. Now I've heard your answer. You said you don't think it's for this scheme to do. So perhaps I'll ask one other question. Is there? I haven't written this, so I'm just thinking this out. You've highlighted a lot of projects where there's green hydrogen, projects underway, blue hydrogen, potentially that you could source. Is it possible that you could source hydrogen from a gray or brown, black source for this project is there, or is that extremely unlikely?

19:51
Richard low representing, it's extremely unlikely that there will be any incentive for a producer. Of gray hydrogen to put that into a network. It would be very unlikely, from policy terms, for a network operator to connect to a gray hydrogen producer and put hydrogen infrastructure to be able to pipe that into a system, certainly on all of the discussions and all of the work I've seen done on, for example, East Coast hydrogen. At no point is there any a connection to an existing gray hydrogen producer. There is no intention to connect to them. There's no value in producing hydrogen and emptying it in to that network. The whole point of using hydrogen as a fuel is to replace natural gas, to lower the carbon intensity of that and allow that transition to a low carbon use of fuel and move us away from natural gas, the costs of producing gray hydrogen far exceed the costs of just using natural gas. So if it doesn't lower the carbon intensity, there is no logical reason why anybody would want to produce and flood the system with gray hydrogen. It would just be a more expensive way of just using natural gas. So I can't see any credible scenario in which gray hydrogen would be put into that system, nor any intention to connect it. And also just one point, just in case I hadn't made it very clear. So in terms of assessing the wider upstream effects. In effect of our assessment scenario did consider the carbon emissions

associated with production of hydrogen, installation of the hydrogen pipeline to the proposed development. So I think paragraph 18.3, point 64, of chapter 18 of the environmental statement does set that out. So we have tried to consider the carbon emissions of the pipeline as well when considering where that hydrogen may come from.

22:00
Yeah, I'm just filling that in on Mike, because I've got that down as a question about the upstream emissions. Perhaps I'll come back to that and get you to just repeat that again. So again. So the point I think you've just made there is that a non low carbon source is unlikely, particularly gray because it's more expensive than just, than just using it as natural gas and supplying gas stations. Okay, that's that's very helpful. Thank you very much indeed for that. And just a question in terms of, I suppose, a clarification question, does the hydrogen arrive on site in a liquefied form or a gas form.

22:44
Richard low representative, it would be in a gas form. We're not we're not looking at any use of liquefied hydrogen. Net. Thank you. Do I think I've answered

23:07
that question. Let me just pause for a moment going through my questions. Right? Okay, so I'd like to move on to table. 1810, of the environmental statement, chapter 18. And as I say, there's no need, necessarily, to put it up on screen. These. These are, I'll just explain. These are the predicted greenhouse gas emissions for the scenarios. I'm going to come on to scenarios in just a moment, but given that you have already said that you it's impossible to know the high power, the hydrogen weight we produce, and therefore what the upstream emissions will be. And those are described as scope three emissions in the environmental statement. Could you just explain therefore, then how you've arrived at the figures in table, 1810, please.

24:16
Thank you. Richard Lowe reps and the applicant. So I think some assumptions have been made, and I'm just trying to find the relevant paragraph of them. But I think it's 18, 18.3 point 58 I believe, which sets out the

24:30
momentarily broke up the DR low, could you just tell me the paragraph again?

24:34
Please certainly say it's 18.3 point 58 so sets out some assumptions for how the calculation has been made, and it's also a paragraph 57 as well. You. Specific thing. So, so what we've we've assumed, is a is a spur of pipeline connecting into the wider national infrastructure, which we've assumed is a nominal four kilometer length for the purposes of the assessment. So that's estimated based on having seen early development plans for the East Coast hydrogen and where that infrastructure would go as an example, then we felt a four kilometer distance was an appropriate connection for this particular off take as a way of calculating that.

25:36
So that would be I may slightly interrupt here, and I do apologize this, right? So the East Coast hydrogen, which remind me, is a green hydrogen scheme, or a blue

25:50
East Coast hydrogen is the network development to connect. So it's a collaboration between three network operators currently the natural gas supply operators, Hayden, yeah, yeah. And what they've done is they've spent considerable time looking at mapping hydrogen, potential hydrogen off takers and users, of which this is one with potential hydrogen producers and storage facilities, because we also need storage in the system as well. So it's connecting to storage sites as well for hydrogens, typically caverns. And what they've done is develop a concept of where the network would go from and to there are three phases of that network, depending on how credible the off takers are, effectively. So as an example, phase three, which is the less credible, is where the hydrogen would be used for heat and switching domestic use to heat, which for a while was part of national policy and intention, but that now has been dropped by government. So because of that, though, connections to heat off takers in urban areas have been put into lower priority until the main focus is expected to be and as I say, we are still awaiting the final wording on the hydrogen strategy. But the hydrogen strategy, we expect to say that hydrogens primary in first use will be for industrial use, and in particular for power. So hydrogen to power is a key part of developing the hydrogen economy. So because of that, the first phase of East Coast hydrogen would be looking to connect into off takers, such as this one, if you've got concept

27:37
two questions, is the East Coast hydrogen projects, let's call it that is that in the public domain. Is that something you could, you could certainly the where, the where the lines will be, is that something you can share in this, in this scheme, and secondly, is, if you can't, is that scheme within four kilometers of the of the application site? Hence why you've assumed four kilometer length,

28:11
Richard low, representing the applicant. So I think we can certainly provide there is information in the public domain relating to the concept of East Coast hydrogen. Yes, I'm aware that the next phase of those projects, it has just been funded by OFGEM. And so there's further design work that is now underway by those three respective parties, which are going to be providing further definition of those routes. But I am aware of preliminary routes that I believe are in the public domain, so we will confirm that in writing to you, sir, and demonstrate why we felt a four kilometer spur was there for an appropriate assumption.

28:53
Thank you. I'll make that another action point please, that you'll provide some some further written work on the East Coast hydrogen project as best as you can. That's that's very helpful. Thank you very much indeed.

29:09
Sorry, yes, sir. One of the points just like to just stress related to East Coast hydrogen, which is, I think, a valid point, and again, we'll further this in writing, is one of the main areas of work that that East Coast

hygiene as an example, has looked at is how to repurpose the existing network and infrastructure, as well as where additional new build is required. So quite a lot of the network is looking to repurpose existing natural gas lines. Clearly, that becomes quite challenging, because we have, they have existing users of natural gas that they're going to have to switch over. And we're in this whole chicken and egg situation. If you switch the whole network over to hydrogen before the people are ready to reconvert their infrastructure using it, then there would be. Left with a connection supply issue, but that's some of the work that's been done. So it's not all a new build network. There is a massive refurbishment,

30:09
no, but just on that, I would have thought that going back to the point you raised earlier about the need to develop hydrogen power stations so that there is an end user, which gives the incentive for the producer and the transporter to then develop the network. It rather puts you in a rather a difficult position. If that's not all that clear to you at this stage, I would have thought, is that fair? You talked about East Coast hydrogen. That sounds like a project that is underway and potentially will go ahead, is repurposing existing gas pipelines as well advanced as East Coast hydrogen, in your view, because that you I would have thought, I appreciate you don't want to say you won't say anything in this examination, there is commercial sensitivity. I Do you understand that? But you will need some certainty at this point. Wouldn't you about where the hydrogen is coming from or how it's going to get to the site? Is that? Is that fair?

31:13
So Richard Lowe, representing the applicant, I think the repurposing of parts of the network forms part of the development proposal for East Coast hydrogen. So it's all interlinked. East Coast hydrogen has looked at where repurposed lines could be used and where new build could be done. So that is very much an integrated project, holistic view of the network. So there's not a difference there in terms of we're relying on one or the other. It's all part of their their proposals. I think, just to reiterate, our position is we see hydrogen as having a future in hydrogen to power we see this power station as being one of the first to enable and facilitate that, and we are working with partners to try and create that integrated hydrogen production to use system, are we relying on knowing where it would connect to? I don't think we are. At this stage. It's about being clear from we're in accordance with policy. We're in accordance with moving this whole hydrogen infrastructure forward as best we can, and our role in that is to provide a significant offtake opportunity. So I don't think we're reliant on it, no, but we very much are working in partnership with others to try and deliver it.

32:36
Okay, I think this is leading nicely onto the HG scenarios, but I do just want to touch on if you could provide a response to Dr Boswell's comment about and I won't, I hope I get this correct. So Dr Boswell, I think, has asked why electricity generated renewable sources. So green hydrogen would then be used to make hydrogen for electricity processes. So it's almost taking electricity to make electricity in that respect, I think is and therefore would have climate effects. You're taking, effectively a process that has little or no climate effects, and then make electricity which potentially does have climate effects, particularly from upstream emissions. Do you want to just say a few words on that? And particularly, I

suppose it's around energy security issues as rather than just capacity issues. Or again, do you want to wait until written representations and provide a more detailed response on that?

33:40
Richard Lowe representing the applicant, I think we will certainly clarify in a written response. But I think what we are aware of is that, as I've mentioned already, the green hydrogen capacity and quantities that we expect to be available in the short to medium term are at a smaller scale, and therefore, I think it's recognized within the hydrogen economy and the hydrogen industries that green hydrogens use is probably not going to be focused on power generation. It is more likely to be used for other purposes. Taking the point that you're using, whether it's, you know, I think there's a there's a slightly oversimplification of calling it surplus electricity for but effectively the idea to use electricity to produce it to then produce electricity. The key point, though, about the hydrogen economy, and the key point about the use of hydrogen is as we've seen in other countries, and as we've seen in our own system, by moving much more to more and more renewables on the system, those renewables are intermittent, and that does lead to security of supply challenges. Having many gigawatts of offshore wind capacity available is. Is one thing, having it available when we need it is another. So the purpose that I think we've all realizing, and I think the government is realizing, is there are times when that is a surplus, and those wind farms at the moment are being paid to turn off, and therefore there's a curtailment payments being made to stop that electricity reaching the system when it isn't required. If there's a beneficial way of using that electricity, it's through storage. Now, storage through batteries is well established, and a number of battery projects are continuing across the UK. But again, there is a there's a capacity issue, there is a sustainability issue. There is a feasibility issue and a cost issue around deploying significant amounts of batteries across the UK. Our alternative is to turn that surplus electricity into a different vector that can then be used when required. The point about hydrogen and hydrogen in power stations is that it's dispatchable, and that's the reason why it is being as a low carbon alternative. So by storing it in, for example, caverns or saline aquifers, and then deploying it when required, it can meet security of supply and be generated when we've got surplus electricity and then used when we have a deficit, when the when the sun isn't shining in, the wind is blue.

36:26
Okay, okay. Thank you very much. I'll just come very quickly to Dr Boswell. Dr Boswell, you, you, I assume that you will particularly on the comments regarding the upstream emissions. You'll want to, you'll want to comment on that, perhaps in written form, and I'll will certainly await that. But just a more wide, more general question to you, do you accept that UK's electricity needs cannot solely be sourced from renewable energy. Or do you, or do you not say that's the case? And if just an answer on that, please, I'm just a very interesting Dr Boswell of where you are, where you sit in that, in terms of that viewpoint,

37:18
okay, yeah. I mean, at the moment, sorry. Dr Andrew Boswell, climate emergency science law, thanks, sir. Yeah. At the moment, clearly, the UK energy is not supplied entirely by renewables. The question is to over the next 30 years or so, to what extent we can move towards total renewables the government put out or niso on behalf of The government, just, I can't remember exactly that. There's the energy operator niso. Can't remember exactly the acronym stands for put out the clean power 2030 report last

year, and then that was largely adopted verbatim by the government, and that is setting a pathway towards getting very high quantities of renewables into the UK energy system. I think in many ways, there's very good things in that. What I do feel to sort of come back to your question about renewables. I don't see it so much a black and white thing, a black and white question, can we, you know, supply the whole UK energy by renewables? It's sort of, what year is the answer to that? But what I, what I do think is that in terms of dispatchable power, which is put into the clean power, 2030 there's actually two options for dispatchable power before 2030 in the clean power 2030 plan one is to go for something like 43 gigawatts of offshore wind and then supply remaining dispatchable power filter periods when renewables are not going to operate. There's also a figure for solar as well in there, but that that one builds in dispatchable power such as these. This plant co. Firing gas with hydrogen gas with CCS, as in net zero T side. The other alternative in the clean power 2030 plan goes for 50 gigawatts of offshore wind. And basically, then says you don't need to do dispatchable power at least before 2030, okay, the reason given for not doing that route law is often given as being the capital expenditure on that 50 gigawatt route is more, and they don't dispute that. But what I would say is that the long term gain in climate benefits of going for that very, very ambitious offshore wind route to 2030, and then obviously carrying on beyond that, does give greater climate benefits in the long run. And so it's really an opportunity cost issue of if you invest in this technology as this, for example, this power plant, you lock it in, and you've had to lock in burning natural gas, or natural gas and hydrogen or hydrogen, depending on the different scenarios and whether they're achievable, another question. But you lock that in be you're right up to beyond 2050 if you go for full out for renewables. And when I say renewables, I mean renewables and storage, and that has been mentioned, and I want to say a little bit more actually, on the storage issue in a moment that links into this. But if you go full out for renewables and storage, you still have to keep some gas going and so on. And beyond 2030 then you at the end of the day, get a better outcome for climate, and that's my my position, and my position is this sort of plant is an opportunity cost against that route, and that those options have not been properly assessed. And I sort of hinted at that a bit in my relevant representation, I believe, on the storage thing. Can I just say, sorry, yeah.

42:26
Dr Boswell, how much do you want sound storage? Because I don't necessarily want to go there at this moment in time. I that may be another conversation down the line. Because yes, I know the app can has talked about, you know, storage issues, regarding the rollout of battery and things like that. Is that something that I can ask you, just to put in writing in the first instance, and get the app can't response to that, and then if that needs questioning, then I will do so, either in my own written questions, or certainly will have another hearing on the matter, but I think I don't want to go specifically about the rights and wrongs of storage or the appropriateness of it right at this moment in time. Is that okay? I think I'd rather see your

43:14
I'll put something on electricity storage and hydrogen

43:20
storage, I think that would be very, very helpful in the first instance. Thank you. Dr Boswell, okay, so is there any other questions at this stage on those assumptions on hydrogen? As I say, I'm not expecting

from parties here necessarily to agree with what the applicant says, We can certainly, if you put it in writing, what you've heard today, that I think would be very helpful, we can get the applicant's response to that. So, yes, okay, unless the applicant's got anything final they want to say, I'm going to move on to the AMG, A to G scenarios. Okay, thank you. So again, I'm going to ask the applicant to just briefly explain that the seven scenarios that they put in, this is all to do with the I won't speak for the applicant, but this is all to do with the potential that you could the station could operate from day one on 100% hydrogen, or it could never operate on hydrogen at all. So that sort of the range in between. So now this is set out in the environmental statement. It's also set out in the applicant's response to my procedural decision letter, which is aso 17. So do you want to the Mr. Latifa Ramesh or Dr low? Do you want to just say a few brief words on those seven I think? Is it seven scenarios? Seven scenarios, and then I've got some questions, particularly on EF and Jeep. Do.

45:00

Thank you, sir, Mr. Latif aramesh, for the applicant, as you say, these seven scenarios cover a number of different potential scenarios where the extent of reliance on hydrogen versus natural gas is dealt with, and it's also distinct in how they deal with the timing of the different blends. So it goes for for a full spectrum. So Scenario A is the 25 years of operation with 100% hydrogen, all the way down to scenario G, which is natural gas for the full lifetime of operation. The scenarios in between A and G deal with different blends and different time periods for those two forms of production. And the reason, I should say, and it's important to emphasize this, the reason for providing those different scenarios is to reflect the fact that a lot of the demand will be outside of the control of the applicant's hand, but we still wanted to ensure that was there was sufficient assurance, provided that the full extent of the potential impacts have been assessed. So what you have, for example, in Scenario B, is two years of operation with natural gas, which reflects a startup period, down to something like scenario e, where there's 15 years of operation of 100% natural gas followed by 100% hydrogen. And the point which you'll have picked up from Dr Lowe's submission just now is that because that this, this is market driven, these potential scenarios, we think, reflect a realistic, reasonable, worst case scenario. And there's just, there's just one aspect of policy that I think is relevant to the formulation of these scenarios. It's, it's quoted in paragraph eight, point 3.59, of the ES, and it refers to a British energy security strategy which talks about hydrogen, low carbon, hydrogen production capacity by 2030, and in in the scenario that they are aiming for, it says at least half of which will come from electrolytic hydrogen. So what we've tried to account for in the assessments is something that reflects national policy and the trajectory towards the lower forms of carbon production, while still trying to address the scoping opinion that we had from the inspectorate, which called for an assessment of the unabated scenario, hence the full spectrum that we've provided in those scenarios.

47:54

Thank you. Now you set out in, I think, in the letter, but also in the ES that you, you, I think you said that the scenarios e, f and g are unlikely to be used. Is that? Is that correct?

48:14

Must fill the teeth are measured the applicant. We do consider the scenarios as you, as you get down to G to be unlikely, given where government policy is heading and incentivizing the market to move to

48:27
Yes, but unlikely is not rule out completely. Is it there is there is a possibility that we could end up with scenario G, as unlikely as it is, it you say it may be you say you don't know different factors that we could have a change in government. We could have a government that wants, I won't go too much, but wants to pull back from net zero, where that that could make scenario G more likely than not. So I just, I just, I'm not saying that's what you'll do, but I'm trying to establish the scenario. Let's take scenario G is the worst because it is the worst case scenario that is cannot be ruled out. Can it? This is what could happen.

49:18
So Mr. Phil Latif aramesh, for the applicant, it could it could happen. I think the language that we use in the environmental statement is that f and g are, quote, highly unlikely. Clearly, we're not using the language of impossible, and that reflects the fact that it could happen. We just think it's highly unlikely, given current government policy. Yes.

49:41
So this one therefore leads me into the question around whether scenarios f and g would have worse environmental effects on CO two emissions than key b3

49:58
so Mr. Phil Latif, our. Mesh for the applicant. I think the response to the procedural decision that we provided that you've referenced contains the confirmation that those scenarios, those unabated scenarios, f and g, would have different effects, and we explained why. The comparison between key be three, and this current application is not something that can necessarily be done easily for two reasons. The first is the assessment methodology that was used for the greenhouse gas emissions in the key be three application is different from the assessment methodology applied here. So notwithstanding that if you just looked at the reporting of impacts, you would see a different impact reported. There is the point that the assessments are slightly different. And of course, as we noted in the response, we've had a number of changes, not just in methodology, but also the finch judgment, which is fully accounted for in the assessment that is before you. The second point that we made was that notwithstanding the distinct impacts that are reported and the methodological reasons behind them, as a matter of comparing, as a matter of decision making. Our position is that you you can't consider that key be three is is a material consideration. The question is whether the proposed development complies with national policy on its own terms. And our view is that it does. And the existence of an alternative, which is what key b3 is, is only relevant in very specific and limited instances, none of which arise in in this case.

51:53
Well, let me, let me test that. If you don't mind, you say that this scheme has to stand on its own two feet. It's once more better words and and be policy compliant. And I do accept that however, we end up potentially with a key be three scheme for natural gas that has carbon capture, and we could end up here with a scheme that is doing the same, but with no carbon capture, that that that's that's possible, isn't it? So what I So, I would have to report to the secretary of state that we could potentially end up with a worse environmental effect than on key b3 it may still be acceptable. The Secretary of State may

still decide to grant the order, but we are in a situation where we have a scheme with no carbon capture provision against key b3 which did, and that's going to lead me on to a question about the trigger point in which carbon capture would would be provided. But you can deal with that if you want to here. But the next question I'm going to go on is to how, what is a scenario where carbon capture would be provided, not through this application, obviously, because you're not applying for carbon capture, but how would it be provided if you were in those higher scenarios? So a lot of questions there. Sorry, but, but I'm sure you can capture it in one answer.

53:24
Thank you, sir, Mr. Phillip aramesh, for the applicant. I'll try to go through all of those questions in stages, if that's okay. So, so the first, the first point to make is that there is, as you'll see, and from our discussion earlier today, the ability to include carbon capture and the key, significant change that has occurred since key b3 is that the government has now laid the regulations on decarbonisation readiness, the decarbonisation readiness regulations, which kick in from February of this year are intended to replace the existing carbon capture readiness regulations. Now, why is that relevant? That's relevant because TB three was decided at a time that the 2013 regulations set out specific provisions for what needed to be included in a development consent order for ensuring provision for carbon capture since then, now that we have the regulations laid, we can confirm that the government is intending two separate tracks in order to Meet government policy. The first is being carbon capture ready, and the second is being hydrogen ready. Those are alternatives open to developers who apply for a permit. And from the end of February, the requirements relating to carbon. Actual readiness will fall away the existing ones in place of evidencing that you are decarbonisation ready now, the applicant, in this case is,

55:15
sorry, could I start you just, I'm typing what you're saying, if you could just repeat from the end of February, if you could just start from there again. And so I'll just capture everything that you're saying. Thank you. Sure.

55:27
So the decarbonisation readiness regulations, which come in from the end of February, contain two tracks that's being carbon capture ready or being hydrogen ready. So in effect, when the permit application is being considered, the applicant would have to put forward what's called a hydrogen readiness statement, or a carbon capture readiness statement, which is subject to consideration as part of the permitting process. Those two tracks are distinct, and they exist effectively as alternatives. So just just to underline the point, PV three under the 2013 regulations, was required to ensure that the DCO itself had provision, ensuring that the project would be carbon capture. E this application, because it will be determined following February 26 the applicant will have open to it two tracks. The first is that hydrogen readiness, or the second is the carbon capture readiness. For the reasons that we explained this morning, there is adequate provision for taking the carbon capture readiness route. If that's what the applicant chooses to do to take forward the development, the alternative is to go down the hydrogen now that that's why, I think another reason why the comparison between key be three. And this proposal, it doesn't address the changing circumstances which, or I should say, the changing decision making framework that would apply to this application. So the second, the second point to

make as to why the comparison between key be three. And this proposal is, is, is not, I should say, in one of the exceptions where planning requires alternatives to be considered is that in the unabated scenario. So we're talking about scenarios f and g. In this case, what will happen is not an uncontrolled, you know, sort of Wild West. It's something that will be adequately regulated through a number of distinct mechanisms. The first is the environmental permit itself, which will control emissions and the activities on the site. The second, and we can set this out in full, in writing, are a number of policy and financial levers that the government has to incentivize the transition to a low carbon scenario. So for example, the emissions trading schemes, for example, the the various incentives that the government has that increase the costs of going down the natural gas route to incentivize moving to a low carbon hydrogen scenario in effect, therefore, what key b3 is reporting, because it was in a different development with different characteristics. They never had to consider the same policy levers and financial levers that we're talking about here. What we say is that provides appropriate control for government to ensure that the energy generation at the site reflects the government policy that is in effect at the time as it currently stands, it would incentivize the transition to lower carbon forms of energy generation. I'm just going to pause there to see if Dr Lowe wants to add anything.

59:18
Thank you. Richard Lowe, representing the applicant, I agree with all the points my colleague has said. I think the only other point I've had to say is, again, I don't think it's appropriate to consider direct comparison of the two schemes. They're fundamentally different for different purposes. I think the point on the assessment that was presented in the could be three DCO application. There are a number of mechanisms that were in place, but ultimately there was a potential scenario. And is a potential scenario that if the carbon capture network had operational issues, as an example, that power station could still perfectly happily have operated without capturing carbon. Up, and therefore there was a scenario that is equivalent to the scenario G that could have occurred from kidby Three. So I don't think it is a question of this proposed development is quote, unquote worse than could be three development. I think it's a question of how we've presented information in this application versus to what was presented in the Kibbe three application. I don't think that there was a material difference between what could theoretically, hypothetically be a worst case scenario for either. And yes, I certainly, from our perspective, this application is being put forward on its own merits to try and meet as the policy environment has changed and as government policies change and as certainty around infrastructure has changed, this has given us the opportunity to continue with a low carbon generating station that has adapted to the evolving circumstances since could be three was applied for,

1:00:54
and Sir must be aramesh for the app. You just Just on that point. This, this broader point about the flexibility and responding to demand. I think it's just worth drawing your attention to paragraph 5.3, point 12 of the Energy National Policy Statement en one, and that says operational emissions will be addressed in a managed, economy wide manner to ensure consistency with carbon budgets. The Secretary of State does not therefore need to assess individual applications for planning consent against operational carbon emissions. So the point there being that the control is provided centrally by government through its various policy levers, rather than comparing one project to another project and saying, this one's worse, therefore we need more controls. That takes away, I think what government policy is currently trying to

1:01:48
do, funny. Funny enough. I'm literally about to ask that question, which was about whether the comments you made regarding the financial Levers as you as you put it, the emissions trading scheme incentives. I was glad to ask you, is that set out in national policy? Does the Secretary of State actually set that out in en one? And I think you've just provided that answer to say that they do. So that's very helpful. Thank you very much indeed. Just fine. Finally. Okay, yes, it is. So how does requirements 30 and 31 of the draft DCO work? In a nutshell, in respect of the carbon capture provision, of whether it's necessary or not, if I could just ask you to set out a few words on that, please. So

1:02:44
thank you, sir, Mr. Philosophy faromish, for the applicant. So just just for the benefit of others, that the relevant requirements are requirements 30 and 31 contained in schedule two of the draft DCO when the application was submitted, as I mentioned, the 2013 regulations. That's the carbon capture readiness regulations. 2013 applied, and there is a specific provision in the 2013 regulations, which says that quote, a relevant consent order must include adequate provision in terms of spacing to enable carbon capture to come forward. So requirements 30 and 31 were included to ensure that we were compliant with the 2013 regulations at the point of the application. Requirement 30 is the one that ensures there's adequate space and then we don't dispose of the land. And requirement 31 is the provision which requires regular reporting to the Secretary of State as to how, how we've complied with ensuring there's adequate spacing and giving them effectively an update on where we are on carbon capture readiness. As the 2013 regulations are due to be replaced by the new decarbonisation readiness regulations from the end of February. We don't consider that those provisions are required in order to comply with the relevant environmental permitting regulations. Importantly, the decarbonisation readiness regulations 2025 don't include the same provision that says quote, a relevant consent order must include various provisions relating to carbon capture. As I said, they include those two tracks, and they don't contain Express provision that a development consent order needs to include the same restrictions that existed under the 2013 regulations. You might be wondering why they why they removed that restriction, and that's because they are effectively transposing the requirements for reporting the requirements. To prepare readiness statements, whether those are hydrogen readiness statements or carbon capture readiness statements, so that they fit within the environmental permitting regime. So in due course, as this application is being decided, following the commencement of the 2025 regulations, we would propose to remove those requirements, because the reporting and the adequate provision is effectively provided for in the new one new regulations. And additionally, because there are two tracks, there is a non carbon capture ready track, which is the hydrogen ready track that we could follow.

1:05:42
I'm certainly glad I asked that question, because I think if you removed it without without much being clear on that, I think it would have been quite alarming. So that's that's very helpful. So do you plan on just removing at the appropriate time when the new regulations come into force, you plan on the next iteration of the of the DCO after that to removing regulations 30 and 31 Mr.

1:06:13

Phility faramesh, for the applicant, we would propose to do that at the at the appropriate time once they've commenced one. Sorry. Go on sentence.

1:06:22
Sir, I'm doing the same. There is no necessity for you to replace it with a with something else to reflect the changing regulations that that's where you stand. Mr.

1:06:32
Phillip aramesh, with the applicant, no, sir. We don't think there's any need to do that, and that's because the relevant controls are effectively transposed into the permitting regime and away from having requirements that have to be attached to development consent orders or indeed, other forms of permission, like section 36 applications.

1:06:52
And if I may add So, Richard Lowe represented applicant, just to clarify. And I know you're aware of this, but we have already submitted our environmental permit application to the Environment Agency for determination that was submitted on the 17th of December 2025 so that application includes, therefore, the appropriate provisions and consideration of decarbonisation readiness in advance of the expectation that This requirement would all sit under the environmental permitting regulations.

1:07:24
Thank you. Just to round this off, just you said that it's well, have you said this is there a, even a scenario where you would provide, need to provide carbon capture? And if so, and I think this is an aside, I'm not sure necessarily this affects the Secretary of State's decision, but it's more for information purposes. How would you go about delivering that? Because, of course, it's not permitted under this scheme you would be implementing key be three so that would that it wouldn't be permitted under there either. So how, if you were to need to provide it, presumably, that's all tied up with the environmental permit, then how would you go about doing that?

1:08:10
Richard Lowe, representing the applicant, so we if, in that scenario, and in that circumstance where through the environmental permitting, it was required, we've already demonstrated that there is sufficient land available to allow us to retrofit it, and we would seek planning permission under a local tenant Country Planning application for the retrofit of that carbon capture infrastructure. And for context, we have worked on a number of other schemes where we have applied for local planning permission for retrofit of carbon capture infrastructure to generating stations. So there is precedent in terms of that being a route that could be followed for future permission of that. So yeah, including Yeah, quite close to this site in the same local authority. So which would be the Humber zero projects. So that would be the way we would secure planning permission, because, as you appreciate, the carbon capture infrastructure itself would not be actually significant. So we would, we would like to do it through that.

1:09:15
Thank you very much indeed. That's all the questions I had on A to G scenarios. Is there any questions or any comments anyone wants to make on those seven scenarios? No, I want to move on to the

natural gas and potential upstream methane leakage, which has been has been made, but I'm just wondering whether it's worth us a journey for lunch at this point, as we're not far off one o'clock and perhaps taking that after lunch, I think that's probably best, because we might end up going over lunch. So if everyone's okay with that, we'll adjourn for lunch. Much at this point, do people want? And I mean, my very first, my panel lead said, reminding parties that this is not a democracy, but nevertheless, I will ask is, are people happy with an hour, or are you quite happy to perhaps take slightly less and so that we may sort of progress on Do you have a anyone have a view, particularly

1:10:27
acknowledging this isn't a democracy. We're happy with whatever decision you make, but we're happy also to do less, just to ensure that people can finish by five.

1:10:36
Yeah. Okay, let's do that. Should we take sort of, let's just take 50 minutes then, or 4550 minutes then, okay, and we'll so we'll resume at 22 two, that's there's 1340 Okay, so we'll resume then. And I didn't do this last time at live streamers, please remember that you need to refresh your browser. So yeah, we'll see you after lunch in 15 minutes time at 20 to two. Thank you.