

TRANSCRIPT_GATEBURTON_ISH3_SESSION2_2_24082023

00:06

Okay, it's 1140, thank you all very much for being back in the room. So the hearing is resumed.

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Okay, so we're going to turn to Agenda Item eight, which is the battery energy storage system.

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In the context of

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this particular matter, I've identified two areas that I wanted to consider.

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Firstly, the contribution of the best to the electrical output from the scheme and grid balancing

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how that works. And secondly, the safety aspects of the base.

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I will operate on the same basis as I did this morning. So I'll run through all of the matters in the issues that I have

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given you a little bit of commentary, a little bit of explanation, a little bit of the point about what I want to understand from you both in terms of both of those issues, too, in terms of both the

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the operation of the base and the safety aspects, I'll then turn to the applicant to respond to those matters.

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And then I will come out to the other parties, to give them an opportunity to do that, I'll probably split it a little bit by touching on the the operation of the base, give the applicant an opportunity to comment on that. And then I'll go straight to the to the safety aspect of the base, get the applicant the opportunity to respond to that. And then I'll come to the other parties and ask them for their contributions at that stage.

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So let's move along then. So I just wanted a bit of an explanation about how to best operates, what the parameters are, that are to be employed and secured. You've mentioned that there's a capacity of 500 megawatts on a response to questions in terms of the national grid, you have indicated an import capacity of 250 megawatts.

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Just wanted a bit of explanation about those two figures, and the implications that has for the operation of the base.

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And in the context of the operation of the base and your assumptions of the planned installation. Can you explain how long

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the cycle is anticipated to be to charge this? How much electricity does it store? How long does the best hold that charge? For? How long is it likely to hold the charge in normal operation? And how long it would take to discharge that. So just to hold the cycle actually operates came skills and a mind to the energy that's generated and how that how that operates.

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In terms of the calculation of carbon savings, then, as part of that,

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given that some of the grid balancing may be the importation of electricity,

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that electricity may not come from a low carbon source.

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So is there

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a benefit

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in terms of low carbon, if that simply comes from the grid into the base, and then is exported back again to the grid, but it hasn't come from a low carbon source. So actually, there's no carbon benefit. In terms of the way in which you've calculated your carbon benefit, you've actually discounted the bare soil together, in any case, but I just wanted to understand whether or not there was there was anything in that and how that operates.

04:06

So those are the sorts of issues I wanted to understand in terms of the operation of the best and maybe you could just run that through for me. And then once you've done that, then I'll ask some questions

about CFD side of things. And then to see give you an opportunity to respond, and then I'll come out to other parties.

04:26

Me standing on behalf of the applicant. Yes, thanks. Sorry. I think it'd be a bit of a black to Mr. Geller and Mr. Gregory. First of all to run through, I'll just list the points just very briefly, the how the figures were arrived at and what the interrelationship is between 500 megawatts export capacity and a 250 megawatt input capacity, a technical explanation of how the base operates. And then, thirdly, any the sort of the Mac or how the base functions as part of the Import Export grid balancing services.

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As

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I said, so I get it for the applicant.

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If I started at the beginning,

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the

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contract or the contract that the applicant has with grid is four or 500 megawatts of export, let's call this Tic Tacs transmission export capacity. And that's based, as we mentioned this morning on national grids assessment of whether that's that amount of power is safely exportable through the equipment at cost and onto the grid around costs and then into the national electricity transmission system. The converse side of that is that at cost, excuse me, there is an import capacity

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availability, if you like over 250 megawatts, which means that the

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that the flow of power going from the grid to the facility, is, is maxed out according to grids modeling, the most that they can offer is is 250 megawatts.

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What that implies to me is that a 250 megawatt storage system would be appropriate, at

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its a sensible size for the storage system in terms of its power.

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capacity

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for this, for this application, and at this site as a as a

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sort of assumption there.

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You mentioned also around an energy storage and hours of operation and this and those are

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parameters, which be defined by other enclosing parameters around the Rochdale envelope, p. So I'll maybe come on to that later. And maybe

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we'll need some support from from others who got those figures. More more to hand. But I want to sort of talk a little bit about the operation. And if I may.

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So we spoke this morning about the need for flexibility. And that's an absolute, understandable need, in fact, even draft en one, paragraph,

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three point 3.25 says that storage has a key role to play in achieving net zero and providing flexibility to the energy system. So that high volumes of low carbon power, heat and transport can be integrated. And what the application, what's the applicant is bringing forward here is the lithium ion storage system of storage proposal, which is a, a relatively short term proposal. So it's not the long term intraseasonal storage, which was mentioned this morning. But the outcome recognizes that all forms of storage are needed. And there's a multi, again, a multi technology approach required to enable netzero. But what we're looking at here is a lithium ion,

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relatively short term, hours,

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storage

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capability. So

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held back, I think it's, excuse me, it's useful to

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describe a little bit about how batteries provide flexibility.

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And sorry, I'm flipping between storage and batteries, to me that they're the same thing for this for this application. They provide flexibility to national grid, because when nationally supply outstrips demand, they can import power, and they can store that power.

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And that can then be saved until later. So that helps, number one, balance the system.

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Number two, produce constraints. And number three, there is and there will be increasingly into the future a carbon benefits of that operation as well. And I'll come on to that piece at the end.

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Batteries also provide balancing services.

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And those are the kind of

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in some ways, they're the hidden services, which National Grid employ from assets all over the country to keep the power flowing to keep the lights on. So

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there will be others in this room who've got more detailed electrical engineering knowledge than than I have. So I don't want to go into the detail of that. But essentially, you want to be able to turn your lights on

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You need electricity to be there, there are services which keep frequency at the right level. Reactive power means that the power flows from position to position. There's constraint management, also and reserve management mean that national grid are able to securely

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manage the electricity system. If we put a wrapper around that, and

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I'm sorry, should say I've set out some of those services within the statement of need. And I think is table

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I'll come back to the references in a moment and it was table 9.1.

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Batteries are able to provide those services, many of them require both imports and exports of power to be able to regulate both up and up and down at the call of, of National Grid.

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Part of the reason

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the batteries need those services is because those services are have historically and currently are still provided by carbon emitting plant.

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So

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when those plant close, as those plant close, or as they'd be, as they're forced off the grid, by increasing capacities and output from renewable generators, they will be less able to provide those essential kind of quality health and power system health type services.

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And we set out in rep to zero or one, in answer to your first written question 1.1 point 14.

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A table of how battery requires those import and export connections. So how will it how would it work, I guess that's kind of comes to it.

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The battery will do one of five things and it will respond to a huge number of

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variables if you like. But if I can kind of boil those down to five types of operation and try to explain what the battery will will do.

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So firstly,

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when

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local areas basking in sunshine and

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gate, Burson energy Park is producing large amounts of electricity,

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but that electricity is not needed.

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At that time, from a national perspective, demand is lower than supply effectively bring the battery will be able to store that energy.

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It will be able to then secondly, will be able to export that energy when

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local solar generation is low. But national demand is high. So we're talking about this balance between supply and demand on a national basis. And that's great,

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because the low carbon electricity

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stored at times when it's not needed, can be exported, at other times when it is needed. And that will displace most probably carbon emitting plants from the grid. So there is a carbon benefits associated with that.

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The third thing

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that the battery will be able to do

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is it will be able to import from the grid when national demand is low, but national generation is high.

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So that could be for example, during an incredibly weird, windy period, so stone Bessie came through last weekend. And the wind power that generated at that time.

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Carry on carry on

14:11

the wind power that was generated that time could be stored if batteries were available to store it.

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And that energy could then be exported at later times. When we're now in a little bit of a wind low at the moment following that storm, it could be exported now and that's making use of that.

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unrequired at the time, low carbon electricity.

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The final thing that battery can do is it can

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operate in accordance with instructions from National Grid under a balancing service contracts to provide the services that the the operator has offered

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and the services that National Grid need at that time, which could be one of a number of those items that are listed in the table and mentioned earlier.

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I just want to close on that final points around around decarbonisation and and I put a ring on it before you get to that the one point there you give me an indication of how they do that, in terms of what is proposed here? What are the timescales? Because you're saying this is

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not for seasonal use its limited time period. I just wanted to get an understanding of what the cycle of this battery storage facility will be. So how long will it take to

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charge? How much charge will it hold? For how long?

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And then how long will it take to discharge when it seeks to discharge? Is that a cycle that lasts over 24 hours? Is that a segment lasts over 12 hours? Is that a cycle that lasts over? Or can be held for three days? Or four days? Or? Whenever we're talking about it short term? What is it? Are we talking about hours, minutes, days?

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cycle for the outcome? We're talking about hours? So

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do you have any indication I know it probably related to the battery that you choose, et cetera, et cetera, which you haven't specified yet. But on an indication overall, is there an indication as to what the expectation is, are you working on one or two your patients are you working on four hour basis,

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so cycle it for the applicant and

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lithium ion batteries using some

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peer evasive, I don't mean to appear evasive,

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really, the market drives and drives the battery. If I can say that, at the moment, and batteries are

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started out at one hour of duration generally. And I'm moving towards two hours. And but there is a general feeling

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supported by technical and

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commercial data. Those the shorts, the shorts and the lithium ion, shorter term battery

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is likely to be successful up to around four hours, there may be opportunity to extend that, but the

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limits, sorry.

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It's the parameters of the scheme and the final choice, which will determine exactly the number of hours of storage, which would be

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installed at I'm just wondering how that operates in terms of the balancing exercise that you've got, if it

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takes, I'm not sure still how long it takes to charge the whole thing. But if it only holds up for a couple of hours, in the evening, then what benefit is up cycle for the applicant? So

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if I can provide an example to explain how it works, maybe that maybe that would help? Yeah, so let's so let's take an example of a two hour 250 megawatt battery that can hold 500 megawatt hours of electricity

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to import. So electricity would take a shade over two hours because batteries aren't 100% efficient

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to export that electricity at 250 megawatts, how would take two hours

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that power can be held in that battery, not forever, but for a reasonable period of time, from day to day, potentially longer.

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My colleagues may have something to add to that from a technical basis. And therefore, I guess what the battery

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can do is it will operate very much in the shorter term kind of today tomorrow type

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market potentially into the next stage called day plus two in order to bring power in or store power when it is not needed. And export it when it is needed over those over those 20 to 24 or 48 hour window type approximate operation rather than weekly monthly or anything that absolutely says the scientifically Absolutely it's a it's a short term. It's not in it's not pretending to be a long term storage solution. No indeed. Okay, and then you wanted to finally

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apologies, sir. No, no, no, that's okay. And then you wanted to finally make some reference to carbon sealing.

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Thank you, sir. Cycling for the applicant. So I

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And we've talked to and you will have read, and already the carbon changed and carbon saving chapter.

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And I fully agree with everything that is written in that.

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You talked about the kind of the impulse of power and the export from the grid and the exports of power to the grid. And is there a carbon benefit in that?

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And no carbon benefit has been ascribed to that within that chapter. But just playing a scenario of when is it more likely in the future, that there is an excess of electricity have of energy on the grid, ie,

nationally, we are, we are generating more electricity than we need in the future that is likely to be at times of high renewable generation high wind and or high solar.

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So when are we likely to need that power? It's already been mentioned,

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winter peaks, tea time on a Friday afternoon, it's those sorts of times when renewable generation may be high or, or may not be high from solar and the wind, so we're not pretending it will be high at all.

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So if the battery was able to export into those periods, then it would be displacing the alternative way of providing power at that time, which is back to the CCGT kind of marginal plants assumption earlier. And so in that regard, I think it's fair to say that there is a a benefit, a carbon benefit to storage, that that would only be the case as a battery had been charged from

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the solar, or from some other form of low carbon

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emitter at that stage. And if it's coming straight from the grid in the middle of winter, I suppose it might be some wind power there, but we're probably still talking more likely to be from a carbon emitting or do we not?

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cycle it for the applicant? Yeah, absolutely. So absolutely, you're

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what I'm not trying to do is ascribe a quantifiable carbon benefit to the battery. But what you've said is absolutely correct. There will be times when the power is just needed.

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And, and exporting power onto the grid at those times may be a zero carbon benefit, because of what has been enforced impulsive versus what would be exported. And the capacity, I'm not going to get into that I need to go into that.

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Alternative, there will be other times when we have a a windy period, where there is that low carbon electricity, which does then provide that benefit. So it's what I would describe as a as a soft benefits,

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but not one that we have attempted to quantify. Yeah.

23:13

Okay.

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Thank you very much.

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You mentioned that you may get some assistance from other colleagues, do any of your other colleagues want to comment on anything? I think you've covered most of the matters that I need to

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say nothing further from the applicant.

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Make sure that we don't get

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changing my mind

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on approach approaches so that we don't get too much information overload and aren't able to pick up all the points. I think I'll come back to everybody else in the room know, on this might let's not go into battery CFD. We'll come on to that in a minute. But just in terms of what you've heard, in terms of the operation of the battery. Does anybody have any issues? I've come to the concepts first.

24:02

Now, a country 7000 acres

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Yeah, Peter already 7000 acres.

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I think Mark is going to talk at the safety session of of

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I am candy. So I'll switch off now and leave this to Peter.

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Okay.

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So yeah, I think what's been described as is broadly accurate in terms of what the

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what the best can do. And my reading of the of the environmental statement suggests that the input capacity is 140 megawatts rather than 250. But I don't that might be an error in the documents somewhere. And either way, it's going to take two or three hours or so to charge

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and at a

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discharge rate of 250, it can discharge over two hours. But effectively what it can hold is, is is one hour of full output from the solar farm.

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It can hold up for

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as long as it needs.

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And he can cycle within a day.

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According to that charge rate of two or three hours and discharge rate of two hours.

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Effectively, what that gives the best is it gives you the capacity to operate as has been described in the balancing mechanism, the balancing market.

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There is an awful lot of variation in demand across the day. And there's an awful lot of variation in the output, particularly of renewable generation throughout the day.

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So the ability to be able to absorb megawatts or discharge megawatts, even a relatively small volumes 1020 30 megawatts,

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the best would be able to do this and typically that how that is how batteries are deployed and, and used in the market for

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rapid

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ability to

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provide balancing services to the grid.

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That's quite a lucrative thing.

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The

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basically, it's the simple fact of being able to buy cheap and sell high.

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That's effectively the specific market that the best is operating, very distinct from the market that the solar farm is operating in, which is under the contract for difference scheme, as has been set out by the government.

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So

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effectively, they are very, very separate entities, I think is something that we would describe

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in terms of associated development, the

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load that I would expect the solar farm to need when it's not producing its own load. By understanding from the environmental statement, it's in the order of 10s, of kilowatts, rather than

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hundreds, or even 1000s of kilowatts, therefore, megawatts. So there isn't actually a direct need for the solar farm to have

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an import capacity

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in in the order of hundreds of megawatts, that is purely to be able to facilitate buying from the grid, not to facilitate storage from its own power system.

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So it would strike me as the primary purpose of this is trading rather than

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the the associated benefits of solar.

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And there is a synergy. I'm not going to I'm not going to play that down.

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There is a synergy there.

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But the primary

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the primary economics of batteries stand up by themselves. And it's a separate development.

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Not only that, they're thinking,

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Okay, this is a separate matter. So I'll come back to the applicant in a moment. But does anybody else have anything in terms of the operational side of the bass?

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Just wanted to quit picking up or sorry, just sorry, Roy, Roy Clegg. Yeah. Independent. Picking up more to Peter just said and also to the applicants have said that there are five forms of battery operation.

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No doubt you will have identified the financial implications of each of those five steps or alternatives in terms of his operation.

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Have you done this? Presumably you have otherwise you wouldn't be putting them forward.

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Are you able to elaborate more on this in terms of financial implications?

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Sir, anything else on the best?

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We did see Mr. Pryor's hand, but it's gone down because I think he's going to talk about the safety side of things whenever we move to that. So I shall turn to the applicant for response I think in two

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MCs, the nature of the matters that have been raised.

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There isn't an issue that has risen here around economics

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and costs and benefits in terms of financial benefits.

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Can you just say as much as you can on that matter? And what is and what isn't? And also

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give me your view as to

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the wit, that I should attach to that aspect of

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the matter that's being raised.

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Any standing on behalf of the applicant?

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Yes, sir. I think just a couple of points to make, which will lead me to my response to that question. There. First of all, is that energy storage co located with solar is supported by government policy. And paragraph 30. Point two of draft MPs en three states that government is supportive of solar that is co located with other functions and specifically mentioned storage to maximize the efficiency of Langes. I would also refer to our detailed submissions on the role of storage as associated development this scheme, and in particular, to our response to question Q 1.1 dot 14, where you can record from government policy and draft NPS, E and one, which recognizes that storage can provide various services locally and at the national level, including balancing services to the national grid, to help operate the system to reduce constraints on the networks, and to help to defer or avoid the need for costly network upgrades as demand increases. So I think the role of storage

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alongside solar is firmly established and government policy, I would also like to take, there's been quite a few mentions of the input function of the grid, and the role that that may have in in the design, again, that in that theme responds to that question. So that was q1 dot one dot 14, the app link confirms that the input of energy from the National Grid requires no additional infrastructure or equipment, and therefore cause no additional environmental or planning impact. So the import function that battery for the gate button scheme can provide as an additional benefit of this scheme. And we've already said

that, as well and this statement of need with regards to financial modeling, as you'd expect, that's not something we can discuss. And ultimately, ultimately, it's not a planning matter.

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So you're saying that that's commercially sensitive information. And it's not a planning matter? Do you just want to elaborate on what you believe it's not a planning matter?

32:56

Gareth relates to the applicant, it's not a planning matter, because this goes to the financial side of why a project is delivered.

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One can argue over what the purpose is, but it what's being suggested is that does a supermarket sell food to feed people or to make money? The planning matter in that is that it's the supermarket that provides a function that provides a public benefit. Here to look at the financial modeling behind this scheme is unnecessary. The point is that it's a scheme that's being delivered in accordance with policy. The explanation has been given technically as to how the public benefits are delivered. It's not necessary for the Secretary of State to concern himself with how much money or how the financial modeling works to make the scheme operate. It is sufficient that there's evidence of funding to deliver the project and to meet compulsory compensation. And it is sufficient assumption that the developer would not be going to the cost of sitting here today, putting an application in or constructing a solar farm unless there was sufficient financial incentive to do so.

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And that in itself is not a bad thing. There is no social provision of electricity.

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Electricity since the 1980s has been delivered by private companies. And those private companies do make a profit in what they're doing. But that's not a bad thing. But the point is, from a planning perspective, the financials around it are not a planning matter. It's not something the Secretary State needs to concern himself with.

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Thank you very much.

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Okay, thank you very much before I conclude on the operation of the basis such

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look around there's no indication of speaking there's nothing on a

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The virtual room. So in that case, I shall move on to the safety operation of the desk

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and

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had many representations on this matter. And we've got an outline Battery Management safety plan.

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So as a starting point, you've indicated that you're not seeking a limit on the size of the base, as its limitations are controlled by the Outland design principles.

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But much of the anticipated assessments are based on the water required and the rate to deal with thermal runaway.

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Are these in themselves limitations such as your assessment is based on a 500 megawatt base? That should be the limit that should be applied to the base because of the other assessments that have been undertaken?

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First question.

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I don't have any of the fire services here. And I think the answer to the question, I guess, but I will just ask it anyway, but are Lincolnshire and North Nottingham sure for our services satisfied at this point with the outline battery safety management plan?

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There's a number of issues that have been raised in terms of the detailed design is whether there's sufficient room within the site area, given over to accommodate the necessary equipment and maneuvering space that's required by the fire services. So it's just a bit of a confirmation about that detailed layout without within those outlined design principles, whether that will, will be there?

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And

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are there any other specifications and detailed design of the base, including the batteries to be submitted for approval at a future date? Is it

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just wondering how that's actually done? Is that through the requirement or through the battery management

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plan?

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And then finally, could you just give me some indication as to high off, the batteries will need to be replaced?

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And is this done on a rolling program or in large tranches? And is that controlled appropriately through the outline, battery management plan? So those are the points that I'd like you to address to me. If you can just sort of run through those, if you need me to

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come back with any of the points and that's it. But that's sort of a rough idea of where I want to get to in terms of that, and then I'll open it up to other parties.

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Amy Sterling on behalf of the applicant, if you don't mind, I'll take this question slightly out of order to confirm the specific points with regards to approval of design etc. Yes, the design of the bears will be controlled by both of those requirements that requirement five relating to detailed design approval, and also requirements six relating to battery safety management, requirement five have sheduled to the draft DCO states that no part of the authorized development may commence until details of and then a list of things that must be provided have been submitted to and approved by the planning authority. The authorized development comprises the battery energy storage system so that the details of that will form part of the detailed design that must be approved. And then in addition,

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requirements six one provides that work number two, which is the bears may not commence until a safety management plan has been approved. So the control of the design and then the safety elements is twofold across those requirements.

39:00

Then looking at the references to Lancashire not insurance, Nottingham sure fire services. My understanding is the same as yours so that there are no concerns that have been raised and I would note that they are consultees secured by requirements explore of the battery safety management plan because I think he's just making those points and they no no pass to mr. Gregory to discuss him in particular the water requirements and also some more specific questions you had around the layout and battery replacement. Thank you

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all Gregory for the applicant.

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So I was not involved in the drafting of the outline battery safety management plan that was put together by Professor Paul Christiansen who's a renowned academic and safety expert for batteries.

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But however I've been involved with sort of speaking with Dan Moss at Lincolnshire Fire and Rescue Service

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So we've been through the Indicative plans just looking at the fire and rescue service requirements for for any incident response. And the 1900 liters per minute that you reference for two hours comes from the National Fire chief's Council guidelines, which were published in April this year, which is just basically a benchmark volume and requirements and flow.

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However, you know, the Kabil, a wide variety of different battery systems have different megawatt hours per container different different site designs. So, again, this is the question that is revisited and must be signed off at the detailed design stage. And typically, also, you know, a third party, independent fire protection engineer, you know, would work with the Fire and Rescue Service to answer any questions that I have to make sure that the water requirements is sufficient

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for the, for the battery energy storage system site.

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From a safety perspective,

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any battery energy storage system, and the site design really should be put together where you are not requiring the Fire and Rescue Service to take direct or indirect action, you know, so again, depending on your best enclosure design and the size of it,

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then you would typically want an internal fire suppression system to take care of any fire and explosion risk in there. And that the Fire and Rescue Service monitor the situation. And typically now, in some of the testing that's done in North America, and been involved with

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the Fire and Rescue Service, and would be there to monitor heat flux, the incident, and that, you know, the technique, what we call a boundary cooling. So that would be spraying water to adjacent containers, if there were high wind conditions where there was a feeling that perhaps that, you know, thermal abuse might occur to adjacent best containers. So this is a field of study now, where there has been a lot of

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additional for freeburn tests, involvement of different international fire bodies. So there's been a lot of work in the last sort of 12 to 24 months to quantify burn times,

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how to efficiently manage water resources. And so this is a rapidly sort of evolving area that battery OEMs in our sort of engaging

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at very high levels with the National Fire Protection Association, and in the US

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International Fire council. So

42:56

just with regard to, you know, the 1900 liters per minute, that will be revisited at the detailed design stage and it must be fully agreed with with the FRS.

43:09

The point I would make there is that in the years there's there's alternatives that will either be a direct connection to the

43:17

to the water service or that will be on site storage of that facility. And then there is an assessment made about the potential environmental impact of that if it was on site storage, and you could only store X amount of liters of water to provide for that level of

43:35

water required for that is that itself, because of the worst case scenario, a limiting factor on the size of the base?

43:49

Thanks, sorry, yes, understanding for the applicant, isn't there. The working assumption is that it will be on site storage of water, but other options, for example, a direct connection with Anglian Water are being explored, but they are not essential as part of the scheme. And I think I understand your question being that given the

44:09

volume of water stored will be limited by the parameters of the storage tanks. Do the NFL act with a cap on the capacity of the bears? Yes, I think I understand the question. I think that is one we'll have to take away sir and respond in writing unless mr. Gregory feels that it's something because beat now.

44:30

I think we'll have to respond in writing to that. Yeah, I think we're, I think you've got where I'm coming from. Because at the end of the day, if if that requires a significantly greater amount of volume storage,

then the storage cost is bigger. And then for those that come outside the envelope of what you've assessed in the environmental statement, if no, you're going to restrict it to that amount and that is the volume and that volume is necessary and adequate to address up to 500 Mega

45:00

What does that mean? I should put a capacity cap on the size of the base in the DCO is where I just want the information to enable me to get to that conclusion in your selling on behalf of the applicant, and it's during the OPM show some technical descriptions of refill rates and that sort of thing. So we'll take that away.

45:22

Gregory for the applicant. So so just to clarify from a risk perspective, a worst case scenario for the site design would be the loss of a full battery container. Now,

45:37

the room variety of of tests, UL nine 540, A, which is thermal runaway,

45:44

and sort of fire and explosion risk testing, that you

45:52

you define burn times. So you know, you take peak heat release rates, you have a wide variety of the, of the gas emission and the fire data, and that the water volume, or the suppression systems tested during testing, so you define exactly how much the suppression system would require. And the spacing that you allow between containers is from actual heat flux data from natural fire tests. So, it is by defining how long the burn is,

46:28

by understanding the sort of heat flux emissions, you can make a considered judgment on what is a requisite amount of fire water. And if, as I referred to earlier, if you're using the water for boundary cooling, just to spray the adjacent containers, that water will be captured as part of the environmental policy, and it can be reused for firefighting, if it should be required.

46:54

Thank you very much. It's it's just reverse engineering that went back the other way.

46:59

But thank you.

47:03

Let me then take that out to other parties.

47:09

Let me turn to who wish to speak Yes. Okay. I like Roy, I take it. No, Mr. Clegg. I've seen you. I've seen your submissions. And so the detailed submissions that you've got there.

47:25

So I'll let you have a go first, you're not speaking on behalf of 7000 acres here, but for yourself. So 7000 acres, then? I'm sure Mr. Pryor would put his hand up in a moment wishes to contribute, then I will take that because that's dealt with separately, but you're speaking on behalf of yourself. Yes. Right. Thank you. So it's Mr. Lloyd egg.

47:52

Okay, thank you. Well, I'd like to do is to first of all say that batteries can be said to be the beating heart of any large scale

48:03

solar farm. And as such, all hearts require continuous monitoring and maintenance to ensure functionality and reliability. And at the very center of that is accountability, traceability, and transparency. Batteries are the most important element in this application.

48:29

The detail specification, testing and certification of batteries, and approval by an independent body reveals so much knowledge and confirmation about a product or service, none of which have been submitted by the developer.

48:45

There's no information about metal content in batteries, the type of wafer insulation and test conditions, manufacturer's warranties, specific failure rates or life expectancy and batteries.

49:01

Were not able to or are not able to satisfactorily comment on what's being said about batteries, because the information just isn't there.

49:14

Let's consider a battery. From the time that is built

49:20

to the time that he's passed all the tests certification to the manufacturer from the manufacturer, to the RE manufacture the recycler. They've got a long journey throughout their life.

49:35

With many people's safety at stake, and on every move and stop made, they need to be handled with the utmost care. Absolutely.

49:46

That's why lithium batteries come with many regulations

49:52

such as electrical hazards, short circuit electrocution, electric shock or burning

50:00

whether chemical comm components are inside the battery could leak out and cause intoxication, or corrosion.

50:10

These are generally covered by a number of regulations. First and foremost, the batteries directive 2006 66 EC, that's an EU directive from years ago.

50:24

This is convenient, I don't really want to cut across your input, you've got a very detailed submission, which would probably be better in written format. If this isn't the nature of what you're doing, what I would like is an overview of

50:42

the issue that you have any comments that you have on what the applicant has just basically expressly said that if you can just sort of give me the high level comments about what you want, if you've got a much more detailed response, I'm happy to accept that in written format. And as I say, I've already seen your your other written statement. But it would be it would be better to submit that as part of your written submission to your oral representations at deadline three. And that way that can be fully considered about stage. But if you just want to sort of run unconcerned

51:20

about a number of things, yes, I'm sure you are saying as you highlight what those are. Cool, thank you. The first and foremost question is, how long will a battery live?

51:31

What a life of a battery? How many cycles? Does it have? Is it three years 10 years, or 15? years?

51:46

What happens in this respect is consideration of the number of charges and discharges. And what level are they charged? Is it 20% 80% 30% 60% There are different levels of which and battery will charge discharge.

52:13

The specification for the battery, although it's not mentioned in the applicant submission, is likely to be an LLP 280 amp power cell type battery. And I've taken down from one point 2.4.

52:33

And from various sources on the Internet, and in particular, codecs and batteries, universities,

52:43

the lifecycle of that specified battery

52:49

is 2000 cycles, or best

52:54

1000 charges and 1000 discharges per day

53:00

or just under three years.

53:12

Want to move on then to the amount of water that is used.

53:18

And what's being suggested here is 190 Sorry, 1900 liters per minute.

53:31

Sorry,

53:32

not per minute per hour as a benchmark. And that's taken from

53:39

a vessel fire

53:43

on a solar farm of just 20 megawatts, which in no way is useful to consider in this particular application.

54:00

The developers made various submissions on these are noted for reference at nine 413, nine nine not 5450 556-910-6768 6910 992 93 and 94.

54:23

All of those submissions lead to some unanswered questions

54:30

and centered around the way in which water is being considered. And the questions that I have noted is will the penstock valve be able to automatically detect contaminated fire runoff water and rainwater and then divert either to an appropriate channel?

54:55

How will the runoff water be contained, tested treated in

55:00

discharge to subs

55:02

is the lagoon that was been suggested as a storage media. It is already full of rainwater. How will that contaminated? firewater be disposed of?

55:17

And how will if there is a fire of thermal runaway fire? Specifically? How will the applicant and the solar farm be able to deal? Not just satisfactorily with the fire? But is there a question mark over the closure of the farm as a whole?

55:43

Will it be shut down?

55:45

Presumably, the thermal runaway runaway fire will shut down the solar farm initially,

55:55

but it will enclose it permanently.

56:03

So really, it's just a question of other than what I've written in my representations,

56:11

that there is significantly more items that need to be dealt with, in terms of specifically batteries. The risks associated with large scale solar farms, will I'm sure be dealt with by my colleague, who is also going to be speaking I believe.

56:38

Later on. Thank you. Thank you. As I say, we have seen your submissions that were made previously. And if there are further submissions you wish to make put those in in writing. And I'm sure the the applicant will respond in a detailed response to the issue of battery safety as part of the response to these matters.

57:03

Mr. Pryor, you have a hand up? I'll come to the local authorities in a minute but Mr. Pryor has had his hand up and they've been very patient for a while. So let's hear from Mr. Pryor. Can you just introduce yourself sir?

57:17

Mark our prior for 7000 acres.

57:22

As you say we have made a submission. I will not go into that. What I will do is just pick out some key points that the applicant is making today where they have not answered our submission. First of all, they talk mainly about fire suppression. It is our concern mainly that thermal

57:47

runaway is the largest threat.

57:50

And that is certainly a foreseeable event there have been many events around the world. And indeed we referenced in our submission. The Liverpool event, which was a 20 megawatt is so much smaller, it took many hours to put out the fire brigade could not get enough water from the hot line drums. And for a thermal runaway. Cooling by a water is the only way to stop spread. So you've cooled the site and wait for the primary source just to burn itself out.

58:30

On that point, I note in the DCO that the current work order shows the battering door closures being three meters apart that does not comply with the National Fire Chief Council guidance of six meters apart. We've touched on water

58:51

as the Liverpool best case, many cases around the world show you need a large volume of water to suppress a thermal runaway. And we quote a letter from the Yorkshire Fire Brigade that says for a 50 megawatt this they would expect 5.5 million liters of water to be required. Therefore, it seems as if the volume of water should be directly proportional to the storage capacity of the best

59:31

and therefore that is likely to be the limiting factor. So they say the applicant would either need to ensure that new mains are put in or they store enough water on site. And of course if a thermal runaway was to occur, as Mr. Clegg has just mentioned, there would be need to retain the terminated water

1:00:00

And I note at present, the work order does not include any form of funding around the in closures. So, those are the main issues we have.

1:00:15

There is too much

1:00:17

emphasis on fire, not thermal runaway, the design at present is insufficient and there is not enough water on site. And I'll stop at that point, sir.

1:00:37

Many thanks for your contribution. That's very helpful. And thank you for keeping it succinct. And to the point, I noticed that the countries have both indicated to me that they would wish to make some comments if I can turn to Lincolnshire first.

1:00:52

That is Neil McBride, Lincolnshire county council. Whilst you notice that fire and rescue links farm rescue aren't here today, I have been in close correspondence with them in relation to this project and other

1:01:09

solar projects that are emerging in Lincolnshire. So I think that legacy Fire and Rescue are developing

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their, I suppose expertise

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around battery storage. And that is clearly something that is continuing to evolve as we heard new technologies coming forward. And there's a need to keep up to speed and to understand what that technology will need and the changes that potentially that could have. I think in relation to the comments I want to make.

1:01:41

In response to your questions, question 1.21. Around the outline, battery safety management plan,

1:01:52

we have provided a response to say that there is a need for further information to the outline, battery safety management plan, and the need to develop an emergency response plan. So clearly, we've heard some of that probably the information in terms of the technology isn't there yet. So that's something that needs to be worked on as we go forward. I think the other thing, just wanted to say that this clearly is an emerging issue. This week, the National

1:02:28

Fire chief's council have written to all

1:02:31

Chief Fire Officers drawing their attention to some recent guidance that's been updated planning policy guidance in relation to

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renewable low carbon energy and the need to take into account the safety issues connected to battery storage systems. So clearly, that's something that is continuing to emerge. And it is, on their radar. Whether the fire chief's sort of distinguish between

1:03:09

battery storage and come through botanical you find that applications or end sips is probably maybe a little bit out of sorts of their understanding, I think they're clearly interested in risk, whether it's from a

1:03:24

scheme below 50 megawatts or an N CIP scheme. But clearly, they are dating their advice around that. And I think one of the things that they are keen to the advice key is,

1:03:37

is keen to,

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I suppose ensures that there is a conversation between the plan authorities and the fire and rescue service to make sure that these sorts of schemes are,

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are on their sort of radar, and they can have an opportunity to respond and comment to that. I think, in Lincolnshire, because of the number of these projects that we have coming forward, we have got that relationship. And that will obviously continue to develop as more of these schemes come forward. So the other point that I just wanted to raise and we touched on this a little bit yesterday in terms of potential agreements, that would be necessary to ensure that the fire service has sufficient resources in place to not only assess the projects as they come forward.

1:04:29

I think when we first started, there was only one or two

1:04:32

and CIP projects for solar schemes in the county, we're now up to around 10 or 11. So that's clearly a significant number of schemes which potentially will put a significant amount of resource

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or have a large resource implication of Fire and Rescue Service. So what they've done is they provided me with some estimate about the amount of time that would be needed

1:05:00

to, I suppose, assess these projects through the pre application and examination stage, and we're fairly comfortable that that's covered by planning performance agreements. So it's worth talking about that too much. But the the bit that is, I think important is

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if consent is granted, and these projects are energized, then what

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sort of monitoring and assessment would be needed to ensure that

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this scheme that is approved is then

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implemented in a way that minimizes risk in terms of any potential fire instance. And they have indicated that during the first year, that would involve potentially 20 days of their time for

1:06:02

each of these different projects will require 20 days of assessment of the

1:06:09

initial watts, the

1:06:13

factories have been installed on site and to make sure that they have been compliant with the management plan, and to make sure that the testing and everything is done correctly. So they've identified a period of 20 days to do that assessment. And then subsequently, subsequent years,

1:06:31

to date, days per annum, to go inspect to make sure that what was put in place originally, is still fit for purpose, and there's been no slippage or

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no issues with perhaps things not been as they should be. So that would be a monitoring program, I think that would obviously help the Fire Rescue Service and also hopefully give some confidence to local residents that there is a regular monitoring program, and that will take place for these projects. So I think, and the reason why we have suggested that there's a need for a section 106 support this is that, as I say, if there's 10 or 11, worst case scenario of these projects, then that involves quite a lot of resource for Fire and Rescue Service. And therefore we would be requesting that each developer makes a contribution towards that overall cost of ensuring that the Fire and Rescue Service have sufficient resources in place to do the monitoring to ensure that the fire risk is as low as possible.

1:07:43

I do

1:07:47

not necessarily expect but how would you anticipate that is secured? And is it an agreement or a side agreement between the applicant and the fire service? separately? Are you speaking as a voice for them? Or are you speaking as the county council who would

1:08:05

take that as your function in terms of

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acting as coordinator and then consulting with them and then

1:08:16

making a payment to them, so you need the financial contributions? I don't understand the mechanism that you're suggesting to me, we're suggesting that through sexualize six agreements,

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which is with the county council,

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leadership, Fire Rescue are part of the county council, we have

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processes and systems in place to enable a transfer of money within the council. So

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that money would be expected through a section one agreement with the applicant? Well, that's obviously a matter, the applicant will need to have a discussion with you about as to whether or not there's sufficient justification around that and the detail of that, I would suggest that in terms of your submissions to me, in terms of your oral submissions, we set out to test against a necessity for a one who's X agreement and in terms of that particular contribution, so that then I've got the the basis on which to make that assessment and then the applicant will have a detailed response which they can then respond to. Okay, that

1:09:23

was Lindsay, do you have anything? So questions is what counts are nothing for two hours? Right. Okay. Thank you very much.

1:09:31

I will come to the applicant just for a quick response. There are a number of issues there. And we did suggest that it might be helpful if you provide an A more detailed written response to the issues and there's a number of technical matters that have been raised. I would fly that the nature of the batteries and the particular specifications etcetera, is a matter for the detailed submission

1:10:00

And so I assume that the response that you will get is that whenever those are, that detail will be submitted at a later date. And that assessment will be able to I assume that will be part of your, your statement back. But I expect again, it would be helpful. And I'll notice an action point, a statement on the best covering the issues that we've dealt with now should be submitted, it would probably be best by deadline for I'll go through that in a minute. Because that will give you the opportunity to see the comments from the kind of counsel from Mr. Clegg, and for Mr. Pryor, in terms of that, and then give you the opportunity to formulate your response and some considered time.

1:10:43

But is there any general comments that you'd like to make? Before we move? Any standing on behalf of the applicant? No. So you just covered everything I was about to say. So nothing further to add. Okay, thank you very much. In that case, I think that draws to a conclusion, the matters and the best, as I suggested there, and we've deal with that as much about written responses.

1:11:08

In terms of the agenda,

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I've got to item six, so a review of exclusion actions, I've only got two action points that I've noted, which is for the applicant, which is the first was, you're going to produce a a note stroke, technical response to produce figures for the scheme, specifics on the generating capacity. And that will be provided by deadline three, with your

1:11:40

written submissions of your oral submissions today. And then secondly, you'll provide a response to the submissions on best safety. And in relation to those matters that Mr. Clegg and the county council and Mr. Pryor have raised.

1:11:57

They will provide obviously, their comments by deadline three, and then you will have the opportunity to respond that and I would suggest you do that before. So I've got two,

1:12:09

as I say, points, two action points. So that used to document one provided by deadline three, and one provided by deadline for

1:12:21

Are there any other matters on those points that we've discussed this morning?

1:12:29

7000 acres. Yeah. Peter, already 7000 acres. And just very briefly, a couple of points.

1:12:37

I guess the first one, really, with regard to the the overall objective, which is decarbonisation, I think everyone's in agreement. That's what we're trying to try to achieve.

1:12:45

And I think the thing I'd really like to draw the draw your attention to so is the intrinsically interconnected nature of what that means in terms of land use food production and energy. And I think there are already concerns that the government is already over committing on on land use. So we've got to be very, very careful about how how land is is done is,

1:13:15

is used.

1:13:17

Secondly, the applicants restated a number of times now that there's,

1:13:22

there's government policy support for large scale, ground mounted solar. And I'm wondering if it's possible to understand why that is pleased because I've not I've not spotted up and maybe it may have missed it. But

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in the in the in the government's 10 Point Plan for decarbonisation, solar does not actually feature it still.

1:13:45

And the ambition for 70 gigawatts of solar is relatively new. And it's not explicit where that is, my understanding is that any solar and all the call is for

1:13:58

rooftop and efficient land use rather than an explicit ground mounted campaign. En three in its draft form, which as you've noticed, is not applicable, but is advisory at this stage provides an example of a typical solar farm being of of a 50 megawatt capacity, or therefore suggests that 500 megawatts is not typical. So that's my piece of thinking.

1:14:24

Okay, thank you very much.

1:14:28

Does the applicant wish to raise your reply

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instead standing about the applicant and there's no better to say

1:14:36

okay, thank you very much.

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In that case, I shall draw to a close this point.

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I would draw to your attention that

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any updated document again that we may be required, normal protocol right now

1:15:00

next deadline deadline three, Friday, the first of September. And again, please, all those who made contributions today, kind of have the written summaries of your oral submissions, again by deadline three. And that obviously can include some further supporting information. So, Mr. CLeg, if you've got more information upon that, then submit that by vs. September. Thank you very much.

1:15:28

I don't have any further matters that draws to a conclusion. Session two. We shall recommence was session three at two o'clock. But for now, I thank you very much and this session is adjourned. Thank you