Climate Change Committee

The UK's independent adviser on tackling climate change

Freedom of Information (FOI) Request
Received: 01 February 2024

Published: www.theccc.org.uk/about/transparency

Climate Change Committee
1 Victoria Street,
Westminster, London,
SW1H 0ET
w theccc.org.uk

Date: 29 February 2024
Ref: Sent by email from enquiries@theccc.org.uk

Your request:

Under the Freedom of Information Act, please provide copies of all communications to/from/involving Chris Stark in relation to/stemming from my query to the CCC on January 18, and subsequent emails, about remarks made by [redacted].

Please include:

a) Internal communications to/from/involving Mr Stark that relate to/stem from my query

b) Internal communications that relay comments by Mr Stark that relate to/stem from my query

c) Any communications between Mr Stark/CCC officials and [redacted] that relate to/stem from my query

d) Any communications between Mr Stark/CCC officials and Royal Society staff/representatives that relate to/stem from my query

Please restrict your searches to the period from January 18 to today. Relevant "communications" should include, but not be restricted to, emails, text/WhatsApp messages and records of oral conversations.

Our response:

Thank you for your request. We have handled your request under the Freedom of Information Act 2000 (FOIA). Please find our response below.

All relevant correspondence falling under your request broken down by a), b), c) and d) is listed in annex A.

All relevant correspondence to/from/involving Chris Stark in relation to/stemming from your query to the CCC on January 18, and subsequent emails, about remarks made by [redacted] is set out by email chain in annex A.

Under regulation FOIA section 40(2) with 40(3A), personal information from junior CCC staff and external contacts has been removed.

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Information disclosed in response to this FOIA request is releasable to the public. In keeping with the spirit and effect of the FOIA and the government's Transparency Agenda, this letter and the information disclosed to you may be placed on the CCC website, together with any related information that will provide a key to its wider context. Your personal information will not be placed on the CCC website.

If you are dissatisfied with the handling of your request, you have the right to ask for an internal review. If you are not content with the outcome of the review, you may apply directly to the Information Commissioner for a decision. In keeping with our transparency policy, the information released to you will be published on www.theccc.org.uk. Please note that this publication will not include your personal data.

Kind regards,
Climate Change Committee

Annex A – correspondence

Email chain one

From: Stark, Chris <email redacted>
Sent on: Thursday, January 18, 2024 6:33:42 PM
To: [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

I think you should speak to RS. They will be very embarrassed about this.

Chris Stark
Chief Executive, Climate Change Committee
@ChiefExecCCC | [phone number redacted]

From: Stark, Chris <email redacted>
Sent on: Thursday, January 18, 2024 6:33:08 PM
To: [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

I'm happy with a short response. If you need more, here's what I suggest. But it may just feed the beast - so less may be more here.

We are not aware of any mistakes in our analysis, nor that these have been conceded privately. The Committee has engaged very positively with {Name redacted] in his analysis of the potential energy storage requirements of the future electricity system, but the Royal Society report is based on a much more extreme set of assumptions than the CCC report - notably using only hydrogen for energy storage, coupled with renewables. CCC modelling illustrated a potential 2035 mix of technologies, including the continued use of fossil fuels, nuclear and carbon capture. This new modelling was completed after the CCC's last assessment of the costs of net zero in 2020. It had no bearing on that assessment.

Chris Stark
Chief Executive, Climate Change Committee
@ChiefExecCCC | [phone number redacted]

From: [Name redacted] <email redacted>
Sent on: Thursday, January 18, 2024 4:28:42 PM
To: Stark, Chris <Email redacted>
Subject: FW: Sunday Telegraph query

I'm going to try and make this simple. Let's get it to a place you're happy with and then show Keith and let the RS know. I won't send till tomorrow afternoon.

DRAFT

Hi [name redacted],

Think there's been some confusion here. There's no weather data underlying our 2019 Net Zero report. However, there is weather data underlying the report we produced last year - Delivering a reliable decarbonised power system. There are no issues with either the modelling or the conclusions we've drawn in that report.

Thanks,

[Name redacted]

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 3:02 PM
To: [Name redacted] <email redacted>
[Name redacted] <email redacted>
Subject: Sunday Telegraph query

Hi [Name redacted] /[Name redacted],

I am writing a story relating to a presentation in which [Name redacted], [identifying information redacted], said that the CCC "have conceded privately" that it made a mistake when it based its 2019 Net Zero calculations on a single year's worth of UK weather data.

In basing its calculations/modelling on a single year of weather data, the CCC underestimated the amount of energy storage needed as part of the electricity system to meet Net Zero goals, and "grossly overestimate[d] the need for everything else", including wind and solar energy, [Name redacted] argued in a presentation last year.

He said: "They [the CCC] say, well that's all right, we looked at some low wind years. Okay, so that means they can't do it. They'll have to increase the amount of wind to a level you don't need in other years, or solar, or, and this is what they do, add lots of gas plus CCS. So by looking at one year you underestimate storage and you grossly overestimate the need for everything else. That's exactly what the Committee on Climate Change have done. They've been stuck for some models in a mindset [of] we're going to need lots of gas plus CCS, so they like the fact that the AFRY model tells them that. But of course it tells them that, because it is constrained storage. So it got it wrong."

As you will be aware, the Royal Society report found that up to 100 Terawatt-hours (TWh) of storage will be needed by 2050, to mitigate variations in wind and sunshine. This was based on 37 years of weather data rather than the CCC's one year. The report notes that the CCC model requires "a much greater level of supply ... from other sources, and/or wind and solar than would have been required if storage had been allowed to transfer energy between years (especially in low wind years, such as 2010, which was one that AFRY studied, when the amount needed from other sources would have been far more than in most other years, as can be seen in Figure 2). This effect is exacerbated by AFRY's study of calendar years since periods of exceptionally low wind and solar supply typically run from December to March."

I would be grateful if you could answer the following questions:

1. Is it correct that you have privately acknowledged that it was a mistake to base your 2019 calculations on just one year of weather data?
2. Do you publicly acknowledge this? Any explanation you can give of why you acknowledge that this was a mistake would be very helpful.
3. What bearing might this have on your 2019 recommendations - ie to what extent might they have been different had you used a greater/sufficient amount of weather data?
4. To what extent might a greater/sufficient amount of weather data have affected the CCC's overall calculation of the cost of Net Zero that was based on these figures - specifically that it would cost 1-2% of GDP?

Please include any further comments you would like to make in response to the above and feel free to contact me if I can clarify any aspect of this request.

I would appreciate a response by 2pm tomorrow (Friday).

Many thanks,

[Name redacted]

[Name redacted]
[Role redacted], The Sunday Telegraph
Mobile: [phone number redacted]
111 Buckingham Palace Road
London SW1W 0DT
telegraph.co.uk
[Twitter/X handle redacted]

Email chain two

From: Stark, Chris <Email redacted>
Sent on: Thursday, January 18, 2024 10:12:03 PM
To: [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

*2023

Chris Stark
Chief Executive, Climate Change Committee
@ChiefExecCCC | [phone number redacted]

From: Stark, Chris <Email redacted>
Sent: Thursday, January 18, 2024 10:11:36 PM
To: [Name redacted] <Email redacted>
Subject: Re: Sunday Telegraph query

He's connecting a study done by Imperial college in 2019, with a Royal Society paper on something totally different.

There's no link between the [Name redacted] thing and this. And, in any case, our 2024 work specifically modelled a four week period of low wind to counter the claim that we hadn't looked at it

I think we might just need a strong line that we stand by our analysis. There are no "mistakes". We specifically modelled an unprecedented low wind period last year. There is no link to our 2019 work. And we looked at a totally different scenario to [Name redacted].

Chris Stark
Chief Executive, Climate Change Committee
@ChiefExecCCC | [phone number redacted]

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 10:04:16 PM
To: Stark, Chris <Email redacted>
Subject: Fwd: Sunday Telegraph query

FYI

Sent from Outlook for iOS

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 6:21 pm
To: [Name redacted] <email redacted>
Cc [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

Thank you [Name redacted]. I touched on this issue in an article in 2021 (below) which I plan to refer back to. The use of just one year's weather data appears to explain why the CCC's 2019 calculations were based on a projection that in 2050 there would be just seven days on which wind turbines would produce less than 10 per cent of their potential electricity output. At the point in 2021 that I wrote that piece there have already been 65 such days, and in 2016 there were as many as 78. I note [Name redacted] quotes the CCC as saying it looked at "low wind years".

https://www.telegraph.co.uk/politics/2021/10/23/net-zero-target-relies-rise-windy-days/

On Thu, 18 Jan 2024 at 16:03, [Name redacted] <email redacted> wrote:

Thanks [Name redacted], we'll come back to you tomorrow.

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 3:02 PM
To: [Name redacted] <email redacted>
[Name redacted] <email redacted>
Subject: Sunday Telegraph query

Hi [Name redacted] /[Name redacted],

I am writing a story relating to a presentation in which [Name redacted], [identifying information redacted], said that the CCC "have conceded privately" that it made a mistake when it based its 2019 Net Zero calculations on a single year's worth of UK weather data.

In basing its calculations/modelling on a single year of weather data, the CCC underestimated the amount of energy storage needed as part of the electricity system to meet Net Zero goals, and "grossly overestimate[d] the need for everything else", including wind and solar energy, [Name redacted] argued in a presentation last year.

He said: "They [the CCC] say, well that's all right, we looked at some low wind years. Okay, so that means they can't do it. They'll have to increase the amount of wind to a level you don't need in other years, or solar, or, and this is what they do, add lots of gas plus CCS. So by looking at one year you underestimate storage and you grossly overestimate the need for everything else. That's exactly what the Committee on Climate Change have done. They've been stuck for some models in a mindset [of] we're going to need lots of gas plus CCS, so they like the fact that the AFRY model tells them that. But of course it tells them that, because it is constrained storage. So it got it wrong."

As you will be aware, the Royal Society report found that up to 100 Terawatt-hours (TWh) of storage will be needed by 2050, to mitigate variations in wind and

sunshine. This was based on 37 years of weather data rather than the CCC's one year. The report notes that the CCC model requires "a much greater level of supply ... from other sources, and/or wind and solar than would have been required if storage had been allowed to transfer energy between years (especially in low wind years, such as 2010, which was one that AFRY studied, when the amount needed from other sources would have been far more than in most other years, as can be seen in Figure 2). This effect is exacerbated by AFRY's study of calendar years since periods of exceptionally low wind and solar supply typically run from December to March."

I would be grateful if you could answer the following questions:

1. Is it correct that you have privately acknowledged that it was a mistake to base your 2019 calculations on just one year of weather data?
2. Do you publicly acknowledge this? Any explanation you can give of why you acknowledge that this was a mistake would be very helpful.
3. What bearing might this have on your 2019 recommendations - ie to what extent might they have been different had you used a greater/sufficient amount of weather data?
4. To what extent might a greater/sufficient amount of weather data have affected the CCC's overall calculation of the cost of Net Zero that was based on these figures - specifically that it would cost 1-2% of GDP?

Please include any further comments you would like to make in response to the above and feel free to contact me if I can clarify any aspect of this request.

I would appreciate a response by 2pm tomorrow (Friday).

Many thanks,

[Name redacted]

[Name redacted]
[Role redacted], The Sunday Telegraph
Mobile: [phone number redacted]
111 Buckingham Palace Road
London SW1W 0DT
telegraph.co.uk
[Twitter/X handle redacted]

Email chain three

From: [Name redacted] <email redacted>
Sent on: Friday, January 19, 2024 11:58:56 AM
To: [Name redacted] <Email redacted>
CC: [Name redacted] <Email redacted>;
[Name redacted] <email redacted>
Subject: RE: Sunday Telegraph query

Thanks, [name redacted]. Sorry for missing your call – our Committee meets on Fridays so also trying to juggle that.

You have my number if you need anything over the weekend.

From: [Name redacted] <Email redacted>
Sent: Friday, January 19, 2024 11:30 AM
To: [Name redacted] <email redacted>

Cc: [Name redacted] <Email redacted>;
[Name redacted] <email redacted>
Subject: RE: Sunday Telegraph query

You don't often get email from <email redacted>. Learn why this is important

Hi [Name redacted]

Thanks for the chat earlier. I have spoken to [Name redacted] and I understand his comments were made in public during a presentation. He says the comments about privately conceding a mistake were made to him by Chris Stark. I will contact the journalist and say his views are not those of the Royal Society and he made the comments in his capacity as an individual. I will ask them to make that clear in the article.

Kind regards

[Name redacted]

From: [Name redacted] <email redacted>
Sent: Friday, January 19, 2024 11:06 AM
To: [name redacted] <Email redacted>
Subject: FW: Sunday Telegraph query

Hi [name redacted],

Please see below.

There seems to be some confusion from the journalist too – my understanding is that [Name redacted] would have been referring to our report (published in March 23) rather than our Net Zero report.

Let me know if I can help further.

Thanks,

[Name redacted]

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 6:21 PM
To: [Name redacted] <email redacted>
Cc: [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

Thank you [Name redacted]. I touched on this issue in an article in 2021 (below) which I plan to refer back to. The use of just one year's weather data appears to explain why the CCC's 2019 calculations were based on a projection that in 2050 there would be just seven days on which wind turbines would produce less than 10 per cent of their potential electricity output. At the point in 2021 that I wrote that piece there have already been 65 such days, and in 2016 there were as many as 78. I note [Name redacted] quotes the CCC as saying it looked at "low wind years".

https://www.telegraph.co.uk/politics/2021/10/23/net-zero-target-relies-rise-windy-days/

On Thu, 18 Jan 2024 at 16:03, [Name redacted] <email redacted> wrote:

Thanks [Name redacted], we'll come back to you tomorrow.

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 3:02 PM
To: [Name redacted] <email redacted>;
[Name redacted] <email redacted>
Subject: Sunday Telegraph query

Hi [Name redacted]/ [Name redacted],

I am writing a story relating to a presentation in which [Name redacted], [identifying information redacted], said that the CCC "have conceded privately" that it made a mistake when it based its 2019 Net Zero calculations on a single year's worth of UK weather data.

In basing its calculations/modelling on a single year of weather data, the CCC underestimated the amount of energy storage needed as part of the electricity system to meet Net Zero goals, and "grossly overestimate[d] the need for everything else", including wind and solar energy, [Name redacted] argued in a presentation last year.

He said: "They [the CCC] say, well that's all right, we looked at some low wind years. Okay, so that means they can't do it. They'll have to increase the amount of wind to a level you don't need in other years, or solar, or, and this is what they do, add lots of gas plus CCS. So by looking at one year you underestimate storage and you grossly overestimate the need for everything else. That's exactly what the Committee on Climate Change have done. They've been stuck for some models in a mindset [of] we're going to need lots of gas plus CCS, so they like the fact that the AFRY model tells them that. But of course it tells them that, because it is constrained storage. So it got it wrong."

As you will be aware, the Royal Society report found that up to 100 Terawatt-hours (TWh) of storage will be needed by 2050, to mitigate variations in wind and sunshine. This was based on 37 years of weather data rather than the CCC's one year. The report notes that the CCC model requires "a much greater level of supply ... from other sources, and/or wind and solar than would have been required if storage had been allowed to transfer energy between years (especially in low wind years, such as 2010, which was one that AFRY studied, when the amount needed from other sources would have been far more than in most other years, as can be seen in Figure 2). This effect is exacerbated by AFRY's study of calendar years since periods of exceptionally low wind and solar supply typically run from December to March."

I would be grateful if you could answer the following questions:

1. Is it correct that you have privately acknowledged that it was a mistake to base your 2019 calculations on just one year of weather data?
2. Do you publicly acknowledge this? Any explanation you can give of why you acknowledge that this was a mistake would be very helpful.
3. What bearing might this have on your 2019 recommendations - ie to what extent might they have been different had you used a greater/sufficient amount of weather data?
4. To what extent might a greater/sufficient amount of weather data have affected the CCC's overall calculation of the cost of Net Zero that was based on these figures - specifically that it would cost 1-2% of GDP?

Please include any further comments you would like to make in response to the above and feel free to contact me if I can clarify any aspect of this request.

I would appreciate a response by 2pm tomorrow (Friday).

Many thanks,

[Name redacted]

[Name redacted]
[Role redacted], The Sunday Telegraph
Mobile: [phone number redacted]
111 Buckingham Palace Road
London SW1W 0DT
telegraph.co.uk
[Twitter/X handle reacted]

Email chain four

From: [Name redacted] <email redacted>
Sent on: Friday, January 19, 2024 12:01:58 PM
To: Keith Bell (Guest) <email redacted>;
Stark, Chris <email redacted>
Subject: RE: Sunday Telegraph query

Hi Keith,

I'd definitely appreciate a quick call – I'll send a calendar invite for 12:20, if that suits (we should be breaking for lunch then).

Thanks,

[Name redacted]

From: Keith Bell <email redacted>
Sent: Friday, January 19, 2024 11:57 AM
To: Stark, Chris <Email redacted>;
[Name redacted] <email redacted>
Subject: RE: Sunday Telegraph query

Yes, I totally agree with you about us not having made a mistake. [Name redacted] is being very naughty in presenting his different approach in the way that he seems to be doing it.

I guess you and [name redacted] will finish the Adaptation Committee around 3pm. If it's not already too late to influence anything that the Telegraph will say, I'm due to be free from 3.30 (but am also free from 2 to 3pm).

Cheers,

Keith

From: Stark, Chris <Email redacted>
Sent: 19 January 2024 11:53
To: Keith Bell <email redacted>;
[Name redacted] <email redacted>

Subject: RE: Sunday Telegraph query

We're in the adaptation committee today Keith. [Name redacted] might be free, but I can't do it until later I'm afraid.

This will be sourced from our friends in Tufton Street, as usual. So my sense is that they'll publish something, regardless of the sense of it.

Only thing I'd add is that we absolutely have not conceded that there's a 'mistake' in our work in 2023 (or 2019's Imperial College work for that matter) – there is a fundamental difference of assumption in [Name redacted] work, as you know. And we were exploring different topics.

Chris Stark
Chief Executive

Climate Change Committee
[Phone number redacted]
theccc.org.uk | @ChiefExecCCC

From: Keith Bell <email redacted>
Sent: Friday, January 19, 2024 11:46 AM
To: [Name redacted] <email redacted>
Cc: Stark, Chris <Email redacted>
Subject: RE: Sunday Telegraph query

Hi [Name redacted],

Many thanks for this. The Sunday Telegraph again… and it's interesting to see that the contact comes from their [redacted].

Would it be worth a quick chat about this? I'm free now until 1.15pm (aside from just grabbing a quick bite to eat). Could do Teams or the phone (<number redacted>).

All the best,

Keith

From: [Name redacted] <email redacted>
Sent on: Friday, January 19, 2024 10:46:19 AM
To: Keith Bell (Guest) <email redacted>
CC: Stark, Chris <email redacted>
Subject: Sunday Telegraph query

Hi Keith,

We've had an enquiry from the Sunday Telegraph (see below). The journalist seems confused between our reports, which I'll correct them on, but I think we can assume something will run this Sunday saying a Royal Society fellow has said the CCC are wrong – and importantly that the CCC 'have conceded this privately.'

We will rebut this and be clear that we stand by both our modelling and our conclusions and that we have engaged positively with the Royal Society and [name redacted]. In general, it is best for us to do a short and factual answer rather than try and engage line by line.

I'm aware that you were involved with both reports, so I wanted to flag and also check if there was anything else you wanted us to mention.

I have spoken to the Royal Society press team this morning to let them know this is coming. If there was anyone at the RS you would specifically like me to talk to, please do let me know.

Thanks,

[Name redacted]

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 3:02 PM
To: [Name redacted] <email redacted>
[Name redacted] <email redacted>
Subject: Sunday Telegraph query

Hi [Name redacted]/ [Name redacted],

I am writing a story relating to a presentation in which [name redacted], [identifying information redacted], said that the CCC "have conceded privately" that it made a mistake when it based its 2019 Net Zero calculations on a single year's worth of UK weather data.

In basing its calculations/modelling on a single year of weather data, the CCC underestimated the amount of energy storage needed as part of the electricity system to meet Net Zero goals, and "grossly overestimate[d] the need for everything else", including wind and solar energy, [name redacted] argued in a presentation last year.

He said: "They [the CCC] say, well that's all right, we looked at some low wind years. Okay, so that means they can't do it. They'll have to increase the amount of wind to a level you don't need in other years, or solar, or, and this is what they do, add lots of gas plus CCS. So by looking at one year you underestimate storage and you grossly overestimate the need for everything else. That's exactly what the Committee on Climate Change have done. They've been stuck for some models in a mindset [of] we're going to need lots of gas plus CCS, so they like the fact that the AFRY model tells them that. But of course it tells them that, because it is constrained storage. So it got it wrong."

As you will be aware, the Royal Society report found that up to 100 Terawatt-hours (TWh) of storage will be needed by 2050, to mitigate variations in wind and sunshine. This was based on 37 years of weather data rather than the CCC's one year. The report notes that the CCC model requires "a much greater level of supply ... from other sources, and/or wind and solar than would have been required if storage had been allowed to transfer energy between years (especially in low wind years, such as 2010, which was one that AFRY studied, when the amount needed from other sources would have been far more than in most other years, as can be seen in Figure 2). This effect is exacerbated by AFRY's study of calendar years since periods of exceptionally low wind and solar supply typically run from December to March."

I would be grateful if you could answer the following questions:

1. Is it correct that you have privately acknowledged that it was a mistake to base your 2019 calculations on just one year of weather data?
2. Do you publicly acknowledge this? Any explanation you can give of why you acknowledge that this was a mistake would be very helpful.
3. What bearing might this have on your 2019 recommendations - ie to what extent might they have been different had you used a greater/sufficient amount of weather data?
4. To what extent might a greater/sufficient amount of weather data have affected the CCC's overall calculation of the cost of Net Zero that was based on these figures - specifically that it would cost 1-2% of GDP?

I touched on this issue in an article in 2021 (below) which I plan to refer back to. The use of just one year's weather data appears to explain why the CCC's 2019 calculations were based on a projection that in 2050 there would be just seven days on which wind turbines would produce less than 10 per cent of their potential electricity output. At the point in 2021 that I wrote that piece there have already been 65 such days, and in 2016 there were as many as 78. I note [name redacted] quotes the CCC as saying it looked at "low wind years".

https://www.telegraph.co.uk/politics/2021/10/23/net-zero-target-relies-rise-windy-days/

Please include any further comments you would like to make in response to the above and feel free to contact me if I can clarify any aspect of this request.

I would appreciate a response by 2pm tomorrow (Friday).

Many thanks,
[Name redacted]

[Name redacted]
[Role redacted], The Sunday Telegraph
Mobile: [phone number redacted]
111 Buckingham Palace Road
London SW1W 0DT
telegraph.co.uk
[Twitter/X handle redacted]

Email chain five

From: [Name redacted] <email redacted>
Sent on: Friday, January 19, 2024 1:24:09 PM
To: Stark, Chris <Email redacted>
Subject: RE: Sunday Telegraph query

Brill.

Keith wanted a look too. Will get it over to [name redacted] after that.

From: Stark, Chris <Email redacted>
Sent: Friday, January 19, 2024 1:23 PM
To: [Name redacted] <email redacted>
Subject: RE: Sunday Telegraph query

I think saying "we stand behind our analysis" answers the point without being explicit.

The stuff on [name redacted]'s more extreme assumptions can go in the background section if you think you need it.

Chris Stark
Chief Executive

Climate Change Committee
[phone number redacted]
theccc.org.uk | @ChiefExecCCC

From: [Name redacted] <email redacted>
Sent: Friday, January 19, 2024 1:10 PM
To: Stark, Chris <Email redacted>
Subject: RE: Sunday Telegraph query

Ok. I imagine we'll have to say that eventually but happy to hold out.

From: Stark, Chris <Email redacted>
Sent: Friday, January 19, 2024 1:07 PM
To: [Name redacted] <email redacted>
Subject: RE: Sunday Telegraph query

Couple of edits below. No need to fuel a fight.

Can you check this with [name redacted] too?

Chris Stark
Chief Executive

Climate Change Committee
[phone number redacted]
theccc.org.uk | @ChiefExecCCC

From: [Name redacted] <email redacted>
Sent: Friday, January 19, 2024 12:44 PM
To: Stark, Chris <Email redacted>
Subject: RE: Sunday Telegraph query

How about this?

Hi [Name redacted],

~~Think there's been some confusion here between reports~~. I think this is in reference to the power report we published last year - Delivering a reliable decarbonised power system, rather than our Net Zero report (or the Imperial report published alongside it, which you were referring to in your second email). This report was published last year and illustrates what a reliable, resilient, decarbonised GB electricity supply system could look like in a single year. 2035, and the steps required to achieve it. It provides insights and new advice on how such a system can be achieved by 2035, using real weather data and hourly analysis of Great Britain's power system. The modelling considered specifically how the UK power system of 2035 could respond to periods of low or no wind, through a mix of fossil fuelled generation, nuclear, and carbon capture and hydrogen and demand-side measures.

A CCC spokesperson said: 'We stand by both the modelling and the analysis in our report, ~~and we've not said otherwise~~. The Committee has engaged very positively with [name redacted] in his analysis of the potential energy storage requirements of the future electricity system, although our reports consider very different scenarios for the future.

[we have used different assumptions to him in our modelling. His report has a more extreme set of assumptions than the CCC one – notably using only hydrogen for energy storage, coupled with renewables. CCC modelling illustrated a potential 2035 mix of technologies, including the continued use of fossil fuels, nuclear and carbon capture.] suggest we remove this final section

'This new modelling was completed after the CCC's last assessment of the costs of net zero in 2020. It had no bearing on that assessment.'

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 6:21 PM
To: [Name redacted] <email redacted>
Cc: [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

Thank you [Name redacted]. I touched on this issue in an article in 2021 (below) which I plan to refer back to. The use of just one year's weather data appears to explain why the CCC's 2019 calculations were based on a projection that in 2050 there would be just seven days on which wind turbines would produce less than 10 per cent of their potential electricity output. At the point in 2021 that I wrote that piece there have already been 65 such days, and in 2016 there were as many as 78. I note [name redacted] quotes the CCC as saying it looked at "low wind years".

https://www.telegraph.co.uk/politics/2021/10/23/net-zero-target-relies-rise-windy-days/

On Thu, 18 Jan 2024 at 16:03, [Name redacted] <email redacted>wrote:

Thanks [name redacted], we'll come back to you tomorrow.

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 3:02 PM
To: [Name redacted] <email redacted;
[Name redacted] <email redacted>
Subject: Sunday Telegraph query

Hi [Name redacted]/ [Name redacted],

I am writing a story relating to a presentation in which [name redacted], [identifying information redacted], said that the CCC "have conceded privately" that it made a mistake when it based its 2019 Net Zero calculations on a single year's worth of UK weather data.

In basing its calculations/modelling on a single year of weather data, the CCC underestimated the amount of energy storage needed as part of the electricity system to meet Net Zero goals, and "grossly overestimate[d] the need for everything else", including wind and solar energy, [Name redacted] argued in a presentation last year.

He said: "They [the CCC] say, well that's all right, we looked at some low wind years. Okay, so that means they can't do it. They'll have to increase the amount of wind to a level you don't need in other years, or solar, or, and this is what they do, add lots of gas plus CCS. So by looking at one year you underestimate storage and you grossly overestimate the need for everything else. That's exactly what the Committee on Climate Change have done. They've been stuck for some models in a mindset [of] we're going to need lots of gas plus CCS, so they like the fact that the AFRY model tells them that. But of course it tells them that, because it is constrained storage. So it got it wrong."

As you will be aware, the Royal Society report found that up to 100 Terawatt-hours (TWh) of storage will be needed by 2050, to mitigate variations in wind and sunshine. This was based on 37 years of weather data rather than the CCC's one year. The report notes that the CCC model requires "a much greater level of supply ... from other sources, and/or wind and solar than would have been required if storage had been allowed to transfer energy between years (especially in low wind years, such as 2010, which was one that AFRY studied, when the amount needed from other sources would have been far more than in most other years, as can be seen in Figure 2). This effect is exacerbated by AFRY's study of calendar years since periods of exceptionally low wind and solar supply typically run from December to March."

I would be grateful if you could answer the following questions:

1. Is it correct that you have privately acknowledged that it was a mistake to base your 2019 calculations on just one year of weather data?
2. Do you publicly acknowledge this? Any explanation you can give of why you acknowledge that this was a mistake would be very helpful.
3. What bearing might this have on your 2019 recommendations - ie to what extent might they have been different had you used a greater/sufficient amount of weather data?
4. To what extent might a greater/sufficient amount of weather data have affected the CCC's overall calculation of the cost of Net Zero that was based on these figures - specifically that it would cost 1-2% of GDP?

Please include any further comments you would like to make in response to the above and feel free to contact me if I can clarify any aspect of this request.

I would appreciate a response by 2pm tomorrow (Friday).

Many thanks,

[Name redacted]
[Name redacted]
[Role redacted], The Sunday Telegraph
Mobile: [phone number redacted]
111 Buckingham Palace Road
London SW1W 0DT
telegraph.co.uk
[Twitter/X handle redacted]

Email chain six

From: [Name redacted] <email redacted>
Sent on: Friday, January 19, 2024 6:08:56 PM
To: Stark, Chris <Email redacted>

Subject: RE: Sunday Telegraph query

Deal.

From: Stark, Chris <Email redacted>
Sent: Friday, January 19, 2024 6:07 PM
To: [Name redacted] <email redacted>
Subject: RE: Sunday Telegraph query

I can't sit nice with the "it's correct" language, so I've redrafted the background instead.

How's this?

Regarding our 2019 recommendations, we stand by the analysis – which was most recently updated in our carbon budget analysis in 2020. Last year's report on the 2035 GB power system deliberately considered its operation over a 12-month period. Our opportunity to look over a longer period of energy system transition will in our next carbon budget analysis in 2025.

On [name redacted]' comments, please see below.

"Our recent report modelled the 12-month operation of Britain's power system in 2035 using hourly energy demand and real weather data from a low-wind year, stress-tested to simulate a 30-day wind drought. We welcome [name redacted]' work, which considers other aspects of the energy challenge in 2050, under different assumptions about the future energy mix."

Chris Stark
Chief Executive

Climate Change Committee
[phone number redacted]
theccc.org.uk | @ChiefExecCCC

From: [Name redacted] <email redacted>
Sent: Friday, January 19, 2024 5:47 PM
To: Stark, Chris <Email redacted>
Subject: RE: Sunday Telegraph query

Hi [Name redacted],

Regarding our 2019 recommendations, we stand by the analysis – which was most recently updated in our carbon budget in 2020. We will be publishing our next carbon budget analysis in 2025.

On [Name redacted]' comments, please see below.

A CCC spokesperson said: "It is correct to say that our recent report deliberately considered a whole year's worth of weather data. We used projected hourly energy demand across 2035 and real weather data from a low-wind year, stress-tested with a 30-day wind drought. We welcome [name redacted]' work, which considers other aspects of the energy challenge in 2050, under different assumptions about the future energy mix."

Thanks,

[Name redacted]

From: [Name redacted] <email redacted>
Sent on: Friday, January 19, 2024 5:43:07 PM
To: Stark, Chris <Email redacted>
Subject: RE: Sunday Telegraph query

Hi [Name redacted],

Regarding our 2019 recommendations, we stand by the analysis – which was most recently updated in our carbon budget in 2020. We will be publishing our next carbon budget analysis in 2025.

On [Name redacted]' comments, please see below.

A CCC spokesperson said: "It is correct to say that our recent report used a year's worth of weather data. We used projected hourly energy demand across 2035 and real weather data from a low-wind year, stress-tested with a 30-day wind drought. We welcome [name redacted]' work, which considers other aspects of the energy challenge in 2050, under different assumptions about the future energy mix."

Thanks,

[Name redacted]

From: Stark, Chris <Email redacted>
Sent: Friday, January 19, 2024 5:26 PM
To: [Name redacted] <email redacted>
Subject: RE: Sunday Telegraph query

How's this – kill it with some technical language

Chris Stark
Chief Executive

Climate Change Committee
[phone number redacted]
theccc.org.uk | @ChiefExecCCC

From: [Name redacted] <email redacted>
Sent: Friday, January 19, 2024 4:41 PM
To: Stark, Chris <Email redacted>
Subject: RE: Sunday Telegraph query

Lets do this and call it a day

Hi [Name redacted],

Regarding our 2019 recommendations, we stand by the analysis – which was most recently updated in our carbon budget in 2020. We will be publishing our next carbon budget analysis in 2025.

On [Name redacted]' comments, please see below.

A CCC spokesperson said: "Our recent report modelled Britain's power system in 2035 using hourly energy demand across that year and real weather data from a low-wind year, stress-tested with a 30-day wind drought. We welcome [Name redacted]' work, which considers other aspects of the energy challenge in 2050, under different assumptions about the future energy mix."

Thanks,

[Name redacted]

From: [Name redacted] <email redacted>
Sent: Friday, January 19, 2024 3:20 PM
To: [Name redacted] <email redacted>
Cc: [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

OK got it - thank you. Clearly this is also highly relevant to your 2019 report given that it drew conclusions (relied on by government) about the necessary future energy mix based on a year of weather data. Given this I would still be very grateful for a response to these questions please:

3. What bearing might this have on your 2019 recommendations - ie to what extent might they have been different had you used a greater/sufficient amount of weather data?

4. To what extent might a greater/sufficient amount of weather data have affected the CCC's overall calculation of the cost of Net Zero that was based on these figures - specifically that it would cost 1-2% of GDP?

I've now been told that [Name redacted] says that "Chris Stark conceded that my comment that the CCC relied on modelling that only uses a single year of weather data (which was subsequently repeated on page 74 of the Report) is 'an entirely valid criticism'."

Can you clarify why Mr Stark accepted this was "an entirely valid criticism" please?

Thanks again.

[Name redacted]

On Fri, 19 Jan 2024 at 15:11, [Name redacted] <email redacted> wrote:

Hi [Name redacted],

Sorry, you're correct. My understanding is that our 2023 one is the one [Name redacted]'s comments are about.

Think it's worth flagging that as part of the modelling undertaken for this report, we tested additional sensitivities examining the impact of reduced wind generation. One looks at the impact of a low wind year, and one looks at an extended period of low wind.

We have tested the impact of a low wind year, using weather patterns from 2010, which is judged to have been a 1-in-50 low wind year.

We have also tested a scenario of an extended 30-day period of wind drought. This scenario builds on the low wind year and looked over the period 2009-2019 to combine the 30-day period of highest residual demand with the 30-day period of lowest wind load factors. This is designed to test a more extreme scenario and does not have a historical precedent.

Hope this is helpful,

[Name redacted]

From: [Name redacted] <email redacted>
Sent: Friday, January 19, 2024 2:28 PM
To: [Name redacted] <email redacted>
Cc: [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

Thanks [Name redacted]. As I understand it, the modelling underpinning your 2019 report, and which I wrote about in that article, is also based just on one year of weather data. The spreadsheets released under FOI bear this out. Are you saying this is not correct?

[Name redacted]

On Fri, 19 Jan 2024 at 13:52, [Name redacted] <email redacted> wrote:

Hi [Name redacted],

I think your enquiry is about the power report we published last year - Delivering a reliable decarbonised power system, rather than our Net Zero report (or the Imperial report published alongside it, which you were referring to in your second email). This report was published last year and illustrates what a reliable, resilient, decarbonised GB electricity supply system could look like in a single year, 2035, and the steps required to achieve it. It provides insights and new advice on how such a system can be achieved by 2035, using real weather data and hourly analysis of Great Britain's power system. The modelling considered specifically how the UK power system of 2035 could respond to periods of low or no wind, through a mix of fossil fuelled generation, nuclear, and carbon capture and hydrogen and demand-side measures.

A CCC spokesperson said: "We stand by both the modelling and the analysis in our report. The Committee has engaged very positively with [Name redacted] in his analysis of the potential energy storage requirements of the future electricity system, although our reports consider very different scenarios for the future.

"This new modelling was completed after the CCC's last assessment of the costs of net zero in 2020."

Thanks,

[Name redacted]

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 6:21 PM
To: [Name redacted] <email redacted>
Cc: [Name redacted] <email redacted>
Subject: Re: Sunday Telegraph query

Thank you [Name redacted]. I touched on this issue in an article in 2021 (below) which I plan to refer back to. The use of just one year's weather data appears to explain why the CCC's 2019 calculations were based on a projection that in 2050 there would be just seven days on which wind turbines would produce less than 10 per cent of their potential electricity output. At the point in 2021 that I wrote that piece there have already been 65 such days, and in 2016 there were as many as 78. I note [Name redacted] quotes the CCC as saying it looked at "low wind years".

https://www.telegraph.co.uk/politics/2021/10/23/net-zero-target-relies-rise-windy-days/

On Thu, 18 Jan 2024 at 16:03, [Name redacted] <email redacted> wrote:

Thanks [Name redacted], we'll come back to you tomorrow.

From: [Name redacted] <email redacted>
Sent: Thursday, January 18, 2024 3:02 PM
To: [Name redacted] <email redacted>;
[Name redacted] <email redacted>
Subject: Sunday Telegraph query

Hi [Name redacted]/ [Name redacted],

I am writing a story relating to a presentation in which [Name redacted], [identifying information redacted], said that the CCC "have conceded privately" that it made a mistake when it based its 2019 Net Zero calculations on a single year's worth of UK weather data.

In basing its calculations/modelling on a single year of weather data, the CCC underestimated the amount of energy storage needed as part of the electricity system to meet Net Zero goals, and "grossly overestimate[d] the need for everything else", including wind and solar energy, [Name redacted] argued in a presentation last year.

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As you will be aware, the Royal Society report found that up to 100 Terawatt-hours (TWh) of storage will be needed by 2050, to mitigate variations in wind and sunshine. This was based on 37 years of weather data rather than the CCC's one year. The report notes that the CCC model requires "a much greater level of supply ... from other sources, and/or wind and solar than would have been required if storage had been allowed to transfer energy between years (especially in low wind years, such as 2010, which was one that AFRY studied, when the amount needed from other sources would have been far more than in most other years, as can be seen in Figure 2). This effect is exacerbated by AFRY's study of calendar years since periods of exceptionally low wind and solar supply typically run from December to March."

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Please include any further comments you would like to make in response to the above and feel free to contact me if I can clarify any aspect of this request.

I would appreciate a response by 2pm tomorrow (Friday).

Many thanks,

[Name redacted]
[Name redacted]
[Role redacted], The Sunday Telegraph
Mobile: [phone number redacted]
111 Buckingham Palace Road
London SW1W 0DT
telegraph.co.uk
[Twitter/X handle redacted]