

Environmental Audit Committee

Oral evidence: Environment in Focus, HC 1310

Wednesday 17 December 2025

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[Watch the meeting](#)

Members present: Mr Toby Perkins (Chair); Julia Buckley; Jonathan Davies; Carla Denyer; Barry Gardiner; Sarah Gibson; Alison Griffiths; Manuela Perteghella; Martin Rhodes; Dr Roz Savage.

Questions 10 - 18

Witnesses

[II](#): Rowena Shivam, Student of Sustainable Built Environment, Energy and Resources, University College London.

Written evidence from witnesses:

- [Written Submission from Rowena Shivam EIF0001](#)

Examination of witness

Witness: Rowena Shivam.

Q10 Chair: If I could invite our second panellist, Rowena Shivam to step forward? Welcome. Well, thank you so much. I am awestruck by the fact that the IT that you are using has worked for you the first time of asking, which is absolutely beyond my expectation.

I am very pleased to say we have been joined by Rowena Shivam, a student of sustainable built environment, energy and resources at University College London. Rowena will be doing a presentation on data centres and the UK's Sustainable Development Challenge, and the environmental and housing implications of rapid digital infrastructure expansion. Rowena, you have 10 minutes to make your presentation, and then we will go to questions. Over to you.

Rowena Shivam: Thank you very much. It is a real honour to be here. I am currently a second-year undergraduate at UCL. This year, I have also been very lucky to be part of the United Nations Local Pathway Fellowship, and that is where I undertook this research specifically on west London's data centre growth. I am also the CEO and founder of BNG Smart, which is a separate online platform about biodiversity legislation compliance.

Before I get started today, I want to make it quite clear that any views or opinions that I might express in the presentation or later on are not necessarily representative of any of the institutions I have just listed.

So, just a quick overview in terms of some facts and stats on what is happening with data centres in the UK and specifically in London. We have got approximately 500 in the UK at the moment, with 100 more in planning. They are taking up around 2.5% of the UK's electricity, and that figure is projected to grow fourfold by 2030.

For some context, one data centre uses up to 50,000 households' worth of water and up to 80,000 households' worth of energy. There is a debate going on right now between data centre sector growth and housing sector growth, and how we can bring both of those together into a sustainable development process.

In London, the capital takes up 65% of national co-location capacity, co-meaning the amount of land and resources available to data centres to rent. That includes energy. London's energy capacity at the moment is 4.61 gigawatts—that is 2030's projection. All of this means that housing development has been significantly delayed, particularly in Hillingdon, Hounslow and Ealing in the west of London where housing development has been paused until 2035. Developers cannot expect grid connections due to the growth of data centres.



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All that being said, there are some positive implications of having data centres in the UK, up to around £5 billion annual gross value added to the economy, and this is projected to be a total of £44 billion by 2035. When it comes to employment, it is important to consider data centres as an infrastructure project, so there is a lot more employment in the short term as it is being developed, rather than in the long term, because they are mostly automated. However, we are looking at around 24,000 direct jobs from data centres.

Socially, I am sure you are all well aware that artificial intelligence has come into almost every aspect of our lives now—healthcare, finance, education; all of these sectors rely on it. So the reason that we need local data centres in the UK is because of something called latency. Latency is effectively a delay, say when you are using a large language model—the delay between when you give the prompt and when you then receive the response. In order to ensure that all of these institutions are operating at maximum capacity, that is why we need our local data centres.

Today we are here to talk about the environment, and there are four main categories where data centres have detrimental environmental impact. The first is power. I have talked about all the stats beforehand, but when it comes to grid capacity constraints, this is the main issue, specifically around certain locations such as the M4 corridor. This leads to data centres relying on gas fired generation to meet their variable demand, and this often gets backed up with diesel generators, which emit particulate matter, PM2.5 and PM10, and for both of those there is a lot of literature around the healthcare impacts when centred in particular areas like London.

This is also contributing to noise pollution. When you have got things like generators running in the background, it creates low-frequency noise, which can disturb residents. In the United States, where they publish a lot on the public health burden of their data centres, this is predicted to be \$20 billion by 2028.

Water is another really important issue that I want to bring up today. Currently in the UK, data centres are not required to publish figures on their water usage, and they are not required to be publicly disclosed. I think this is a significant issue, especially because it means that institutions like Thames Water and the Environment Agency are finding it difficult to predict when we might have droughts or water shortages, and how much of that they can attribute to data centres. On your screen, you can see that the Thames Water estimation is between 4 and 19 million litres per day, which is a huge range. Additionally, many data centres are located in areas where there is already high water stress, such as Slough, and I have Oxford on the slide I am showing you as well. Oxfordshire is predicted to be the next AI growth zone, and so that is a real area of concern.

Then we have land. Two planning applications in 2024 were made to have data centres built on greenbelt land. At the moment, local planning authorities are the ones who are in charge of giving permission for data



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centres, and they initially said they did not want them, and then that decision was overridden by the Government citing the need to remain competitive with the European market. So there are some concerns there about protecting our land and our nature, as well as ensuring data centre growth.

Speaking of the European market, Ireland has a very similar situation, with 18% of their national electricity going to data centres, and has come up with a conditional grid connection policy. This was done by EirGrid and also the CRU. This policy basically states that data centres must demonstrate on-site generation. They must provide that variable demand response, or they need to be able to accept constrained connections. That might look like a gigawatt quota that they will be allowed to use in a certain region. This is a good shift away from the first-come, first-served approach to the grid that we have in the UK at the moment. The Netherlands has a much more renewable-focused lens, and 86% of the electricity used by data centres comes from renewable sources. It supplements this with a mandatory energy efficiency threshold. The PUE there is the power usage efficiency of a data centre. That must be less than 1.2. There are very similar policies in Germany as well. In addition, they also have district heating networks that are using the residual heat from data centres—another great way to improve efficiency.

Looking more broadly around the world, in Asia there is an innovation going on with low water-cooling technologies. The main usage of water for data centres is for cooling, and if we can find methods that use less potable water or less water in general, that is beneficial for the environment. China is trying to sink data centres into the ocean as an alternative way. That is definitely in the trial stages at the moment, but it was experimented with in Scotland. The UAE, another very water-stressed country, uses adiabatic cooling, which is where you do not use water, you use air.

All of that being said, the UK is doing some great things in the policy space with data centres. I was very encouraged to see the publication of the House of Commons "Data Centres: Planning Policy, Sustainability and Resilience" document last month. I mentioned the designated AI growth zones before. I want to say let's take a pause and look at what has happened with west London before we start trying to expand this to other parts of the UK, to make sure that we have learned all of those lessons and the environmental aspects.

It is good to see exploration of alternative power, nuclear, small modular reactors, and some trials of the waste heat reuse methods that we saw in the Netherlands. There has been a £36 million grant towards that, alongside the energy transition fund from the UK Digital Strategy, which is £315 million. The London plan also covers some of the economic benefits and the costs. However, I want to pull out the fact that the London Infrastructure Plan and the GLA net zero pathway do not mention data centres once. I think that this is concerning, given the amount of data centres that there are in London and the impact that they are having on local communities as well as the housing market as a whole.



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Looking ahead, as a student I have been keen and interested in this, so I have done a bit of rudimentary modelling on data centres. I will show you this dashboard. This is purely a simulation. It uses some public data and also some assumptions from international data. You can see here data centres, renewable energy locations, housing projects, and then the squares you can see are capacity zones. If I come to the left-hand side here, you can see some areas of interest. If we select all of them within the GLA, you have some metrics on the bottom, a housing impact expected of 120,000 units of housing that have been delayed by the data centre growth in the GLA, and almost 8,000 million litres of water annually for cooling systems.

Chair: One more minute.

Rowena Shivam: Perfect, almost done. You can see on the right-hand side of the screen here some policies. These are very rudimentary simulations but, for example, with the local energy quota that I spoke about in Ireland, you can set that to any limit. If you apply that policy, you could see possibly 900 units of housing could be enabled through that.

I will come back to my final slide. What would I like to see the UK do? The first thing would be ensuring that power grid access is no longer as neutral or as first-come, first-served as it is, and making sure we have got tighter regulations on that. Also, there is a lot of self-regulation going on in the data centre market at the moment. These companies are keen to make sure that they are environmentally friendly. We have the climate neutral data centre pact, and companies like Google, Amazon, Microsoft and Meta have all tried to be water positive by 2030. We should be supporting them and encouraging them with tighter regulation. Also, we need more visibility and reporting on water consumption. Ofwat and the Environment Agency, as I have said before, cannot predict future water shortages without that. There is also mandating PUE. If the EU has done it, I think that we can give it a go too, and it will have some positive impacts on data centre markets and the environment. Thank you very much; I will do my best to answer any questions.

Chair: Thank you very much indeed. Brilliant. Thank you, Rowena. That was excellent and I am sure that it has left many of our colleagues with questions. We will go to my colleague Dr Savage first. If anyone else would like to come in, please indicate.

Q11 **Dr Roz Savage:** Thank you very much, Rowena, for that very impressive presentation. You mentioned towards the end there that these large companies are bringing in self-regulation in some ways, and clearly it is a booming sector at the moment and they have a lot of resources, financial and otherwise. Is the EAC is the best group to be leading on this, or are there industry alliances that are approaching Government and working with Government to bring in these various mitigation measures?

Rowena Shivam: It is an interesting question. I want to make it quite clear that I do not work in the data centre industry. I do not have



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connections with these aforementioned industry groups. This is purely a literature-based review. But I absolutely think that it is great if there are industry groups that are coming forward to put forward these environmental regulations. However, I do think that the EAC, being already within Parliament, has that extra position where you can come in and say, "It has been recommended that X, Y, Z". For example, on water transparency, it may not be in the industry's best interests to be transparent on how much water they are using at the moment. Should that come in as legislation, they will obviously be a lot more inclined to do that. I hope that that answers the question.

Q12 Alison Griffiths: Thank you so much, Rowena, that was so impressive, it really was. I am sure that I speak for the whole Committee. Two questions from me. The first one is on public versus private data centres, particularly as you mentioned that latency is such an issue in the City of London. So many City organisations have their own data centres, which starts to remove the efficiencies of public cloud. Are we seeing an increase in data centres from private individual companies running their own data centres, removing those efficiencies, or are we seeing a growth in Meta, AWS, Google cloud services, those organisations where you will have multiple organisations utilising the kit that is there to maximise efficiency? Are you aware of the balance between the two? It is important thing that Government can look at how we incentivise the optimisation of what we have, the kit that we have.

Rowena Shivam: That is a good question. As far as I can tell from the research that I have done, at the moment we see a lot more investment from that big four that you just named there—Amazon, Google. That is for hyperscale data centres, the very large ones that everyone will be renting out and using together. To answer your question very shortly, that is where we see the most investment at the moment.

Q13 Alison Griffiths: That is most promising. The other thing that is related to the growth in cloud infrastructure, particularly since the pandemic, is part of what has driven this, accelerated by AI. Are the legacy private data centres, legacy structure, pretty much not part of the problem? Is the problem that we are talking about the accelerated use of cloud and AI driving this demand?

Rowena Shivam: Yes, my personal main concern from my research would be these new investments and the construction of new data centres, particularly not just now moving away from the west of London into other parts of the UK. That is my main concern from what we see.

Q14 Sarah Gibson: A slight change of tack on that. I am aware that elsewhere in Europe, data centres, nuclear power stations, waste disposal and things often work very effectively with district heating systems. I am yet to see—correct me if I am wrong—that happen here in the UK with data centres. They are using huge amounts of water, huge amounts of energy to keep themselves cool, yet are surrounded by areas that are spending huge amounts of money to try to keep themselves warm. Why is that connection not working? Why are we not doing better?



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Rowena Shivam: It is a good question. I hope you don't mind giving me 10 seconds to get the right bit of data out for you before I go ahead and answer that.

One of the examples I talked about with the waste heat reuse pilots that we have done in the UK was Old Oak and Park Royal Development Corporation. That heat network, which has been successfully integrated, is expected to provide heating and hot water to over 9,000 new homes and businesses. The fact is that it is successful, it is possible in the UK, it is just that we are in that pilot stage right now and we have not got on to it fast enough to be at the same pace as the rest of Europe where they already have lots of successful heating systems set up.

Q15 **Sarah Gibson:** Is there more legislation in Europe that obliges them? I cannot imagine that the data centre owners will do this off their own back because it is just an added complication unless there is either legislation or economic benefit. Is there either of those things here?

Rowena Shivam: It is an interesting question. As far as I can understand from the European legislation that I have read, it comes under the—I am going to pronounce it wrong, but there is a policy in the Netherlands, the Amsterdam Duurzaam digital policy. That is the one that requires that residual heat utilisation alongside the 86% renewable use and the PUE under 1.2. It has taken that a step further to integrate it into legislation, yes.

Q16 **Barry Gardiner:** I am in awe. As a west London MP, I would love you to give this presentation to the west London business community. On top of that, what is there for this Committee to do that you have not already done? What is there for this Committee to recommend that you have not just recommended?

Rowena Shivam: I am not quite sure how to respond to that question. To be honest, it is, as I said before, an honour to even be in this room today, to be heard and to be listened to as a member of our youth community in the UK. Honestly, I do not know how many members of industry would listen to me as a young person, with the data and information that I have in front of me. I suppose that my reason for coming to the EAC is to come to a body of established MPs who care about these issues and who want to make this impact. Whether or not you add anything to what I presented today, just taking forward that last slide of three or four points would make me so happy and I believe could make a real difference in the data centre sector.

Alison Griffiths: Can you put the slide up again?

Rowena Shivam: I can try. I am not sure whether the connection is still active. It is right at the end. That is the one there; I am showing it now.

Q17 **Chair:** While Alison is reading that, you mentioned a public health burden in the United States of \$20 billion by 2028. Can you explain what your findings are on that or what the findings were? What is the public health burden from data centres? It is not immediately obvious to me.



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Rowena Shivam: It is a good question. Again, could you give me five seconds to get out the correct reference before I respond to that?

I am not able to see it immediately in front of me today, I apologise. But as far as I am aware, it constitutes multiple things. Water pollution is the main one—the use and reuse of water for cooling purposes within the data centres. I am sure that some of you might have seen the short videos that are going around on social media of people setting their taps on fire, things like that. That is the main one that I am aware of. Also, any construction processes create air pollution. You have things like asthma being worsened and accelerated. I will not say any more, because I would love to be able to send you that reference correctly so that you have all of that relevant information. But those are the two main contributors that I am aware of.

Q18 **Chair:** To follow up on the question that my colleague Barry Gardiner asked, the key question that we need to consider as a Committee is: what is there that either is not known or that we can add to on this subject? We are all conscious that this is an area of real importance. What was your sense as to the progress that an investigating Select Committee will throw light on that is not broadly known at the moment? What are the key questions we should be asking?

Rowena Shivam: Yes, it is a good question. One thing that has come to my mind that I should have said in response before was something like this. Easily publicly accessible data and database-scenario modelling is important, because there is a lot of misconception in the public at the moment about data centres—about, for example, things like I said about setting taps on fire in the US. That is what people see and that is their impression, when data centres are vital to our economy. They are powering almost every sector now. Also, awareness on the implications on housing, something that there is not as much literature around. And, as I said with the EAC before, having clear publications on this, and requests for more transparency in reporting from data centres.

Chair: Rowena, thank you very much indeed for that excellent presentation. We are very grateful. We will bring that second panel to a close. Thank you very much. *[Applause.]* Unheard-of applause.

We will invite Jemima Hartshorn and Dr Nat Easton to join us.